Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit 6.3
Permit List and Status



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-6.3 PERMIT LIST AND STATUS. 1

LIST OF TABLES

Table A-6.3-1 Permit List and Status 1

LIST OF ATTACHMENTS

Attachment A-6.3 A Permits Issued for the Project

EXHIBIT A-6.3 PERMIT LIST AND STATUS.

i. Provide a list of all permits necessary prior to construction with the information identified below:

Subject.

Responsible Agency.

Date or Proposed Date Application Submitted.

Date Permit Issued or Expected to be Issued.

ii. Include any permits received prior to filing an application in this exhibit.

A comprehensive list of potential permits necessary for the proposed Project is presented in Table A-6.3-1 below. The table summarizes the subject, responsible agency, date or proposed date of application, and date of permit issuance or expected date of permit issuance for each potentially required permit. All required permits will be obtained prior to construction activities. Permits issued for the Project are included in Attachment A-6.3 A.

Table A-6.3-1 Permit List and Status

Subject (Permit/Approval)	Responsible Agency	Application Submitted (Date or Proposed Date)	Date Permit Issued or Expected Issuance Date
Federal			
Clean Water Act Section 404 Permit for wetland impacts	The State of Michigan has assumed Clean Water Act Section 404 regulatory authority for inland waterways and wetlands. Refer to State section.	Refer to State permitting below.	No coordination with the United States Army Corps of Engineers is currently anticipated.
Information for Planning and Consultation (IPAC) Review for Threatened and Endangered Species (update if available)	U.S. Fish and Wildlife Service (USFWS) – Michigan Ecological Field Office	Ongoing coordination with USFWS	Ongoing
Federal Aviation Administration (FAA) Notice Criteria Tool to determine the need to complete Form 7460-1, Notice of Proposed Construction	FAA	No coordination with the FAA is required.	Ongoing

Table A-6.3-1 Permit List and Status

Subject (Permit/Approval)	Responsible Agency	Application Submitted (Date or Proposed Date)	Date Permit Issued or Expected Issuance Date
State			
Part 301 Inland Lakes and Streams	Michigan Department of Environmental, Great Lakes, and Energy (EGLE)	Proposed application submission: When site design is finalized and stream crossings determined and prior to construction, if applicable	60-90 days following submittal (Minor Permit/General Permit); longer if public hearing is required. Anticipated first quarter of 2028.
Part 303 Wetlands	EGLE	Proposed application submission: When site design is finalized and wetland impacts determined and prior to construction, if applicable	60-90 days following submittal (MP/GP); longer if public hearing is required. Anticipated first quarter of 2028.
National Pollutant Discharge Elimination System (NPDES) Permit	EGLE	Proposed application submission: Upon receipt of signed county Part 91 Soil Erosion Sediment Control (SESC) permit	30-45 days following submittal. Anticipated first quarter of 2028.
Part 22/31 Groundwater Discharge	EGLE	No Part 22/31 Groundwater Permit is anticipated	Not required (if needed, 180 days following submittal)
Part 31 Floodplain	EGLE	Proposed application submission: Upon final site design when permanent floodplain impacts are calculated	30-90 days following submittal. Anticipated first quarter of 2028.
Air Quality Permit	EGLE	No air quality permit is anticipated	Not required (if needed, 60-90 days following submittal)

Table A-6.3-1 Permit List and Status

Subject (Permit/Approval)	Responsible Agency	Application Submitted (Date or Proposed Date)	Date Permit Issued or Expected Issuance Date
Oversize/Overweight Transport	Michigan Department of Transportation (MDOT)	Proposed application submission: prior to construction, if routes utilize state roads and weight limits are known and prior to Project deliveries.	7-10 days following submittal. Anticipated first quarter of 2028.
Cultural Resource Concurrence	Michigan State Historic Preservation Office (SHPO)	Consultation initiated August 1, 2025	Consultation ongoing. Anticipated fourth quarter of 2026.
Information Request and Rare Species Review	Michigan Natural Features Inventory (MNFI)	Consultation initiated May 14, 2025	October 7, 2025
County/Local			
Part 91 Soil Erosion and Sedimentation Control Permit (SESC)	Muskegon County Department of Public Works	Proposed application submission: When site design is finalized with erosion control placement to control stormwater discharges from construction. Coordination ongoing	10-30 days following submittal. Anticipated fourth quarter of 2027.
Drain Use/Modification Permit	Muskegon County Water Resources Commissioner's Office	Proposed application submission: When site design is finalized with drain crossings/ easements. Consultation ongoing	30-90 days following submittal. Anticipated first quarter of 2028.
Transportation/Oversize/Overweight Permit	Muskegon County Road Commission	Proposed application submission: Prior to the start of construction and equipment delivery	2 weeks following submittal. Anticipated first quarter of 2028.
Special Use Permit (SUP) or Conditional Use Permit	White River Township	Submitted September 16, 2025	January 8, 2026
Site Plan Approval	White River Township	Submitted September 16, 2025	January 8, 2026

Table A-6.3-1 Permit List and Status

Subject (Permit/Approval)	**Responsible Agency**	**Application Submitted (Date or Proposed Date)**	**Date Permit Issued or Expected Issuance Date**
Building Permit	White River Township	Proposed application submission: When site plan is approved by Township; and prior to decommissioning	2-6 weeks following submittal. Anticipated first quarter of 2028.

Attachment A-6.3 A

Permits Issued for the Project

EXHIBIT A

EXHIBIT A

SUBJECT PROPERTIES

61-01-123-200-0002-10
61-01-123-400-0001-00
61-01-123-300-0006-00
61-01-123-300-0004-00
61-01-123-200-0005-00
61-01-123-100-0005-00
61-01-123-100-0002-00
61-01-112-300-0001-00
61-01-111-400-0001-00
61-01-114-400-0001-00
61-01-114-400-0001-20
61-01-114-200-0004-00
61-01-113-100-0006-00
61-01-113-100-0005-00
61-01-113-100-0003-00
61-01-111-200-0001-00
61-01-111-100-0004-10
61-01-111-100-0005-00
61-01-111-400-0003-00
61-01-111-400-0004-00
61-01-123-200-0004-00
61-01-123-200-0001-00
61-01-114-400-0005-00
61-01-114-300-0004-00
61-01-113-300-0004-00
61-01-113-300-0003-00
61-01-124-200-0001-00
61-01-124-100-0001-00
61-01-123-200-0002-00
61-01-113-400-0007-00
61-01-113-400-0001-00
61-01-113-300-0002-00
61-01-113-300-0001-00
61-01-124-200-0002-00
61-01-113-400-0009-00
61-01-113-100-0004-00
61-01-113-100-0008-00
61-01-114-100-0001-00
61-01-111-300-0002-00
61-01-111-300-0001-00
61-01-124-100-0002-00
61-01-114-400-0004-00
61-01-123-100-0001-00
61-01-111-400-0006-00

EXHIBIT B

WHITE RIVER TOWNSHIP
"A Township for all Seasons"
7386 Post Rd
Montague, MI 49437
231-894-9216
clerkwrtownship@gmail.com

October 4, 2025

Ms. Kendra Harrington
8400 Normandale Lake Blvd, Suite 1200
Bloomington, MN 55437

Dear Ms. Herrington,

I hope this letter finds you well. I am writing to formally request an extension for the response to the Special Land Use Permit Application to White River Township submitted on September 16, 2025, per the attached signed receipt. As per the requirements, a response is due within 120 days, which places the current deadline on January 14, 2026.

Unfortunately, due to the extensive information in the permit application, limited time available over the holidays and the part time nature of the Planning Commission, we request that the deadline be extended from January 14, 2026 to January 23, 2026, a few days past the regular January meeting of the Planning Commission.

Thank you for considering our request. I assure you that we are doing our best to familiarize ourselves with the permit application and plan to schedule 2 - 3 special meetings for question answer sessions with you and the Planning Commission at the upcoming public hearing. Please respond in writing to our request for a 9-day extension to January 23, 2026, as well as written confirmation that the Permit application start date of the 120 days began on September 16, 2025.

I look forward to your timely response.

Sincerely,

William Schmiege
White River Township Zoning Administrator

Ron Bailey
White River Township Supervisor

EXHIBIT C

LAKESIDE SOLAR

October 15, 2025

White River Township
Inspectors
7386 Post Road
Montague, MI, 49437

RE: Lakeside Solar, LLC Project Development

Dear Neighbor,

We are reaching out to share some key updates about the Lakeside Solar Project:

- Lakeside Solar, LLC has submitted a Special Land Use Permit (SLUP) application to White River Township, initiating the 120-day review period as of 9/16/2025.
- White River Township will conduct its evaluation within this timeframe reaching a decision/vote by 1/14/2026.
- The Lakeside Solar SLUP application, Q&A log, INTERACTIVE project map and additional educational materials are available on the project website:

  https://geronimopower.com/in-development/lakeside-solar-project/

Next Steps:

- The Planning Commission will hold a public hearing or potentially multiple public hearings during the review process.
- Then, the Planning Commission will vote on a recommendation to the Township Board after the public hearing(s) have closed. A vote could happen at the next regular meeting or at a properly noticed special meeting.
- Lastly, the Township Board will subsequently schedule a vote during a regular meeting or properly noticed special meeting to approve, deny or approve with conditions.

If you have any questions or would like to connect with our team, please don't hesitate to email us at lakeside@geronimopower.com or call 952.988.9000. Our staff is always happy to assist you and provide any information you may need.

Sincerely,

Kendra Harrington
Manager, Project Development

EXHIBIT D

WHITE RIVER TOWNSHIP
"A Township for all Seasons"
7386 Post Rd
Montague, MI 49437
231-894-9216
clerkwrtownship@gmail.com

November 14, 2025

Amber Miller
Geronimo Power LLC
8400 Normandale Lake Blvd, Suite 1200
Bloomington, MN 55437

Dear Ms. Miller,

Re: Initial Preliminary Site Plan and Special Use Permit Review

Per our ordinance after the special use permit application was received, White River Township has performed an initial review of the preliminary site plan and special use permit application submitted by Lakeside Solar, LLC. The Township has determined that the application is incomplete.

The required items identified on the attached chart have been identified as incomplete or missing from the application. The Township reserves the right to amend this list as its review continues and we seek reviews by consultants to advise the Planning Commission.

Please provide or clarify the missing information discussed above not later than November 26, 2025. The application will be deemed complete once all required information has been verified as received. If you need an extension to provide the missing information, the Township will agree to such an extension pursuant to Public Act 233 of 2023. If the information is not provided by November 26, 2025, the Township reserves the right to treat that date as the starting date for its review to either approve or deny the application.

Sincerely,

William Schmiege
White River Township Zoning Administrator

Ron Bailey
White River Township Supervisor

EXHIBIT E

From: Kendra Harrington <kharrington@geronimopower.com>
Sent: Monday, November 17, 2025 7:40 PM
To: William Schmiege <WSchmiege@outlook.com>
Cc: Sophia Gilleland <sgilleland@geronimopower.com>; Amber Miller <amiller@geronimopower.com>; Lauren Wackernagel <lauren.wackernagel@gmail.com>; Ron Bailey <supervisorwrtownship@gmail.com>; Julie Goericke <clerkwrtownship@gmail.com>
Subject: RE: [External] White River Township Site Review of Lakeside Solar LLC Proposed Project

Hello Bill,

We received two separate sets of data requests from the Planning Commission's Chair, Lauren Wackernagel last week, seeking responses 24 hours before the November 18 Planning Commission meeting, and your November 14 letter requesting responses to the Township's 18-page review table by November 26.

Initially, we note that these requests appear to originate from multiple consultants and include duplicative and overlapping questions. Several requests are vague, and most do not identify the specific ordinance provisions or application sections at issue. Additionally, numerous requests seek information beyond what Public Act 233 of 2023 (PA 233) requires of an applicant. In light of these factors, the compressed review and response window is not reasonable and may not allow for comprehensive responses. Nevertheless, our team is prioritizing its review, and we will do our best to compile a consolidated response on or before 11/26, as requested in your recent letter.

Given the volume and overlap in requests and the absence of citations, we will not be able to submit meaningful responses to the Planning Commission by Tuesday evening. However, we will address pertinent Planning Commission questions within the scope of PA 233 as part of our consolidated submission by November 26.

No additional time will be provided for the Township to render its decision on the application. Under PA 233, the Township must act within 120 days after the date the application was received, and not (as suggested in your letter) on a different timeline tied to the Township's review and determination of "completeness."

We appreciate your attention to ensuring a coordinated and orderly review process.

Thank you,

Kendra Harrington
She/Her/Hers
Manager, Project Development

952.988.9000

231.674.5685

kharrington@geronimopower.com

8400 Normandale Lake Boulevard, Suite 1200 | Bloomington, MN 55437

We have rebranded as Geronimo Power. Please update your records accordingly and visit geronimopower.com to learn more.

From: William Schmiege <WSchmiege@outlook.com>
Sent: Thursday, November 13, 2025 8:55 PM
To: Amber Miller <amiller@geronimopower.com>; Kendra Harrington <kharrington@geronimopower.com>
Subject: [External] White River Township Site Review of Lakeside Solar LLC Proposed Project

CAUTION: This email originated from outside the organization. Be cautious of using any link or opening any attachment unless you recognize the sender. If in doubt, report the email using the "Report Phishing" Add-in in Outlook.

Hello Amber and Kendra,

The team has been making solid progress working through the SLU application and supporting materials. A part of this process as outlined in the ordinance is the site review. Please see the attached relative to the site review status at this time.

Best Regards,

William Schmiege

White River Township Zoning Administrator

EXHIBIT F

MCKENNA

Lakeside Solar, LLC
White River Township
List of Questions for Applicant

1. Given that the Land Control Area occupies 15.6% of the land area of the Township and over 40% of the open land area of the Township, how do you propose to satisfy the Master Plan goal of preserving the Township's pastoral setting, rural amenities, open spaces, and scenic beauty?

2. Given that 84.9% of the land in the Land Control Area is prime farmland or farmland of local importance, how do you propose to meet the Master Plan goal of preserving the Township's farmland base?

3. Likewise, how do you propose to satisfy the purposes of the Zoning Ordinance, which includes protecting the stability of the agricultural economy, the rural character, and open space?

4. With solar arrays proposed to encroach into floodplains, how do you propose to satisfy the Zoning Ordinance purpose which calls for conserving lands, waters, and other natural resources for their most suitable purposes?

5. Specify how the application meets the required findings the Planning Commission must make to satisfy the Zoning Ordinance requirements for site plan and special land use approval.

6. How do you propose to screen around all the solar arrays when Appendix B, the Civil Permitting Plans, show only partial screening around homesteads with no screening along the roads?

7. When will real landscape plans be submitted that show in plan view throughout the project the number and species of each proposed plant, spacing with dimensions, and size at time of planting?

8. When will trees 6 inches and greater in caliper that are proposed for removal be identified by species on a tree identification plan?

9. What are the specifications for the "Suggested Additional Screening Buffer?"

10. What process will be used and what is the schedule for replacing damaged farm drainage tiles?

11. When will detailed exterior lighting specifications (manufacturer, type, height, method of screening, locations) be submitted?

HEADQUARTERS
235 East Main Street
Suite 105
Northville, Michigan 48167

O 248.596.0920
F 248.596.0930
MCKA.COM

12. What are the specifications for the 3-meters-tall buffer on the north side of the BESS, as proposed in the sound modeling assessment?

13. Where are the wildlife movement corridors and habitat buffers referred to on page 90 of the Special Land Use application?

14. When will a complete site plan for the BESS facility be provided, showing façade elevations and height dimensions of all structures, setback dimensions, extent of paving, exterior lighting locations, floor plan for the operations and maintenance building, locations of well and septic system, etc.?

15. When will a solar array detail be provided that shows dimensions at full tilt and in a horizontal position?

16. When will inverter details be provided that include height, width, and length for the inverter, as well as dimensions for the pad?

17. When will the civil drawings be sealed by a civil engineer registered in the State of Michigan?

18. When will the landscape drawings be sealed by a landscape architect registered in the State of Michigan?

19. When will the stormwater detention ponds, which are referred to in the Special Land Use application, be shown on the civil plans?

November 10, 2025

CES
CIVIL ENGINEERING SOLUTIONS, Inc.

November 10, 2025

LAKESIDE SOLAR SLU AND SITE PLAN APPLICATION

Questions for Applicant:

1. The application indicates that Lakeside Solar has entered into lease agreements and one purchase agreement to achieve land control. Have all lease and purchase agreements been signed? When can the Township receive copies of the agreements?

2. Has the applicant obtained copies of the Farmland Development Rights Agreements for the 9 parcels as disclosed on pages 55 and 56 of the application?
    a. When can the Township receive copies of these documents?
    b. Are the property owners aware that they may lose their tax incentives?

3. Has the applicant evaluated the land coverage requirements in sections 16.06(MM)(6) and (7) of ordinance 58-2023? When will the applicant provide this analysis to the Township?

4. Has the applicant provided all the background information on the Alternative Site Analysis?
    a. Has the applicant completed a preliminary layout of a similar commercial scale solar facility within the area of the overlay district?
    b. What exactly is preventing the applicant from pursuing properties within the overlay district?
    c. Did the applicant prepare any survey or complete any soil borings or analysis themselves in the overlay district?

5. How is the applicant preserving prime agriculture areas within the Preliminary Development Area?

6. Does the applicant have a site plan and details for the BESS area? When will these be provided?

7. Does the applicant have a site plan and details for the ITC area? When will these be provided?

8. It appears as though there is a discrepancy in acreage of the project in the application documents: The application says that the Preliminary Development Area is 982 acres and the application notes that solar arrays occupy 733 acres, the BESS facility occupies 8.2 acres, the collector substation occupies 3.5 acres, access roads occupy 20.6 acres, and the O&M building occupies 0.11 acres. There are 216.7 acres that are not accounted for.
    a. Can the applicant review the acreage and respond with enough information on the plans to accurately evaluate the acreage?

9. Can the applicant add property lines, participating acreage, non-participating acreage, Sidwell numbers, owner info and zoning to the plans?

10. Can the applicant add all bearings and distances to all properties and property lines?

CES
CIVIL ENGINEERING SOLUTIONS, Inc.

11. Equipment has not been specified. Has the applicant decided on the equipment to be used throughout the project and when will this information be provided to the Township?

12. Has the applicant had any meetings or correspondence with the Fire Department to develop a site-specific Emergency Response Plan and Fire Response Plan?

13. Page 25 of the application states some components are up to 35' in height. However, there are no details within the site plans showing any proposed structures up to 35' in height. Is the applicant proposing any buildings or components over 25' tall?

14. The application indicates that there will be construction trailers in the laydown areas, but the plans do not indicate any trailers.
    a. How many construction trailers are proposed and where are they proposed?
    b. What is the duration that the construction trailers are proposed to remain on-site?

15. What are the limits of the tree removal on the plans?

16. Are any landmark trees proposed to be removed?

17. When will stormwater management plans be submitted to the Township?

18. How much grading is proposed throughout the development project area? Where are the grading plans?

19. Will topsoil be proposed to be removed?
    a. If so, where will the topsoil be stored?
    b. How will it be stored to prevent it from eroding away?

20. Can the locations of existing farm tiles be noted on the plans?
    a. Why isn't the replacement of farm tiles included in the decommissioning plan?

21. Why are there solar arrays and other equipment within regulated floodplains?
    a. How many solar arrays are proposed to be within regulated floodplains?
    b. What other equipment is proposed to be within regulated floodplains?
    c. When will the site plans be modified to remove the solar arrays and other equipment from the floodplain?

22. What are the boundaries of the Pierson Swamp Drain easement and what are the limitations within this easement?

23. Did the applicant obtain title work for all the development area properties?
    a. If so, are there other existing easements (other than the Pierson Swamp Drain)?
    b. If there are other existing easements, when will the site plan be updated to show those easements?
    c. When will the Township receive the title work?

24. Why does the landscape buffer type 1 details show an area of 30' wide, however, the plans scale to 20' wide?

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CIVIL ENGINEERING
SOLUTIONS, Inc.

a. Are any berms proposed in the buffer areas?

25. Why will animals be used for vegetation management when the State of Michigan requires pollinator plants?
    a. How does the application comply with PA 233's requirements regarding pollinators?

26. Have any soil borings been completed in the development project area?

27. When will the Township receive the proposed dimensions of the solar arrays?

REQUEST FOR ADDITIONAL INFORMATION

ALTERNATIVE SITE ANALYSIS

LAKESIDE SOLAR LLC SPECIAL LAND USE APPLICATION

WHTE RIVER TOWNSHIP PLANNING COMMISSION

November 14, 2025

The following is a summary of the initial review of the Alternative Site Analysis, a component of the Lakeside Solar LLC Special Land Use Application to the White River Township Planning Commission.

Review

The Alternative Site Analysis was reviewed to evaluate the completeness of information and veracity of the conclusions. The evaluation included a preliminary review of the Chemours-Montague Facility Correction Action Information compiled by the Michigan Department of Environment, Great Lakes, and Energy. This initial review is not intended to be a complete evaluation of site analysis, but to determine whether additional information is necessary to provide the final evaluation.

Determination

Based on the need for additional information outlined below, the Alternative Site Analysis is determined to be administratively incomplete.

Considerations

There appears to be three primary areas of consideration in the Alternative Site Analysis which contribute to the conclusion of Lakeside Solar, LLC that the Chemours-Montague site is unsuitable for construction of the Lakeside Solar Project: Environmental, Physical, and Financial.

Environmental: The Chemours Montague Site is subject to corrective action under Part 111 of Act 451, PA 1994. The Analysis identifies a series considerations related to a cited Corrective Action Plan (CAP), dated July 8, 2024. The Alternative Site Analysis states that "No disturbance of soil or vegetation is permitted through the duration of the environmental impact studies that are currently underway…"

Comments:

- Selected areas of the 1,330 acres were identified as Waste Management Units and Areas of Concern. Based on a Remedial Investigation Work Plan for the WMU and

AOCs dated February 15, 2007, the total area of the WMU and AOC representing the largest areas were less than 20 acres.

- The CAP does not appear in the Chemours-Montague Facility Corrective Action Information website.

Physical: The Alternative Site Analysis identifies both subsurface physical features such as shallow groundwater and geotechnical investigations and surface features such as developable areas that limit the development opportunity.

Comments:

- A preliminary review of groundwater cross sections and boring logs indicated the shallowest groundwater at 8 feet below grade, with most of logs showing groundwater depth around 20 feet below grade or deeper.
- Geotechnical investigations typically do not require significant soil disturbance, comparable to environmental soil borings in terms of impact.

Financial: The Analysis identifies financial constraints, including insurability, site capacity, and restrictive covenants.

Comments:

- The restricted Waste Management Unit and Areas of Concern where limitations and restrictions may be present represent a small fraction of the total site.
- Utility solar installations are typically ideal candidates for Brownfield sites because of relatively limited soil disturbance during installation, limited on-going human exposure, and no Volatilization to Indoor Air Pathway considerations.
- Michigan has financial incentives to reimburse extraordinary environmental costs through the capture of increased taxes generated by additional investment. These costs can include the additional cost of environmental insurance.
- The result of undisclosed conversations appears to limit available space that is difficult to evaluate.

Request for Additional Information

The following are requests for additional information to verify the findings and conclusions of the Alternative Site Analysis:

- Provide citation for limitation on soil and groundwater disturbance.

- Provide soil boring logs “indicating unfavorable soil conditions due to contamination, surface elevation, and groundwater depth measurements/risk of seepage.
- Provide typical conventional subsurface beam and support design and alternative design for substandard soil conditions.
- Provide quote from a qualified company for Chemours site vs. proposed site insurance.
- Provide preliminary site design based on the specific conclusions of the most recent evaluation of WMU and AOC and balance of site, with capacity estimate.

REQUEST FOR ADDITIONAL INFORMATION

ALTERNATIVE SITE ANALYSIS

LAKESIDE SOLAR LLC SPECIAL LAND USE APPLICATION

WHTE RIVER TOWNSHIP PLANNING COMMISSION

November 14, 2025

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- Provide citation for limitation on soil and groundwater disturbance.

- Provide soil boring logs “indicating unfavorable soil conditions due to contamination, surface elevation, and groundwater depth measurements/risk of seepage.
- Provide typical conventional subsurface beam and support design and alternative design for substandard soil conditions.
- Provide quote from a qualified company for Chemours site vs. proposed site insurance.
- Provide preliminary site design based on the specific conclusions of the most recent evaluation of WMU and AOC and balance of site, with capacity estimate.

Who will provide observation, reporting , accountibility and documentation of all maintenance activities. Examples include: H20 application to roads and drives 3x per day to reduce dust, proper storatege of topsoil, integrity of any runoff or sedimentation systems, watering and care of trees and shrubs used for screening, silt fencing, check dams, straw waters etc
What communications have ocurred with the drain commission, the road commision, fire department and other agen

The BESS location risks upsetting the bats and forest dwelling birds as well as safety issues with many homes within 2 miles. Why did you not put the BESS in our REO location that is open land and also a much safer location?
How do you plan to keep the community safe and be a good neighbor during construction including working hours, sound decible management, and managing crime during construction
Do you have documentation on the water table in the REO regarding the alternative site analysis's conclusion that the water table is too shallow for beams(5-10 ft)? Why is a high water table a consideration for not using Chemours property but allowable in areas near or in the floodplains?

Why does permit application alternative site analysis not have more research included? Will you be including further back up data? If you apply to the PSC, would you continue to hide information behind an NDA?
The township has created a CREO in order to comply with state law and also do our part to meet state energy goals. PA233 specifically states that siting perference should be given to brownfields and not prime farmland. Why is Geronimo defying both the intent and the language of PA233 and unwilling to cooperate with the Township to more appropriately site this project?

The project is within a mile of Critical Dunes - Critical dunes are unique and play a huge part in the health of the environment. Do you plan to complete a Critical Dune analysis to determine the affect to the ecosystem?
Does Geronimo have plans to link their solar facility to a data center?
Will you remove all cables, conduit, foundations in decommissioning?
Since applicant maintains that it will return the land used to the previous state, how can this be done if topsoil is stripped and trees and woodlands cut down and streams/ wetlands impaired. Can and should all these areas and destructive practices be avoided?

The selected disposal facility in the Decommissioning Plan (Muskegon County Solid Waste) is located in Ravenna, MI, approximately 31 miles from the Project site. Hauling costs to the landfill are estimated to be $13.72 per ton. This is just the hauling cost. What is the estimated cost for the actual disposal? There are many references to recycling the materials. How much do you estimate it will cost to dispose of waste at the Muskegon County Solid Waste site? How many tons is estimated? What percent of tonage do you anticipated being recycled? Have you contacted the Muskegon County Solid Waste site to confirm capacity available?
Please provide a detailed water runoff event calculation for 1 inch rain, 2 inch rain and 3 inch rain.
Will you provide drawings to show locations and capacity of retention ponds, drainage infrastructure to manage stormwater runoff from solar panel arrays and access roads?
Has a buyer for the electricity has been identified/agreed?
What resources will be provided to fire department and other first responders?

Will the applicant volunteer to follow the DNR recommended best procedures for fencing around utility scale solar?

Please identify the 130 acres in preliminary development area that is PA116 and the associated parcel number. Also please identify the 177 acreas (307 less 130) that are in the control area but not in the preliminary develoment area. The map looks like more than 130 acres. (Page 59). How many acres are fenced in on PA116 land?
Permits are not complete. How do you plan to notify the township as you work through the list of permits and how much time would you anticipate as needed for the township to review each permit?
What recourse is there if the vegetation is not established that would have been part of the permanent stormwater management system in case of a large rain event?
The project says that there will be 10 miles of access roads with 20 acres of gravel? How can that ever be turned back into farmland? And how will you address the stormwater runoff?
How can you preserve prime farmland when topsoil is removed and grading done?
Are there any specialty crops in the project including sunflower fields or asparagus fields? If so, will these be maintained?

The USDA has announced it will no longer fund wind and solar energy projects on prime farmland, citing concerns about food security and the increasing difficulty for new and young farmers to access land. Also PA233 and the township zoning ordinance and master plan all prioritize avoiding using prime farmland for renewable energy. How does applicant resolve not following federal government direction regarding prime farmland as well as State of Michigan direction and the Township ordinances and Master Plan and persist in 1575 acres of prime farmland? See link: Secretary Rollins Blocks Taxpayer Dollars for Solar Panels on Prime Farmland | USDA

Will you further explain your Safety/emergency plan/fire plans. Is there an evacuation plan and what is the radius? How long does it take to turn off power if there is a fire? Please forward a detailed timeline.

Does the applicant plan to own or operate the project or does the applicant plan to sell after it is operational?
Will you provide 2 years for guarantee for screening? 1 year is not long enough
Wil you provide irrigation and fertilizor for the screening as well as accountibility?
The township does not prefer individual residents to do their own screening. Please clarify your intention.
Where is the soil coming from for the berms when using berms?
More qualified sound study is needed on bess. The sound study reflects a 54.7 dba!! Allowed is 55! The sound study seems very concerning as the equipment is not yet picked and the study showed 54.7, only .3 less than the allowed 55. There is a high risk of error considering the equipment is not yet picked especially with only 11 miles per hour wind. Being close to Lake Michigan, we often have wind in excess of 11 miles per hour. Does the sound study consider wind?? What additional protection and additional studies will you do to protect the neighbors from excessive sound?
Is survellience limited to weather stations? Is it an invation of privacy? What is the scope and range of the survellience?
What are the decision and build dates necessary for the company to qualify for tax dollar incentives?
What will happen to top soil? Do you plan to store the top soil on site? Off site? How do you plan to prevent wind erosi

Do you plan to complete a tourism study to determine how a 1500 acre project would affect tourism in White River Township as well as Montague and Whitehall Commercial Districts? Lakeshore trail visitors? Short term rentals?

A project of this size seems to be "undue burden" to White River Township community. While we want to do our part, will you provide an analysis that shows the electrical needs of our community compared to the capacity of the project?
14 collection lines are proposed across delinated streams. How will you address mitigation and also decommissioning?

The application says there are 12 wetlands, 2 scrub, six forested and 4 emergent farmed wetlands , ditches, adjacent to row crops - are you going to avoid grading and leave the wetlands outside of the fencing?
Both Flower Creek and Little Flower Creek apear to be in preliminary development area. Please identify the mitigation that you plan to avoid harm to wildlife, plants and to the Meinhert Beach - Muskegon County Park where Little Flower Creek ends at Lake Michigan and where many children play.
25% of the land control area has hydric soils indicating some wetlands. 82% wind erostion. How do you prevent wind
Thermal impact study by Muskegon Drain Commission that was completed 6/19/23 - Have thermal impacts in the Michigan County Stormwater Runoff and Post Control ordinance have been discovered and if so, have they been enforced? If not, does applicant plan to address thermal impact accordingly?
How will stormwater run off affect the PFOS?
Is there any new information regarding the depth or movement of grownd water via the new groundwater mapping wells that were installed recently (one in front of township hall)?
Are the wellhead protection areas based on the most current available models?
"Dewatering may be needed seasonally": what is the affect on any impaired or endangered species?

What is the Water Resource (Drain) Commissioner's response to the proposed project so close to Pierson Drain?
How are the intermittent streams protected?
What are the alternatives for the statement "avoid impacts to water resources to the maximum extent practicable"?
How is the maximum extent practicable determined?
Infrastructure is proposed within the flood plain area. What is the process in the event of a 50, 100 or 1000 year flood, all of which are becoming more frequent due to climate change?
What recourse is there if stormwater does encroach on adjacent non participating properties?
Does thermal pollution of h20 (rain) flowing into the surface h20 count as non point source pollution?
Please provide the wildlife corridors in a map for every fenced area including all wetlands, ponds, hedge rows between the fields, streams and forested areas including terrestrial species 4.4.5.2
Many residents see eagles regularly over the proposed project area and nests have been identified in this area. What are your intentions to plan to protect the Bald Eagles?
We are in the avian species mississippi fly away protected for migratory bird treaty and eagles - what additional testing and protection will you provide for the birds?
What additional studies will you do and wll you get federal approval needed for federally listed species on 4.4.5.5 potentially present?
To help us understand how the sound study was performed, we request the following information: a copy of the predictive noise model, and documentation for all elements introduced to the model, including any data or preconstructed modeling elements acquired to assemble the model.
What is the maximum amount of time for the life of the project? Is it 35 years since that is the extent of the financial security provided by Lakeside Solar? Will the project be fully decommissioned within 35 years?
Will you guarantee that the decommissioning will be fully funded prior to any sale of the project?
Will the BESS be up to the best practices according to NFPA 855 standard and UL9540A Standards ?

BESS augmentation due to battery degradation over time. Application states adding two blocks of 40 x 10 x 9.5 every 4 years. Over 20 years that is 10 additional blocks - where will they all go?
Why does Geronimo insist that it must have a 1500 acre site to be profitable when a neighboring site of 180 acres is profitable? Why is Geronimo unwilling to keep their scale to one appropriate to the size of our smaller White River Township?
What is the total dollars of the expected federal and state taxpayer funded monies that the applicant will receive for this project?

Under 4.4.3.3. It states, "an Area with a 1% annual chance of flooding (100 year floodplain)". Elsewhere in the application various methods of infrastructure are outlined in relation to streams and wetlands. If infrastructure is based on a 1% chance of a 100 year flood, due to excessive rainfalls and flooding becoming more common due to climate change, what are the processes if infrastructure cannot handle the increased water load?

cies? Have any communications occurred since the application materials were submitted?

Pierson Drain - Are there buildings or fences on the easement?
Since many corporations and especially asset management firms are well known to spin off troubled LLC's, is applicant willing to provide cash, surety bonds, insurance and other securities come from Brookfield Asset Management (parent company)? And what will be the total bonds and other securities to be held by Township? Will you provide your calculations?
How do you plan to address the glare?
What assurances do you plan to have for non-participating neighbors?
Is the applicant is entering into “good neighbor agreements” with neighboring nonparticipating properties and, if so, what do those agreements entail and how many residents will be offered them?
What discussion have you had regarding connection to the grid and are you able to share those with us?
Vegetative ground cover during preliminary stage is required to prevent sedimentation and filtration. Would these plants provide the root depth necessary for this effect?
Will you be providing a stray voltage assessment? Will you complete ground water testing prior to installation and after installation and annually afterwards?
What is the total insurance to be carried by Applicant for the project and what is the deductible? What is the name of the carrier?

Who will maintain the land that is in land control area but not in preliminary development area, leasor or leasee?
What do you plan to offer to the community if you cannot hire local labor?
Where will the construction staff stay if local labor is not obtained?
Where will the solar panels and other equipment be manufactured? The USDA will also prohibit solar panels made by foreign adversaries in its funded projects

White River Township is on a the lakeshore trail near Lake Michigan that is used by motor cyclist and byciclists. The solar array will detract from the beauty of landscape and therefore degrade the quality of life of local citizens as well as many other who travel through here. How can you say that will meet our master plan?
How can you justify that the maximum size of the project per our ordinance requirement of 5% of township land will clearly be violated by this project?
What additional studies do you plan to do to further identify where the Native American village was? It is documented to be part of the project at this time. The large battle between the Neuters and the Pottawatomie Indians in 1642 is documented in the Smithsonian Institute. How can you justify and clarify that you will not be in the Native American Village?
On page 24 it says "the presense of the project is not anticipated to have a significant adverse impact on property values in White River Township." There is a non participating neighbor next to the BESS site as well as the electrical towers. How is it possible that there will be no impact for Mr. Vogel as well as many other properties surrounded on 3 sides by an industrial power plant? How is it reasonable to compare houses within 3 miles of a facilty of 5-7 acres to a 1500 acre project with over 600 homes within 1 mile? What protection will you provide financially, safety, sound and light?
The deer on remaining crop fields will increase tremendously. Do you plan to provide reimbursement for adjacent neighbors for their lost crops?
For pa116 lands, are you going to avoid grading to preserve the farmland?

EXHIBIT G

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Given that the Land Control Area occupies 15.6% of the land area of the Township and over 40% of the open land area of the Township, how do you propose to satisfy the Master Plan goal of preserving the Township's pastoral setting, rural amenities, open spaces, and scenic beauty?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, project buffering described in 4.1.1 of the SUP application (the "Application").
Given that 84.9% of the land in the Land Control Area is prime farmland or farmland of local importance, how do you propose to meet the Master Plan goal of preserving the Township's farmland base?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023. Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 4.3 of the SUP application describes agricultural protection. Map 9 of Appendix E of the Application depicts farmland within the Land Control Area.
Likewise, how do you propose to satisfy the purposes of the Zoning Ordinance, which includes protecting the stability of the agricultural economy, the rural character, and open space?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 4.3 of the Application describes agricultural protection.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
With solar arrays proposed to encroach into floodplains, how do you propose to satisfy the Zoning Ordinance purpose which calls for conserving lands, waters, and other natural resources for their most suitable purposes?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 4.4.3.5 of the Applicaiton describes minimization of floodplain impacts; specifically, see Table 4.4.3-3.
Specify how the application meets the required findings the Planning Commission must make to satisfy the Zoning Ordinance requirements for site plan and special land use approval.	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 1.4.3.4 of the Application addresses the Township's review process.
How do you propose to screen around all the solar arrays when Appendix B, the Civil Permitting Plans, show only partial screening around homesteads with no screening along the roads?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
When will real landscape plans be submitted that show in plan view throughout the project the number and species of each proposed plant, spacing with dimensions, and size at time of planting?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.
When will trees 6 inches and greater in caliper that are proposed for removal be identified by species on a tree identification plan?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
What are the specifications for the "Suggested Additional Screening Buffer?"	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
What process will be used and what is the schedule for replacing damaged farm drainage tiles? a. Why isn't the replacement of farm tiles included in the decommissioning plan? Can the locations of existing farm tiles be noted on the plans?	CES; McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Sections 3.9, 4.3.3.2 and 4.4.3.5 of the Application address drain tile replacement.
When will detailed exterior lighting specifications (manufacturer, type, height, method of screening, locations) be submitted?	McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, we acknowledge that Section 226(8)(a)(v) requires the MPSC to find that the facility will implement dark sky-friedly lighting solutions. On that subject, see Section 4.8 of Application.
What are the specifications for the 3-meters-tall buffer on the north side of the BESS, as proposed in the sound modeling assessment?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, final specifications will comply with the assumptions stated in Section 6 of the Sound Monitoring Report, including the 0.6 absorbtion coefficient.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Where are the wildlife movement corridors and habitat buffers referred to on page 90 of the Special Land Use application?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 4.4.5.8 of the Application references areas of natural habitat that will remain between blocks of solar arrays, as shown on Detailed Site Plan in Appendix B. Wildlife movement would not be restricted in the area in between the Land Control Area boundary and the fencelines around solar array blocks.
When will a complete site plan for the BESS facility be provided, showing facade elevations and height dimensions of all structures, setback dimensions, extent of paving, exterior lighting locations, floor plan for the operations and maintenance building, locations of well and septic system, etc.?	McKenna; CES; White River Twp	The BESS location is depicted on the submitted site plan. Without limiting the foregoing, in response to the request for additional information, please see the attached site plan supplment.
When will a solar array detail be provided that shows dimensions at full tilt and in a horizontal position?	McKenna	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, the dimensions of solar panels arrays are provided in Section 3.1 of Application.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
When will inverter details be provided that include height, width, and length for the inverter, as well as dimensions for the pad?	McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 3.1.2 of the Application provides dimensions of inverters and pads and the detailed Site Plan in Appendix B provides distances to parcel boundaries, occupied structures, and public ROWs.
When will the civil drawings be sealed by a civil engineer registered in the State of Michigan?	McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
When will the landscape drawings be sealed by a landscape architect registered in the State of Michigan?	McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
When will the stormwater detention ponds, which are referred to in the Special Land Use application, be shown on the civil plans?	McKenna; CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, coordination with the MCWC has been initiated and is ongoing. No drainage impacts are anticpated so no mitigation is proposed.
The application indicates that Lakeside Solar has entered into lease agreements and one purchase agreement to achieve land control. Have all lease and purchase agreements been signed? When can the Township receive copies of the agreements?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, the referenced agreements have been signed and a participating parcel list is provided as Appendix A to the Application.
Has the applicant obtained copies of the Farmland Development Rights Agreements for the 9 parcels as disclosed on pages 55 and 56 of the application? a. When can the Township receive copies of these documents? b. Are the property owners aware that they may lose their tax incentives?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Has the applicant evaluated the land coverage requirements in sections 16.06(MM)(6) and (7) of ordinance 58-2023? When will the applicant provide this analysis to the Township?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Has the applicant provided all the background information on the Alternative Site Analysis? a. Has the applicant completed a preliminary layout of a similar commercial scale solar facility within the area of the overlay district? b. What exactly is preventing the applicant from pursuing properties within the overlay district? c. Did the applicant prepare any survey or complete any soil borings or analysis themselves in the overlay district?	CES	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. It is specifically noted that the inclusion of an overlay district means that the Township's local zoning ordinance is not a CREO as defined in PA 233. Notwithstanding that fact, a detailed Alternatives Analysis is contained in Section 2.1.1 and Appendix F of the Application.
Does the applicant have a site plan and details for the ITC area? When will these be provided?	CES	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, the proposed location of the off-site utility interconnection is shown on the site plan.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
It appears as though there is a discrepancy in acreage of the project in the application documents: The application says that the Preliminary Development Area is 982 acres and the application notes that solar arrays occupy 733 acres, the BESS facility occupies 8.2 acres, the collector substation occupies 3.5 acres, access roads occupy 20.6 acres, and the O&M building occupies 0.11 acres. There are 216.7 acres that are not accounted for. a. Can the applicant review the acreage and respond with enough information on the plans to accurately evaluate the acreage?	CES; White River Twp	The remaining 216.7 acres is the area between the fencelines of the Project facilities and the Land Control Area boundary.
Can the applicant add property lines, participating acreage, non-participating acreage, Sidwell numbers, owner info and zoning to the plans?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. It is specifically noted that the inclusion of an overlay district means that the Township's local zoning ordinance is not a CREO as defined in PA 233. Notwithstanding that fact, a detailed Alternatives Analysis is contained in Section 2.1.1 and Appendix F of the Application. It is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. That said, these details are provided in Map 8 in Appendix G. See also attached supplementary information.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Can the applicant add all bearings and distances to all properties and property lines?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Further, relevant setback distances have been provided, so the purpose and relevancy of this request is unclear and requires further explaination from the Township. Without limiting the foregoing, the site plan scale is provided so that any unspecified distance can be determined by scale.
Equipment has not been specified. Has the applicant decided on the equipment to be used throughout the project and when will this information be provided to the Township?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, equipment specifications assumed in the preliminary design are described in Section 3 of the Application.
Has the applicant had any meetings or correspondence with the Fire Department to develop a site-specific Emergency Response Plan and Fire Response Plan?	CES; White River Twp	Section 3.11 describes Lakeside's Operations and Emergency Action Plan (provided in Appendix G) and Section 4.10 describes Lakeside's coordination with local first responders.
Page 25 of the application states some components are up to 35' in height. However, there are no details within the site plans showing any proposed structures up to 35' in height. Is the applicant proposing any buildings or components over 25' tall?	CES	Equipment specifications assumed in the preliminary design, including the height of facilities, are described in Section 3 of the Application.

Information Request:	**Source of Request:** (Mckenna, CES, or from White River Twp.)	**Lakeside Solar Response**
The application indicates that there will be construction trailers in the laydown areas, but the plans do not indicate any trailers. a. How many construction trailers are proposed and where are they proposed? b. What is the duration that the construction trailers are proposed to remain on-site?	CES	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing,the use of construction trailers will occur during the period of construction, which is currently estimated to last for 12 to 18 months.
What are the limits of the tree removal on the plans?	CES; White River Twp	Areas of tree removal are provided on the Civil Permitting Plan in Appendix B as "Vegetation to be Removed."
Are any landmark trees proposed to be removed?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
When will stormwater management plans be submitted to the Township?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, coordination with the MCWC has been initiated and is ongoing. Given the small area of impervious surface, no drainage impacts are anticpated so no mitigation is proposed.
How much grading is proposed throughout the development project area? Where are the grading plans?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Section 3.8 of the Application provides construction information relative to grading and excavation for the project.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Will topsoil be proposed to be removed? a. If so, where will the topsoil be stored? b. How will it be stored to prevent it from eroding away?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Sections 3.8.2.2, 3.8.3.2, 4.3.3.2, and 4.4.2.1 of the SUP discuss soil handling procedures that will be implemented during construction and restoration of the project.
Why are there solar arrays and other equipment within regulated floodplains? a. How many solar arrays are proposed to be within regulated floodplains? b. What other equipment is proposed to be within regulated floodplains? c. When will the site plans be modified to remove the solar arrays and other equipment from the floodplain?	CES; McKenna; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, a detailed discussion of proposed Solar Facility infrastructure that would be located within floodplain, including a discussion of the regulatory approvals and mitigation measures that would be implemented to mitigate floodplain impacts, is provided in Section 4.4.3.5 and Table 4.4.3-3 of the Application.
What are the boundaries of the Pierson Swamp Drain easement and what are the limitations within this easement?	CES; White River Twp	The Civil Permitting Plan in Appendix B shows the drain easement.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Did the applicant obtain title work for all the development area properties? a. If so, are there other existing easements (other than the Pierson Swamp Drain)? b. If there are other existing easements, when will the site plan be updated to show those easements? c. When will the Township receive the title work?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, easement locations are shown as approximate locations based on readily available desktop/GIS/publicly available spatial data within the footprint of the facility.
Why does the landscape buffer type 1 details show an area of 30' wide, however, the plans scale to 20' wide? a. Are any berms proposed in the buffer areas?	CES; White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see "Solar Ordinance-Screening Requirements" on sheet L100 of the Civil Permitting Plan in Appendix B. Earthern berms are included in the vegetative screening plans described on this sheet.
Why will animals be used for vegetation management when the State of Michigan requires pollinator plants? a. How does the application comply with PA 233's requirements regarding pollinators?	CES; White River Twp	As stated in Section III.B.2 of the Vegetation Management Plan provided in Appendix G of the Application, Lakeside may consider the use of grazing animals to maintain vegetation during operation of the Project. This is an optional consideration. The Project will inlcude plantings to comply with the "Michigan Pollinator Habitat Planning Scorecard for Solar Sites" developed by the Michigan State University Department of Entomology in effect on February 27, 2024, or any applicable successor standards. The seed mix used to establish pollinator plantings shall not include invasive species as identified by the Midwest Invasive Species Information Network, led by researchers at the Michigan State University Department of Entomology and supporting regional partners. In addition, the project will comply with any pollinator plantings required relative to PA116 lands.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
When will the Township receive the proposed dimensions of the solar arrays?	CES	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, dimensions of project facilities are described in Section 3 of the Application.
Not Compliant with the ordinance with respect to site plan drawing scale. Scale is 1" = 200' at the minimum, some drawings significantly higher. All portions of the submittal plans are greater than the required scale.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, the site plan scale is provided so that any unspecified distance can be determined by scale.
Application Incomplete – fails to address subsection 29 of Section 16.06MM.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Not Compliant – Applicant incorrectly claims to be compliant with Chapter 16, Subsection 16.06MM Requirement 6. Actual coverage is approximately 7% against a 5% maximum requirement.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
A general location sketch showing at minimum, properties, streets and use of land within 1/2 mile of the area. Not Compliant with the ordinance with respect to site plan drawing scale. Existing Conditions maps are scaled at 1"=618'. The maps do not consistently show properties and streets within ½ mile of the proposed project.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
The maps do not show the zoning of surrounding properties	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, it is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. Details are provided in Map 8 in Appendix G. See also attached supplementary information.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Application Incomplete - Lease agreements for all parcels along with the owner's name and address to confirm the legitimate inclusion of these parcels in the proposed project have not been provided. In addition, proof of ownership by way of tax or title documents or similar is required to validate legitimate partipation.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, please see the attached for memoranda of all recorded agreements, and refer to Appendix A for a list of parcel IDs and respective landowners, and legal descriptions.
Acknowledgement by PA116 participants that they will go through a transition.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, while it is not entirely clear what is meant by "a transition" Michigan's PA 116 solar deferment, established by Public Act 230 of 2023, allows landowners with Farmland Development Rights Agreements to temporarily use their land for commercial solar arrays while suspending their agreement. The original PA 116 agreement is deferred, not terminated, and the landowner cannot claim tax credits during the solar project's life. The land must be returned to agricultural use after the solar project ends, and financial security for site decommissioning is required.

Information Request:	**Source of Request:** (Mckenna, CES, or from White River Twp.)	**Lakeside Solar Response**
Application Incomplete - The existing zoning and use of all properties abutting the properties included in the Special Land Use application has not been provided.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, it is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. Details are provided in Map 8 in Appendix G. See also attached supplementary information.
Application Incomplete - Insufficient dimensioning is available on multiple drawings relative to buildings, parking, lay-down areas, and access roads locations to determine if this requirement is being achieved, and to enable a proper site plan review.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, information relative to setbacks required by Section 226(8) is included in the application.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Application Incomplete - The gross area in buildings, structures, parking, access roads, and other nonpermeable objects associated with the project is not defined adequately to complete a non permeability analysis.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, Sections 4.4.1.1 and 4.4.5.4 of the Application provide a description and anticipated acreage of impervious surfaces during project operation.
Application Incomplete - No well and septic details included in the submitted site plans.	White River Twp	The MPSC's guidance further states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning ordinance compliance is not a component of section 226(8). Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional disclosures, it is not a lawful CREO. Additionally, local zoning is expressly preempted by PA 234, so an ordinance that attempts to impose requirements beyond those included in section 226(8) is expressly preempted. Without limiting the foregoing, see Map 10 in Appendix G of the Application for water wells.
Proposed method of providing storm drainage. Not Provided. ... Application Incomplete – Storm Water Management Plan not provided. PA233 and the WRT Ordinance requires a stormwater assessment and a plan to minimize, mitigate and repair any drainage impacts at the expense of the electric provider of IPP.	White River Twp	See responses to rows 35 and 53.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Application Incomplete - Access roads, buildings, structures, wells, and septic systems are not shown with associated dimensions on the drawings to permit a complete site plan review.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, dimensions of project facilities are described in Section 3 of the SUP Application.
Application Incomplete - Locations for parking lots and access points are approximate and may change with final engineering analysis (page 35). No Muskegon Road Commission driveway permits for the access roads exists to date.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Any signs not attached to the building(s). Not compliant. Page 21 indicates signage on the fences. Please provide specific details of any signs that will be on the site for evaluation.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, signage will be limited to functional purposes, forgoing any advertising or branding, and will expressly communicate security and emergency contact information.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Application Incomplete – Definition of proposed uses, especially for buildings, structures, and the undesignated portion of the project area have not been provided.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. By way of further answer, the Application provides voluminous detail regarding the project generally and facilities assocated with the same.
Application Incomplete - The name, address, and seal is not shown on the Detailed Site plans (38 pages)	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, the Detailed Site Plan presents a preliminary Project design and, as such does not include a seal or professional engineer signature. A final IFC Civil Site Plan will be submitted to the Township with Lakeside's request for a Building Permit and will include a seal and signature of a professional engineer registered in the State of Michigan.

Information Request:	**Source of Request:** (Mckenna, CES, or from White River Twp.)	**Lakeside Solar Response**
Property lines and required setbacks shown and dimensioned. ... Project Boundaries are not specifically also shown to be the property lines.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, this question is unclear as, due to required setbacks, project boundaries are not the same as property lines. Map 8 in Appendix E shows all participating and non-participating parcels. See also Setback table in Section 3.7 and Table 3.7-1 of the SUP application.
Application Incomplete - Dimensions are not provided for existing and proposed buildings and structures on the subject project area.	White River Twp	Dimensions of project facilities are described in Section 3 of the SUP Application.
Application Incomplete - Page 35, paragraph 2 states "the final location of the access roads will depend on the equipment selected and final engineering and an advanced design will be presented with the building permit application. Any change from the current site plan to the final site plan details will necessitate a re-do of the site review process. A final decision regarding access points/roads structures, buildings, parking areas and related dimensional description of locations is required to finalize a site review.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, any change proposed would be minor and compliant with all PA 233 standards.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Pavement width and right-of-way width of all roads, streets, and access easements within 100 feet of the subject property. Private Road cross-sections, as appropriate.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see Section 3.4 of the Application for access road dimensions.
Snow storage areas	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Location of all solid waste disposal facilities, including recycling, and screening.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see Section 5.4 and Appendix G of Application.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Location and specifications for existing or proposed outside, above or below ground storage facilities for hazardous materials.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, no hazardous materials are planned to be stored on site during Project operation.
All existing vegetation and the location, type, and size of all proposed landscaping, and the location, height and type of existing and proposed fences and walls. Application Incomplete - Existing vegetation and location not characterized.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see Section 4.4.4 and Detailed Site Plan in Appendix B of the Application.
Application Incomplete - Equipment important for evaluation of acoustic levels has not been specified. Review and validation of the acoustic levels impossible without the inverter, BESS, and Switching/Sub-Station equipment specifications. Data Required: • Equipment Manufacturer • Model • Sound Power value (spectral) ; A rating/description of how the sound power values used compared with other possible equipment • If the highest sound level equipment possible was not used for modeling, and explanation of why it wasn't • Contingency factors for equipment sound level values	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see Appendix K of SUP Application; all modeling parameters and eqiupments specifications used for the sound study are outlined in the report.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Application Incomplete – EMI generating equipment and the location of high voltage lines above ground vs buried is not clearly identified, thereby inhibiting the validation of EMI related calculations on radio, GPS, and similar transmissions and receptions. Application Incomplete - provide details of the testing locations and methods at the REO location.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, see Commsearch reports in Appendix G of the SUP Application
Provide comparative data for the margins of the proposed location solar arrays.	White River Twp	Question too vague to permit answer.
The Zoning Administrator or Planning Commission may require traffic Impact Assessment or Traffic Impact Study pursuant to Institute for Transportation Engineers standards as part of final site plan review . The level of detail required for either a traffic Impact Assessment of Study is based upon the expected amount of traffic to be generated by the proposed use, as noted below. a) Traffic Impact Assessment: A traffic impact assessment shall be required for projects expected to generate either between 50 - 99 direction trips during the peak hour or 500 - 750 directional trips during a typical day. The assessment shall evaluate current and future inbound and outbound traffic operations at site access points and shall include proposed access design and other mitigation measures that will positively aff operations at these points. b) Traffic Impact Study: A traffic impact study shall be required for projects expected to generate either 100 or more directional trips in the peak hour or over 750 trips on an average day. The study shall evaluate pedestrian access, circulation and safety, and current, background and future traffic operations at site access points and major signalized or nonsignalized intersections in proximity to the site. The study must also include proposed access design and other mitigation measures that will positively affect traffic operations at the site and nearby intersections. The study must take into account the Master Plan in analyzing future traffic developments. Application Incomplete - Perform a traffic Impact Assessment	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, no material traffic is ancicpated to be generated by the project.

Information Request:	Source of Request: (Mckenna, CES, or from White River Twp.)	Lakeside Solar Response
Not Compliant today as none of the required permits have been presented. ... Application Incomplete - All environmental permits are generally required in advance to approve a final site review.	White River Twp	The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Zoning Ordinance compliance is not a component of Section 226(8) of PA 233. Accordingly, to the extent that the Township's local ordinance requires the application to comply with additional requirements, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234, so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted. Without limiting the foregoing, due diligence has been conducted for all potential environmental resources, and coordination with MI EGLE is ongoing. No permanent impacts to regulated or protected resources are proposed or anticipated. Therefore, no environmental permits are needed at this point. See Application, including, without limitaiton, Section 1.4 and Section 4, relative to environmental law and coordination with relevant agencies.

EXHIBIT H

The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
Given that the Land Control Area occupies 15.6% of the land area of the Township and over 40% of the open land area of the Township, how do you propose to satisfy the Master Plan goal of preserving the Township's pastoral setting, rural amenities, open spaces, and scenic beauty?	11/10/2025	McKenna	11/26/2025	Project buffering described in 4.1.1 of the SUP application (the "Application")
Given that 84.9% of the land in the Land Control Area is prime farmland or farmland of local importance, how do you propose to meet the Master Plan goal of preserving the Township's farmland base?	11/10/2025	McKenna	11/26/2025	Section 4.3 of the SUP application describes agricultural protection. Map 9 of Appendix E of the Application depicts farmland within the Land Control Area.
Likewise, how do you propose to satisfy the purposes of the Zoning Ordinance, which includes protecting the stability of the agricultural economy, the rural character, and open space?	11/10/2025	McKenna	11/26/2025	Section 4.3 of the Application describes agricultural protection.
With solar arrays proposed to encroach into floodplains, how do you propose to satisfy the Zoning Ordinance purpose which calls for conserving lands, waters, and other natural resources for their most suitable purposes?	11/10/2025	McKenna	11/26/2025	Section 4.4.3.5 of the Applicaiton describes minimization of floodplain impacts; specifically, see Table 4.4.3-3.
Specify how the application meets the required findings the Planning Commission must make to satisfy the Zoning Ordinance requirements for site plan and special land use approval.	11/10/2025	McKenna	11/26/2025	Section 1.4.3.4 of the Application addresses the Township's review process.
How do you propose to screen around all the solar arrays when Appendix B, the Civil Permitting Plans, show only partial screening around homesteads with no screening along the roads?	11/10/2025	McKenna	11/26/2025	Project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.
When will real landscape plans be submitted that show in plan view throughout the project the number and species of each proposed plant, spacing with dimensions, and size at time of planting?	11/10/2025	McKenna	11/26/2025	Project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.
When will trees 6 inches and greater in caliper that are proposed for removal be identified by species on a tree identification plan?	11/10/2025	McKenna	11/26/2025	Please provide the specific reference or citation for the requirement you're referring to.
What are the specifications for the "Suggested Additional Screening Buffer?"	11/10/2025	McKenna	11/26/2025	Project buffering and vegetative landscape screening is described in 4.1.1 of the SUP Application.
What process will be used and what is the schedule for replacing damaged farm drainage tiles? a. Why isn't the replacement of farm tiles included in the decommissioning plan? Can the locations of existing farm tiles be noted on the plans?	11/10/2025	McKenna	11/26/2025	Sections 3.9, 4.3.3.2 and 4.4.3.5 of the Application address drain tile replacement.
When will detailed exterior lighting specifications (manufacturer, type, height, method of screening, locations) be submitted?	11/10/2025	McKenna	11/26/2025	We acknowledge that Section 226(8)(a)(v) requires the MPSC to find that the facility will implement dark sky-friedly lighting solutions. On that subject, see Section 4.8 of Application.
What are the specifications for the 3-meters-tall buffer on the north side of the BESS, as proposed in the sound modeling assessment?	11/10/2025	McKenna	11/26/2025	Final specifications will comply with the assumptions stated in Section 6 of the Sound Monitoring Report, including the 0.6 absorbtion coefficient.
Where are the wildlife movement corridors and habitat buffers referred to on page 90 of the Special Land Use application?	11/10/2025	McKenna	11/26/2025	Section 4.4.5.8 of the Application referneces Large Block Habitats which refer to areas of natural habitat that will remain between blocks of solar arrays, as shown on Detailed Site Plan in Appendix B. Wildlife movement would not be restricted in the area in between the Land Control Area boundary and the fencelines around solar array blocks.
When will a complete site plan for the BESS facility be provided, showing facade elevations and height dimensions of all structures, setback dimensions, extent of paving, exterior lighting locations, floor plan for the operations and maintenance building, locations of well and septic system, etc.?	11/10/2025	McKenna	11/26/2025	The BESS location is depicted on the submitted site plan. Without limiting the foregoing, in response to the request for additional information, please see the attached site plan supplment.
When will a solar array detail be provided that shows dimensions at full tilt and in a horizontal position?	11/10/2025	McKenna	11/26/2025	The dimensions of solar panels arrays are provided in Section 3.1 of Application.
When will inverter details be provided that include height, width, and length for the inverter, as well as dimensions for the pad?	11/10/2025	McKenna	11/26/2025	Section 3.1.2 of the Application provides dimensions of inverters and pads and the detailed Site Plan in Appendix B provides distances to parcel boundaries, occupied structures, and public ROWs.
When will the civil drawings be sealed by a civil engineer registered in the State of Michigan?	11/10/2025	McKenna	11/26/2025	The Detailed Site Plan presents a preliminary Project design and, as such does not include a seal or professional engineer signature. A final IFC Civil Site Plan will be submitted to the Township with Lakeside's request for a Building Permit and will include a seal and signature of a professional engineer registered in the State of Michigan.
When will the landscape drawings be sealed by a landscape architect registered in the State of Michigan?	11/10/2025	McKenna	11/26/2025	The Detailed Site Plan presents a preliminary Project design and, as such does not include a seal or professional engineer signature. A final IFC Civil Site Plan will be submitted to the Township with Lakeside's request for a Building Permit and will include a seal and signature of a professional engineer registered in the State of Michigan.
When will the stormwater detention ponds, which are referred to in the Special Land Use application, be shown on the civil plans?	11/10/2025	McKenna	11/26/2025	Coordination with the MCWC has been initiated and is ongoing. Stormwater plans are a requirement of all construction projects. The 2021 Stormwater Management Report referenced in the SLUP application is being adjusted to account for the updated 2025 project footprint and will be reviewed and, as previously stated, will be part of on going collaboration with the MCWC to acheive a design that is approved to initiate final construction (IFC). A plan will be implemented and a National Pollutant Discharge Elimination System (NPDES) permit will be obtained. Coordination with EGLE is ongoing to ensure compliance throughout the development and eventual construction process.

The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
The application indicates that Lakeside Solar has entered into lease agreements and one purchase agreement to achieve land control. Have all lease and purchase agreements been signed? When can the Township receive copies of the agreements?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	The referenced agreements have been signed and a participating parcel list is provided as Appendix A to the Application.
Has the applicant obtained copies of the Farmland Development Rights Agreements for the 9 parcels as disclosed on pages 55 and 56 of the application? a. When can the Township receive copies of these documents? b. Are the property owners aware that they may lose their tax incentives?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Please provide the specific reference or citation for the requirement you're referring to.
Has the applicant evaluated the land coverage requirements in sections 16.06(MM)(6) and (7) of ordinance 58-2023? When will the applicant provide this analysis to the Township?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website.
Has the applicant provided all the background information on the Alternative Site Analysis? a. Has the applicant completed a preliminary layout of a similar commercial scale solar facility within the area of the overlay district? b. What exactly is preventing the applicant from pursuing properties within the overlay district? c. Did the applicant prepare any survey or complete any soil borings or analysis themselves in the overlay district?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	It is specifically noted that the inclusion of an overlay district means that the Township's local zoning ordinance is not a CREO as defined in PA 233. Notwithstanding that fact, a detailed Alternatives Analysis is contained in Section 2.1.1 and Appendix F of the Application.
Does the applicant have a site plan and details for the ITC area? When will these be provided?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	The proposed location of the off-site utility interconnection is shown on the site plan.
It appears as though there is a discrepancy in acreage of the project in the application documents: The application says that the Preliminary Development Area is 982 acres and the application notes that solar arrays occupy 733 acres, the BESS facility occupies 8.2 acres, the collector substation occupies 3.5 acres, access roads occupy 20.6 acres, and the O&M building occupies 0.11 acres. There are 216.7 acres that are not accounted for. a. Can the applicant review the acreage and respond with enough information on the plans to accurately evaluate the acreage?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	The remaining 216.7 acres is the area between the fencelines of the Project facilities and the Land Control Area boundary.
Can the applicant add property lines, participating acreage, non-participating acreage, Sidwell numbers, owner info and zoning to the plans?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	It is specifically noted that the inclusion of an overlay district means that the Township's local zoning ordinance is not a CREO as defined in PA 233. Notwithstanding that fact, a detailed Alternatives Analysis is contained in Section 2.1.1 and Appendix F of the Application. It is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. That said, these details are provided in Map 8 in Appendix G.
Can the applicant add all bearings and distances to all properties and property lines?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	The site plan scale is provided so that any unspecified distance can be determined by scale.
Equipment has not been specified. Has the applicant decided on the equipment to be used throughout the project and when will this information be provided to the Township?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Equipment specifications assumed in the preliminary design are described in Section 3 of the Application.
Has the applicant had any meetings or correspondence with the Fire Department to develop a site-specific Emergency Response Plan and Fire Response Plan?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Section 3.11 describes Lakeside's Operations and Emergency Action Plan (provided in Appendix G) and Section 4.10 describes Lakeside's coordination with local first responders.
Page 25 of the application states some components are up to 35' in height. However, there are no details within the site plans showing any proposed structures up to 35' in height. Is the applicant proposing any buildings or components over 25' tall?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Equipment specifications assumed in the preliminary design, including the height of facilities, are described in Section 3 of the Application.
The application indicates that there will be construction trailers in the laydown areas, but the plans do not indicate any trailers. a. How many construction trailers are proposed and where are they proposed? b. What is the duration that the construction trailers are proposed to remain on-site?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Tthe use of construction trailers will occur during the period of construction, which is currently estimated to last for 12 to 18 months.
What are the limits of the tree removal on the plans?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Areas of tree removal are provided on the Civil Permitting Plan in Appendix B as "Vegetation to be Removed."
Are any landmark trees proposed to be removed?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Please provide the specific reference or citation for the requirement you're referring to.
When will stormwater management plans be submitted to the Township?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Coordination with the MCWC has been initiated and is ongoing. Stormwater plans are a requirement of all construction projects. The 2021 Stormwater Management Report referenced in the SLUP application is being adjusted to account for the updated 2025 project footprint and will be reviewed and, as previously stated, will be part of on going collaboration with the MCWC to acheive a design that is approved to initiate final construction (IFC). A plan will be implemented and a National Pollutant Discharge Elimination System (NPDES) permit will be obtained. Coordination with EGLE is ongoing to ensure compliance throughout the development and eventual construction process.
How much grading is proposed throughout the development project area? Where are the grading plans?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Section 3.8 of the Application provides construction information relative to grading and excavation for the project.
Will topsoil be proposed to be removed? a. If so, where will the topsoil be stored? b. How will it be stored to prevent it from eroding away?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Sections 3.8.2.2, 3.8.3.2, 4.3.3.2, and 4.4.2.1 of the SLUP discuss soil handling procedures that will be implemented during construction and restoration of the project.

The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
Why are there solar arrays and other equipment within regulated floodplains? a. How many solar arrays are proposed to be within regulated floodplains? b. What other equipment is proposed to be within regulated floodplains? c. When will the site plans be modified to remove the solar arrays and other equipment from the floodplain?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	A detailed discussion of proposed Solar Facility infrastructure that would be located within floodplain, including a discussion of the regulatory approvals and mitigation measures that would be implemented to mitigate floodplain impacts, is provided in Section 4.4.3.5 and Table 4.4.3-3 of the Application.
What are the boundaries of the Pierson Swamp Drain easement and what are the limitations within this easement?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	See Civil Permitting Plan in Appendix B shows the drain easement.
Did the applicant obtain title work for all the development area properties? a. If so, are there other existing easements (other than the Pierson Swamp Drain)? b. If there are other existing easements, when will the site plan be updated to show those easements? c. When will the Township receive the title work?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Easement locations are shown as approximate locations based on readily available desktop/GIS/publicly available spatial data within the footprint of the facility.
Why does the landscape buffer type 1 details show an area of 30' wide, however, the plans scale to 20' wide? a. Are any berms proposed in the buffer areas?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	See "Solar Ordinance-Screening Requirements" on sheet L100 of the Civil Permitting Plan in Appendix B. Earthern berms are included in the vegetative screening plans described on this sheet.
Why will animals be used for vegetation management when the State of Michigan requires pollinator plants? a. How does the application comply with PA 233's requirements regarding pollinators?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	As stated in Section III.B.2 of the Vegetation Management Plan provided in Appendix G of the Application, Lakeside may consider the use of grazing animals to maintain vegetation during operation of the Project. This is an optional consideration. The Project will inlcude plantings to comply with the "Michigan Pollinator Habitat Planning Scorecard for Solar Sites" developed by the Michigan State University Department of Entomology in effect on February 27, 2024, or any applicable successor standards. The seed mix used to establish pollinator plantings shall not include invasive species as identified by the Midwest Invasive Species Information Network, led by researchers at the Michigan State University Department of Entomology and supporting regional partners. In addition, the project will comply with any pollinator plantings required relative to PA116 lands.
When will the Township receive the proposed dimensions of the solar arrays?	11/10/2025	Civil Engineering Solutions (CES)	11/26/2025	Dimensions of project facilities are described in Section 3 of the Application.
Not Compliant with the ordinance with respect to site plan drawing scale. Scale is 1" = 200' at the minimum, some drawings significantly higher. All portions of the submittal plans are greater than the required scale.	11/13/2025	WRT Zoning Administrator	11/26/2025	The site plan scale is provided so that any unspecified distance can be determined by scale.
Application Incomplete – fails to address subsection 29 of Section 16.06MM.	11/13/2025	WRT Zoning Administrator	11/26/2025	Please refer to the MPSC guidance statement located at the top of this spreadsheet regarding additional requriements beyond what is identified in Section 226(8).
Not Compliant – Applicant incorrectly claims to be compliant with Chapter 16, Subsection 16.06MM Requirement 6. Actual coverage is approximately 7% against a 5% maximum requirement.	11/13/2025	WRT Zoning Administrator	11/26/2025	Please refer to the MPSC guidance statement located at the top of this spreadsheet regarding additional requriements beyond what is identified in Section 226(8).
A general location sketch showing at minimum, properties, streets and use of land within 1/2 mile of the area. Not Compliant with the ordinance with respect to site plan drawing scale. Existing Conditions maps are scaled at 1"=618'. The maps do not consistently show properties and streets within ½ mile of the proposed project.	11/13/2025	WRT Zoning Administrator	11/26/2025	Map 1 in Appendix E provides an overview of the Land Control Area on recent aerial imagery that shows existing land cover/use and roads within 1/2 mile of the Land Control Area clearly labled.
The maps do not show the zoning of surrounding properties	11/13/2025	WRT Zoning Administrator	11/26/2025	It is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. Details are provided in Map 8 in Appendix G. See also attached supplementary information.
Application Incomplete - Lease agreements for all parcels along with the owner's name and address to confirm the legitimate inclusion of these parcels in the proposed project have not been provided. In addition, proof of ownership by way of tax or title documents or similar is required to validate legitimate partipation.	11/13/2025	WRT Zoning Administrator	11/26/2025	Please see the attached for memoranda of all recorded agreements, and refer to Appendix A for a list of parcel IDs and respective landowners, and legal descriptions.
Acknowledgement by PA116 participants that they will go through a transition.	11/13/2025	WRT Zoning Administrator	11/26/2025	While it is not entirely clear what is meant by "a transition" Michigan's PA 116 solar deferment, established by Public Act 230 of 2023, allows landowners with Farmland Development Rights Agreements to temporarily use their land for commercial solar arrays while suspending their agreement. The original PA 116 agreement is deferred, not terminated, and the landowner cannot claim tax credits during the solar project's life. The land must be returned to agricultural use after the solar project ends, and financial security for site decommissioning is required.
Application Incomplete - The existing zoning and use of all properties abutting the properties included in the Special Land Use application has not been provided.	11/13/2025	WRT Zoning Administrator	11/26/2025	It is worth noting that the Township has, already in its possession, all of the relevant zoning information, tax parcel maps and similar property information related to properties located within in boundaries. Details are provided in Map 8 in Appendix G. See also attached supplementary information.
Application Incomplete - Insufficient dimensioning is available on multiple drawings relative to buildings, parking, lay-down areas, and access roads locations to determine if this requirement is being achieved, and to enable a proper site plan review.	11/13/2025	WRT Zoning Administrator	11/26/2025	Information relative to setbacks required by Section 226(8) is included in the application.
Application Incomplete - The gross area in buildings, structures, parking, access roads, and other nonpermeable objects associated with the project is not defined adequately to complete a non permeability analysis.	11/13/2025	WRT Zoning Administrator	11/26/2025	Sections 4.4.1.1 and 4.4.5.4 of the Application provide a description and anticipated acreage of impervious surfaces during project operation.
Application Incomplete - No well and septic details included in the submitted site plans.	11/13/2025	WRT Zoning Administrator	11/26/2025	See Map 10 in Appendix G of the Application for water wells.

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Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
Proposed method of providing storm drainage. Not Provided. ... Application Incomplete – Storm Water Management Plan not provided. PA233 and the WRT Ordinance requires a stormwater assessment and a plan to minimize, mitigate and repair any drainage impacts at the expense of the electric provider of IPP.	11/13/2025	WRT Zoning Administrator	11/26/2025	Coordination with the MCWC has been initiated and is ongoing. Stormwater plans are a requirement of all construction projects. The 2021 Stormwater Management Report referenced in the SLUP application is being adjusted to account for the updated 2025 project footprint and will be reviewed and, as previously stated, will be part of on going collaboration with the MCWC to acheive a design that is approved to initiate final construction (IFC). A plan will be implemented and a National Pollutant Discharge Elimination System (NPDES) permit will be obtained. Coordination with EGLE is ongoing to ensure compliance throughout the development and eventual construction process.
Application Incomplete - Access roads, buildings, structures, wells, and septic systems are not shown with associated dimensions on the drawings to permit a complete site plan review.	11/13/2025	WRT Zoning Administrator	11/26/2025	Dimensions of project facilities are described in Section 3 of the SUP Application.
Application Incomplete - Locations for parking lots and access points are approximate and may change with final engineering analysis (page 35). No Muskegon Road Commission driveway permits for the access roads exists to date.	11/13/2025	WRT Zoning Administrator	11/26/2025	Coordination with the MCRC has been initiated and is ongoing. A Road Use and Maintenance Agreement (RUMA) will be implemented with the County and we will secure the required permit(s) when most appropriate after incorporating all relevant feedback from the agencies involved
Any signs not attached to the building(s). Not compliant. Page 21 indicates signage on the fences. Please provide specific details of any signs that will be on the site for evaluation.	11/13/2025	WRT Zoning Administrator	11/26/2025	Signage will be limited to functional purposes, forgoing any advertising or branding, and will expressly communicate security and emergency contact information.
Application Incomplete – Definition of proposed uses, especially for buildings, structures, and the undesignated portion of the project area have not been provided.	11/13/2025	WRT Zoning Administrator	11/26/2025	The Application provides voluminous detail regarding the project generally and facilities assocated with the same.
Application Incomplete - The name, address, and seal is not shown on the Detailed Site plans (38 pages)	11/13/2025	WRT Zoning Administrator	11/26/2025	The Detailed Site Plan presents a preliminary Project design and, as such does not include a seal or professional engineer signature. A final IFC Civil Site Plan will be submitted to the Township with Lakeside's request for a Building Permit and will include a seal and signature of a professional engineer registered in the State of Michigan.
Property lines and required setbacks shown and dimensioned. ... Project Boundaries are not specifically also shown to be the property lines.	11/13/2025	WRT Zoning Administrator	11/26/2025	This question is unclear as, due to required setbacks, project boundaries are not the same as property lines. Map 8 in Appendix E shows all participating and non-participating parcels. See also Setback table in Section 3.7 and Table 3.7-1 of the SUP application.
Application Incomplete - Dimensions are not provided for existing and proposed buildings and structures on the subject project area.	11/13/2025	WRT Zoning Administrator	11/26/2025	Dimensions of project facilities are described in Section 3 of the SUP Application.
Application Incomplete - Page 35, paragraph 2 states "the final location of the access roads will depend on the equipment selected and final engineering and an advanced design will be presented with the building permit application. Any change from the current site plan to the final site plan details will necessitate a re-do of the site review process. A final decision regarding access points/roads structures, buildings, parking areas and related dimensional description of locations is required to finalize a site review.	11/13/2025	WRT Zoning Administrator	11/26/2025	Any change proposed would be minor and compliant with all PA 233 standards.
Pavement width and right-of-way width of all roads, streets, and access easements within 100 feet of the subject property. Private Road cross-sections, as appropriate.	11/13/2025	WRT Zoning Administrator	11/26/2025	See Section 3.4 of the Application for access road dimensions.
Snow storage areas	11/13/2025	WRT Zoning Administrator	11/26/2025	Please provide the specific reference or citation for the requirement you're referring to.
Location of all solid waste disposal facilities, including recycling, and screening.	11/13/2025	WRT Zoning Administrator	11/26/2025	See Section 5.4 and Appendix G of Application.
Location and specifications for existing or proposed outside, above or below ground storage facilities for hazardous materials.	11/13/2025	WRT Zoning Administrator	11/26/2025	No hazardous materials are planned to be stored on site during Project operation.
All existing vegetation and the location, type, and size of all proposed landscaping, and the location, height and type of existing and proposed fences and walls. Application Incomplete - Existing vegetation and location not characterized.	11/13/2025	WRT Zoning Administrator	11/26/2025	See Section 4.4.4 and Detailed Site Plan in Appendix B of the Application.
Application Incomplete - Equipment important for evaluation of acoustic levels has not been specified. Review and validation of the acoustic levels impossible without the inverter, BESS, and Switching/Sub-Station equipment specifications. Data Required: • Equipment Manufacturer • Model • Sound Power value (spectral) ; A rating/description of how the sound power values used compared with other possible equipment • If the highest sound level equipment possible was not used for modeling, and explanation of why it wasn't • Contingency factors for equipment sound level values	11/13/2025	WRT Zoning Administrator	11/26/2025	See Appendix K of SUP Application; all modeling parameters and eqiupments specifications used for the sound study are outlined in the report.
Application Incomplete – EMI generating equipment and the location of high voltage lines above ground vs buried is not clearly identified, thereby inhibiting the validation of EMI related calculations on radio, GPS, and similar transmissions and receptions. Application Incomplete - provide details of the testing locations and methods at the REO location.	11/13/2025	WRT Zoning Administrator	11/26/2025	See Commsearch reports in Appendix G of the SUP Application.
Provide comparative data for the margins of the proposed location solar arrays.	11/13/2025	WRT Zoning Administrator	11/26/2025	Question too vague to permit answer.

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Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
The Zoning Administrator or Planning Commission may require traffic Impact Assessment or Traffic Impact Study pursuant to Institute for Transportation Engineers standards as part of final site plan review . The level of detail required for either a traffic Impact Assessment of Study is based upon the expected amount of traffic to be generated by the proposed use, as noted below. a) Traffic Impact Assessment: A traffic impact assessment shall be required for projects expected to generate either between 50 - 99 direction trips during the peak hour or 500 - 750 directional trips during a typical day. The assessment shall evaluate current and future inbound and outbound traffic operations at site access points and shall include proposed access design and other mitigation measures that will positively aff operations at these points. b) Traffic Impact Study: A traffic impact study shall be required for projects expected to generate either 100 or more directional trips in the peak hour or over 750 trips on an average day. The study shall evaluate pedestrian access, circulation and safety, and current, background and future traffic operations at site access points and major signalized or nonsignalized intersections in proximity to the site. The study must also include proposed access design and other mitigation measures that will positively affect traffic operations at the site and nearby intersections. The study must take into account the Master Plan in analyzing future traffic developments. Application Incomplete - Perform a traffic Impact Assessment	11/13/2025	WRT Zoning Administrator	11/26/2025	No material traffic is ancicpated to be generated by the project.
Not Compliant today as none of the required permits have been presented. ... Application Incomplete - All environmental permits are generally required in advance to approve a final site review.	11/13/2025	WRT Zoning Administrator	11/26/2025	Section 1.4 and Section 4, relative to environmental law and coordination with relevant agencies.
Who will provide observation, reporting , accountibility and documentation of all maintenance activities. Examples include: H20 application to roads and drives 3x per day to reduce dust, proper storatege of topsoil, integrity of any runoff or sedimentation systems, watering and care of trees and shrubs used for screening, silt fencing, check dams, straw waters etc	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	QA Log (Oct 2025) ? Sheet: Q&A Log ? Topic: Roads ? Q: "What steps will you take to minimize road closures, traffic, and dust?" | SUP Application (Project Website) ? Section 1.4.3.3
What communications have ocurred with the drain commission, the road commision, fire department and other agencies? Have any communications occurred since the application materials were submitted?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Project Website ? SUP Application ? Agency communications noted (met with drain, water and road commissions). See Oceana Echo reporting referencing the posted application | SUP Application (Project Website)
The BESS location risks upsetting the bats and forest dwelling birds as well as safety issues with many homes within 2 miles. Why did you not put the BESS in our REO location that is open land and also a much safer location?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
How do you plan to keep the community safe and be a good neighbor during construction including working hours, sound decible management, and managing crime during construction	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Do you have documentation on the water table in the REO regarding the alternative site analysis's conclusion that the water table is too shallow for beams(5-10 ft)? Why is a high water table a consideration for not using Chemours property but allowable in areas near or in the floodplains?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The floodplain areas identified adjacent to Pierson Drain are defined based on regulatory statutes and are independent of groundwater resources. Areas within a regulated floodplain do not necessarily have high water tables, but rather are designated based on their elevation relative to a waterbody.
Why does permit application alternative site analysis not have more research included? Will you be including further back up data? If you apply to the PSC, would you continue to hide information behind an NDA?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
The township has created a CREO in order to comply with state law and also do our part to meet state energy goals. PA233 specifically states that siting perference should be given to brownfields and not prime farmland. Why is Geronimo defying both the intent and the language of PA233 and unwilling to cooperate with the Township to more appropriately site this project?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
The project is within a mile of Critical Dunes - Critical dunes are unique and play a huge part in the health of the environment. Do you plan to complete a Critical Dune analysis to determine the affect to the ecosystem?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside will not be sited within nor impact a designated Critical Dune Area; therefore, a permit under Part 353 of NREPA is not required, nor is further analysis.
Does Geronimo have plans to link their solar facility to a data center?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	There are no plans for Geronimo to develop a data center in Muskegon County.
Will you remove all cables, conduit, foundations in decommissioning?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Since applicant maintains that it will return the land used to the previous state, how can this be done if topsoil is stripped and trees and woodlands cut down and streams/ wetlands impaired. Can and should all these areas and destructive practices be avoided?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website

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Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
The selected disposal facility in the Decommissioning Plan (Muskegon County Solid Waste) is located in Ravenna, MI, approximately 31 miles from the Project site. Hauling costs to the landfill are estimated to be $13.72 per ton. This is just the hauling cost. What is the estimated cost for the actual disposal? There are many references to recycling the materials. How much do you estimate it will cost to dispose of waste at the Muskegon County Solid Waste site? How many tons is estimated? What percent of tonage do you anticipated being recycled? Have you contacted the Muskegon County Solid Waste site to confirm capacity available?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The Decommissioning Cost Estimate in Attachment A of the Decommissioning Plan includes estimates disposal costs at the Muskegon County Solid Waste Landfill. Costs for disposal at the landfill are shown directly under the hauling costs for each material type.
Please provide a detailed water runoff event calculation for 1 inch rain, 2 inch rain and 3 inch rain.	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Will you provide drawings to show locations and capacity of retention ponds, drainage infrastructure to manage stormwater runoff from solar panel arrays and access roads?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Has a buyer for the electricity has been identified/agreed?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
What resources will be provided to fire department and other first responders?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Will the applicant volunteer to follow the DNR recommended best procedures for fencing around utility scale solar?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The voluntary BMPs issued by the Michigan DNR include common practices that are general SOP for Geronimo-developed projects. These BMPs are likely to be required as conditions of the project's EGLE Wetland Resource Permit. *https://www.michigan.gov/dnr/managing-resources/wildlife/voluntary-best-management-practices-for-solar-energy-and-wildlife-in-michigan*
Pierson Drain - Are there buildings or fences on the easement?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Since many corporations and especially asset management firms are well known to spin off troubled LLC's, is applicant willing to provide cash, surety bonds, insurance and other securities come from Brookfield Asset Management (parent company)? And what will be the total bonds and other securities to be held by Township? Will you provide your calculations?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
How do you plan to address the glare?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
What assurances do you plan to have for non-participating neighbors?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Is the applicant is entering into "good neighbor agreements" with neighboring nonparticipating properties and, if so, what do those agreements entail and how many residents will be offered them?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has met with adjacent landowners open to discussion and explored potential concessions. We plan to share a draft neighbor agreement for their consideration as the next step.
What discussion have you had regarding connection to the grid and are you able to share those with us?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Vegetative ground cover during preliminary stage is required to prevent sedimentation and filtration. Would these plants provide the root depth necessary for this effect?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Will you be providing a stray voltage assessment? Will you complete ground water testing prior to installation and after installation and annually afterwards?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Stray voltage is discussed in Section 4.10.3 of the SUP Application. Please provide the specific reference or citation for the requirement you're referring to regarding ground water testing.
What is the total insurance to be carried by Applicant for the project and what is the deductible? What is the name of the carrier?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Who will maintain the land that is in land control area but not in preliminary development area, leasor or leasee?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	For land under agreement, Lakeside Solar will oversee who maintains the property.
What do you plan to offer to the community if you cannot hire local labor?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	We would appreciate additional context to better understand the intent behind this question.
Where will the construction staff stay if local labor is not obtained?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	For workers traveling from outside the area, lodging options such as hotels or short-term rentals would be utilized to ensure practical access to the project site. The exact location of said accomodations and exact proximity would not be known at this time.
Where will the solar panels and other equipment be manufactured? The USDA will also prohibit solar panels made by foreign adversaries in its funded projects	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website

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Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
White River Township is on a the lakeshore trail near Lake Michigan that is used by motor cyclist and byciclists. The solar array will detract from the beauty of landscape and therefore degrade the quality of life of local citizens as well as many other who travel through here. How can you say that will meet our master plan?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
How can you justify that the maximum size of the project per our ordinance requirement of 5% of township land will clearly be violated by this project?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
What additional studies do you plan to do to further identify where the Native American village was? It is documented to be part of the project at this time. The large battle between the Neuters and the Pottawatomie Indians in 1642 is documented in the Smithsonian Institute. How can you justify and clarify that you will not be in the Native American Village?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Cultural resource surveys were completed onsite. A summary of those surveys, including details related to the historic Potawatomi Village, was presented at the 2025 open house and is available on the project website.
On page 24 it says "the presense of the project is not anticipated to have a significant adverse impact on property values in White River Township." There is a non participating neighbor next to the BESS site as well as the electrical towers. How is it possible that there will be no impact for Mr. Vogel as well as many other properties surrounded on 3 sides by an industrial power plant? How is it reasonable to compare houses within 3 miles of a facilty of 5-7 acres to a 1500 acre project with over 600 homes within 1 mile? What protection will you provide financially, safety, sound and light?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
The deer on remaining crop fields will increase tremendously. Do you plan to provide reimbursement for adjacent neighbors for their lost crops?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	To better understand the basis of your statement, could you please provide the factual data or sources that support the claim: "The deer on remaining crop fields will increase tremendously."Having access to this information will help us evaluate the situation
For pa116 lands, are you going to avoid grading to preserve the farmland?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Please identify the 130 acres in preliminary development area that is PA116 and the associated parcel number. Also please identify the 177 acreas (307 less 130) that are in the control area but not in the preliminary develoment area. The map looks like more than 130 acres. (Page 59). How many acres are fenced in on PA116 land?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Section 5.3 of the SUP Application and Map 7 in Appendix E identifies the nine properties enrolled in the PA 116 program that overlap with the Land Control Area. There are a total of approximately 307 acres associated with the nine properties; portions of some parcels extend beyond the Land Control Area. A total of approximately 130.2 acres across these nine parcels fall within the Preliminary Development Area and will be affected by the Project (American Farmland Trust, 2025).
Permits are not complete. How do you plan to notify the township as you work through the list of permits and how much time would you anticipate as needed for the township to review each permit?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Geronimo anticipates the relevant issuing agencies will include Township personnel on communications regarding the issuance of permits. Geronimo will provide copies of relevant permits to Township personnel in instances where township personnel are not included in communications from issuing agencies. The review time necessary for the Township to review issued permits by other agencies will vary based on permit complexity and Township staff availability. Ultimately the review time will be determined by Township personnel.
What recourse is there if the vegetation is not established that would have been part of the permanent stormwater management system in case of a large rain event?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The Part 91 Soil Erosion and Sedimentation Control permit issued by the Muskegon Department of Public Works and the coverage obtained under the State NPDES construction stormwater permit issued by EGLE will have final stabilization requirements dictating vegetation establishment. Lakeside will comply with all conditions of issued permits and will rectify potential deficiencies in consultation with the applicable regulatory agencies.
The project says that there will be 10 miles of access roads with 20 acres of gravel? How can that ever be turned back into farmland? And how will you address the stormwater runoff?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
How can you preserve prime farmland when topsoil is removed and grading done?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Are there any specialty crops in the project including sunflower fields or asparagus fields? If so, will these be maintained?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	There are no specialty crops within the project land control area. Section 4.3.2.1 of the SUP Application notes this and further notes the following, "However, specialty farms such as the Degen Sunflower Farm, Scholl Farms (pumpkin patch), and Jawor Brothers Blueberries are located within 1,000 feet of the Land Control Area. The specialty farms are illustrated in Appendix E on Map 7." The Project would not affect these resources.
The USDA has announced it will no longer fund wind and solar energy projects on prime farmland, citing concerns about food security and the increasing difficulty for new and young farmers to access land. Also PA233 and the township zoning ordinance and master plan all prioritize avoiding using prime farmland for renewable energy. How does applicant resolve not following federal government direction regarding prime farmland as well as State of Michigan direction and the Township ordinances and Master Plan and persist in 1575 acres of prime farmland? See link: Secretary Rollins Blocks Taxpayer Dollars for Solar Panels on Prime Farmland | USDA	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
Will you further explain your Safety/emergency plan/fire plans. Is there an evacuation plan and what is the radius?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website

The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
How long does it take to turn off power if there is a fire? Please forward a detailed timeline.	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The Solar and BESS units can be shut down in a matter of seconds if required from our Remote Operations Center. However, the substation connection is operated by the Transmission Owner, not Lakeside Solar. Additionally, this question would need more context provided to allow a more detailed answer regarding the assumption stated 'turn off power'. What's most important is that our safety and operations teams develop detailed emergency action plans (EAP) for every site to address these scenarios and protect people and property.
Does the applicant plan to own or operate the project or does the applicant plan to sell after it is operational?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Will you provide 2 years for guarantee for screening? 1 year is not long enough	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	We are open to the 2-year option and would be glad to discuss the details further.
Wil you provide irrigation and fertilizor for the screening as well as accountibility?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
The township does not prefer individual residents to do their own screening. Please clarify your intention.	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Where is the soil coming from for the berms when using berms?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Berm soil is typically sourced on-site. We aim to maintain a balanced cut-and-fill during grading and minimize the need for importing material whenever possible.
More qualified sound study is needed on bess. The sound study reflects a 54.7 dba!! Allowed is 55! The sound study seems very concerning as the equipment is not yet picked and the study showed 54.7, only .3 less than the allowed 55. There is a high risk of error considering the equipment is not yet picked especially with only 11 miles per hour wind. Being close to Lake Michigan, we often have wind in excess of 11 miles per hour. Does the sound study consider wind?? What additional protection and additional studies will you do to protect the neighbors from excessive sound?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Is survellience limited to weather stations? Is it an invation of privacy? What is the scope and range of the survellience?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Most Geronimo projects include 3–4 cameras across the site, plus one at the O&M building and one at the substation. These cameras are for general site surveillance, not weather monitoring. We carefully consider placement and orientation to respect privacy—for example, avoiding direct views into neighboring properties by adjusting angles or relocating cameras as needed.
What are the decision and build dates necessary for the company to qualify for tax dollar incentives?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
What will happen to top soil? Do you plan to store the top soil on site? Off site? How do you plan to prevent wind erosion?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Do you plan to complete a tourism study to determine how a 1500 acre project would affect tourism in White River Township as well as Montague and Whitehall Commercial Districts? Lakeshore trail visitors? Short term rentals?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside does not have a pending tourism study at this time as the assumptions about the reduction in tourism are highly speculative. Please refer to the MPSC guidance statement located at the top of this spreadsheet regarding additional requirements beyond what is identified in Section 226(8).
A project of this size seems to be "undue burden" to White River Township community. While we want to do our part, will you provide an analysis that shows the electrical needs of our community compared to the capacity of the project?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Please refer to the MPSC guidance statement located at the top of this spreadsheet regarding additional requirements beyond what is identified in Section 226(8).
14 collection lines are proposed across delinated streams. How will you address mitigation and also decommissioning?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
The application says there are 12 wetlands, 2 scrub, six forested and 4 emergent farmed wetlands , ditches, adjacent to row crops - are you going to avoid grading and leave the wetlands outside of the fencing?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Both Flower Creek and Little Flower Creek apear to be in preliminary development area. Please identify the mitigation that you plan to avoid harm to wildlife, plants and to the Meinhert Beach - Muskegon County Park where Little Flower Creek ends at Lake Michigan and where many children play.	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has included buffers around waterbodies in the project design and will maintain vegetated grassland buffers to intercept runoff from the development area before it enters Flower Creek and Little Flower Creek. Grasslands have extensive and deep root systems more capable of filtering water and improving water quality when compared to row crop agriculture. Lakeside will follow all conditions related water quality in permits issued by the Muskegon Department of Public Works and EGLE.
25% of the land control area has hydric soils indicating some wetlands. 82% wind erostion. How do you prevent wind erosion?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Thermal impact study by Muskegon Drain Commission that was completed 6/19/23 - Have thermal impacts in the Michigan County Stormwater Runoff and Post Control ordinance have been discovered and if so, have they been enforced? If not, does applicant plan to address thermal impact accordingly?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has included buffers around waterbodies in the project design and will maintain vegetated grassland buffers to intercept runoff from the development area before it enters waterbodies. No tree clearing along waterways is proposed. Due to the retention of riparian woody species and conversion of row crop agricultural areas to grasslands, Lakeside anticipates no negative thermal impacts to waterways.
How will stormwater run off affect the PFOS?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside does not anticipate the generation of PFAS as a contaminate from the Project. According to Dr. Annick Anctil of Michigan State University, no studies have shown the presence or leaching of PFAS from PV panels—either while they are in active use or at the end of their life (e.g., in a landfill). *chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://graham.umich.edu/media/pubs/Facts-about-solar-panels--PFAS-contamination-47485.pdf*

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Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
Is there any new information regarding the depth or movement of grownd water via the new groundwater mapping wells that were installed recently (one in front of township hall)?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In order to determine if we can address your concern, could you please share a bit more about the intent behind your question and provide additional details on the basis for it?
Are the wellhead protection areas based on the most current available models?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The Wellhead Protection Areas are EGLE designated areas as part of the Source Water Protection program. The preliminary development area does not intersect any Wellhead Protection Areas.
"Dewatering may be needed seasonally": what is the affect on any impaired or endangered species?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has reviewed the United States Fish and Wildlife Service Information for Planning and Conservation tool and has also completed a Rare Species Review with the Michigan Natural Features Inventory. None of the species identified are anticipated to be impacted by temporary dewatering related to the construction of the project.
What is the Water Resource (Drain) Commissioner's response to the proposed project so close to Pierson Drain?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
How are the intermittent streams protected?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has included buffers around waterbodies in the project design and will maintain vegetated grassland buffers to intercept runoff from the development area before it enters waterbodies. Grasslands have extensive and deep root systems more capable of filtering water and improving water quality when compared to row crop agriculture. Lakeside will follow all conditions related water quality in permits issued by the Muskegon Department of Public Works and EGLE.
What are the alternatives for the statement "avoid impacts to water resources to the maximum extent practicable"? How is the maximum extent practicable determined?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has included buffers around waterbodies and wetlands in the project design and will maintain vegetated grassland buffers to intercept runoff from the development area before it enters surface waters. Some wetland impacts are unavoidable, but Lakeside has reduced impacts as much as possible, while still acheiving project needs. Lakeside will follow all conditions related water quality in permits issued by the Muskegon Department of Public Works and EGLE.
Infrastructure is proposed within the flood plain area. What is the process in the event of a 50, 100 or 1000 year flood, all of which are becoming more frequent due to climate change?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
What recourse is there if stormwater does encroach on adjacent non participating properties?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	If stormwater were to encroach on adjacent non-participating properties, we would work with the landowner to resolve the issue. We take prevention seriously by properly installing SWPPP BMPs, conducting regular inspections, and maintaining BMPs to ensure functionality during storm events
Does thermal pollution of h20 (rain) flowing into the surface h20 count as non point source pollution?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside has included buffers around waterbodies in the project design and will maintain vegetated grassland buffers to intercept runoff from the development area before it enters waterbodies. No tree clearing along waterways is proposed. Due to the retention of riparian woody species and conversion of row crop agricultural areas to grasslands, Lakeside anticipates no negative thermal impacts to waterways.
Please provide the wildlife corridors in a map for every fenced area including all wetlands, ponds, hedge rows between the fields, streams and forested areas including terrestrial species 4.4.5.2	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Many residents see eagles regularly over the proposed project area and nests have been identified in this area. What are your intentions to plan to protect the Bald Eagles?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside will develop the project in compliance with the Bald and Golden Eagle Protection Act and the National Bald Eagle Management Guidelines developed by the United States Fish and Wildlife Service, along with any other guidance received from the United States Fish and Wildlife Service or Michigan Department of Natural Resources.
We are in the avian species mississippi fly away protected for migratory bird treaty and eagles - what additional testing and protection will you provide for the birds?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside will develop the project in compliance with the Bald and Golden Eagle Protection Act and the National Bald Eagle Management Guidelines developed by the United States Fish and Wildlife Service, along with any other guidance received from the United States Fish and Wildlife Service or Michigan Department of Natural Resources. Lakeside anticipates the facility will provide greater nesting opportunities for grassland dependent species, as opposed to current conditions as row-crop agriculture.
What additional studies will you do and wll you get federal approval needed for federally listed species on 4.4.5.5 potentially present?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
To help us understand how the sound study was performed, we request the following information: a copy of the predictive noise model, and documentation for all elements introduced to the model, including any data or preconstructed modeling elements acquired to assemble the model.	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The modeling procedures and inputs are outlined in Section 6 of the Sound Assessment. Could you clarify whether your request pertains to information beyond what has already been provided? Additionally, are there specific questions or concerns you would like to share?
What is the maximum amount of time for the life of the project? Is it 35 years since that is the extent of the financial security provided by Lakeside Solar? Will the project be fully decommissioned within 35 years?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Section 5.6 of the SUP Application (Fees, Escrow, and Bond) states, "Additionally, Lakeside will provide financial security throughout the life of the Project (up to 35 years) to ensure restoration of the land to its previous land use and condition during the decommissioning process." Section 5.5 summarizes the Decommissioning Plan for the Project and a copy of the plan is provided in Appendix G.
Will you guarantee that the decommissioning will be fully funded prior to any sale of the project?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Will the BESS be up to the best practices according to NFPA 855 standard and UL9540A Standards ?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Lakeside will construct and operate the BESS in compliance with NFPA 855 and UL9540A.
BESS augmentation due to battery degradation over time. Application states adding two blocks of 40 x 10 x 9.5 every 4 years. Over 20 years that is 10 additional blocks - where will they all go?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	The preliminary BESS design includes the space needed for future augmentation. BESS units would be replaced as needed and no additional land would be needed.

The MPSC's guidance states: "A CREO under Act 233 may only contain the setback, fencing, height, sound, and other applicable requirements expressly outlined in Section 226(8), and may not contain additional requirements beyond those specifically identified in that section." See Page 2 of MPSC Application Filing Instructions and Procedures. Master Plan compliance is not a component of Section 226(8) of PA 233 of 2023 ("PA 233"). Accordingly, to the extent that the Township's local ordinance requires the application to comply with the goals of the Master Plan, it is not a CREO. Additionally, local zoning is expressly preempted by PA 234 of 2023 ("PA 234"), so a local zoning ordinance that attempts to impose requirements beyond those included in Section 226(8) of PA 233 is expressly preempted.
Without limiting the foregoing, please see responses in the table below.

Information Request:	Date Requested:	Source of Request: (Mckenna, CES, WRT Planning Commission, or from WRT Zoning Administrator)	Date Replied:	Lakeside Solar Response
Why does Geronimo insist that it must have a 1500 acre site to be profitable when a neighboring site of 180 acres is profitable? Why is Geronimo unwilling to keep their scale to one appropriate to the size of our smaller White River Township?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	In the interest of maintaining productive dialogue, Lakeside will refrain from responding to questions that are speculative or designed to provoke debate.
What is the total dollars of the expected federal and state taxpayer funded monies that the applicant will receive for this project?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	This topic is included in the materials we've already provided. You can find the specifics in the SLUP application and on the project website
Under 4.4.3.3. It states, "an Area with a 1% annual chance of flooding (100 year floodplain)". Elsewhere in the application various methods of infrastructure are outlined in relation to streams and wetlands. If infrastructure is based on a 1% chance of a 100 year flood, due to excessive rainfalls and flooding becoming more common due to climate change, what are the processes if infrastructure cannot handle the increased water load?	11/21/2025	WRT Planning Commission	12/2/2025; 12/29/2025	Stormwater plans are a requirement of all construction projects. The 2021 Stormwater Management Report referenced in the SLUP application is being adjusted to account for the updated 2025 project footprint and will be reviewed and, as previously stated, will be part of on going collaboration with the MCWC to acheive a design that is approved to initiate final construction (IFC). A plan will be implemented and a National Pollutant Discharge Elimination System (NPDES) permit will be obtained. Coordination with EGLE is ongoing to ensure compliance throughout the development and eventual construction process.
Does Geronimo or its related entities have any plans to build or operate a battery energy storage facility on Chemours land?	12/24/2025	WRT Planning Commission	12/29/2025	There are no plans for Geronimo to develop a Battery Energy Storage System on Chemours land.

EXHIBIT I

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Review of the Lakeside Solar-BESS Application Sound Study

Prepared For:

Lauren Wackernagel
Planning Commission Chair
White River Township
Muskegon County, MI

Prepared By:

Darren J. Brown, P.E.
INCE Board Certified



Prepared: December 4, 2025
Project No. 2025-050

Executive Summary – Lakeside Solar Sound Study Review

The Lakeside Solar project is a proposed 150 MW solar energy facility with associated Battery Energy Storage Systems (BESS). Noise from the project is expected to affect 129 homes located within 1,000 feet of the project's land control areas. The Sound Modeling Assessment, conducted by Chris Nuckols of ReGenerate Consultants, concludes that the Lakeside Solar project is expected to comply with the noise limitations established under Michigan Public Act 233 for renewable energy facilities.

This review evaluates the predictive noise study submitted by ReGenerate Consultants for the proposed Lakeside Solar project, focusing on technical completeness, methodology, and adherence to applicable regulations. The study was prepared by a firm and individual without documented expertise in community noise assessment or formal acoustics training. Certain technical mischaracterizations, including describing A-weighting as a measure of loudness, indicate a limited depth of acoustic knowledge. Michigan Public Service Commission requires that noise studies be prepared or supervised by a qualified noise control engineer, preferably INCE Board Certified.

The study's modeling inputs raise several concerns. Sound power levels were based on generic equipment data rather than specific equipment proposed for the project, and no context is provided to demonstrate how these generic values compare to other available equipment options. This is significant because MPSC requirements specify that, if published sound power levels for similar equipment are used, the applicant must demonstrate that the proposed equipment is substantially similar. Additionally, frequency-specific (octave-band) data were not provided, limiting confidence in the accuracy of the model results. Additionally, key input data were prepared by the project applicant, creating a potential conflict of interest that may affect the objectivity of the results.

A 3 m tall sound barrier along the northern edge of the BESS area was included in the modeling to ensure predicted sound levels meet the 55 dB(A) noise limit. However, minimal documentation is provided regarding the barrier's design parameters, absorption characteristics, placement, or how it was implemented in the model. High resolution contour maps showing predicted sound levels with and without the barrier are not included, limiting the ability to independently evaluate the effectiveness of this necessary noise control measure. Together with the issues identified in the equipment data, these limitations make it difficult to have confidence in the accuracy of the sound study results.

Overall, the study provides a conceptual overview of potential noise impacts but lacks the detail, verified inputs, and independent oversight necessary to fully support its conclusions. To improve confidence in the results, the Township may consider requesting an independent review by a qualified noise control engineer. The Township could also request verified octave band equipment data and high-resolution sound level maps showing expected residential noise impacts and the effectiveness of the proposed barrier. Finally, an analysis addressing local noise ordinances, with mitigation measures, in addition to MPSC requirements, may be warranted, particularly if PA 233 is repealed prior to project completion.

Credentials of ReGenerate Consultants

ReGenerate Consultants, and specifically Mr. Chris Nuckols who conducted the sound study, primarily operates in the renewable-energy consulting sector. Their business centers on supporting utilities, developers, OEMs, federal government, and fortune 500 companies in the design, construction, and operation of renewable energy facilities[1]. This focus positions the firm as a service provider to the renewable-energy industry rather than as a specialist in community noise or environmental acoustics. As a result, there is an inherent alignment with project development interests, not with the independent evaluation of community noise impacts.

ReGenerate Consultants appears to offer a broad portfolio of services, including wind and solar assessment, risk analysis, mitigation planning, project optimization, operational assessment, reliability engineering, resource assessment, site suitability, data management, meteorological services, and analyses of sound and shadow flicker[2]. Within this wide scope, noise assessment appears to be one of many secondary offerings rather than a core area of technical specialization. Noise control engineering does not appear to be a primary focus of the firm.

Mr. Nuckols is a member of the Institute of Noise Control Engineering - USA (INCE). While holding membership in INCE is positive, the requirements of membership are elementary in terms of acoustics and noise control. Membership alone does not require specialized education, verified professional experience in noise control, or any form of professional examination. A more appropriate credential for work of this type is INCE Board Certification. Board Certification requires formal acoustics education, verified professional references (including references from certified members), substantial experience, and successfully passing a rigorous examination that evaluates technical capability at a level comparable to professional licensure. Board Certification is the industry recognized benchmark for individuals conducting independent, technically-sound community noise studies.

Mr. Nuckols' academic background is centered on geosciences, meteorology, climatology, geographic information systems, environmental management, and aerospace engineering[1]. None of the available information indicates formal training in acoustics and noise control. For example, the submitted study incorrectly describes A-weighting as a measure of loudness. Loudness is a psychoacoustic metric describing perceived loudness using equal-loudness contours (denoted as phons) and quantified in units of sones, whereas A-weighting is a frequency-weighting filter intended to approximate human hearing response at low to moderate sound levels. Accurate use and interpretation of such technical metrics are fundamental for evaluating community noise impacts, and the study's mischaracterization indicates either a lack of depth in acoustical expertise or an over generalization.

Based on the available credentials, neither ReGenerate Consultants nor Mr. Nuckols meet the qualification expectations for conducting a community noise impact assessment for the Lakeside Solar project as defined by the Michigan Public Service Commission (MPSC). The

[1] https://regenerateconsulting.com/about
[2] https://regenerateconsulting.com/services

MPSC's filing instructions (Attachment D) require that all sound studies be completed by, or under the direction of, a qualified noise control engineer, with INCE Board Certification identified as the preferred credential. If the preparer is not Board Certified, their qualifications must be justified.

Criteria for Noise Limits and Assessment (Project Noise Regulations)

The Lakeside Solar Sound Modeling Assessment provides only minimal citation of applicable noise regulations, referencing MCL 460.1226 under PA 233 without addressing how its criteria are implemented through the MPSC application filing instructions. The study does not meaningfully discuss the MPSC requirements, including addressing how the study met the requirement that all sound studies be conducted by or under the direction of a qualified noise control engineer.

The report also omits any discussion of the White River Township noise ordinance, which may establish lower limits and could become relevant if PA 233 were repealed or modified. A complete sound study should evaluate all applicable regulatory pathways and address each of them.

Predictive Modeling of Lakeside Solar Noise Impact

ReGenerate appears to have conducted the modeling according to applicable engineering standards, and applied the required modeling assumptions consistent with MPSC sound modeling requirements, including the +5 dB penalty for tonal noise and the +6 dB adjustment for façade reflections. However, the sound prediction model files were not provided, so these assumptions cannot be independently verified.

When discussing the sources of noise, the study states that "generic" sound power levels for similar equipment were used. No documentation is provided to confirm that these sound power values match the equipment under consideration for the project or that they represent the highest expected sound emissions among available equipment options. Without this demonstration, the modeling may underestimate project noise levels. MPSC requirements are explicit: "*If sound power data are otherwise not available, the published sound power levels for similar equipment can be used. The applicant must demonstrate that the equipment proposed to be used is substantially similar.*" The sound study should provide a list of equipment options with the applicable octave band sound power data. From this list, it should be apparent that the highest sound power noise sources were used for the modeling.

The study further notes that the "total sound power" data were supplied by Geronimo, and based on manufacturer information collected under IEC 60076-10, which is a transformer-specific test standard. This standard does not apply to other major noise sources such as inverters, fans, or equipment enclosures. The report provides no evidence that the supplied data were accurate, complete, or correctly converted to total sound power values suitable for

modeling. The work of compiling and preparing these data should be performed or overseen by a qualified noise control engineer. Instead, it was carried out by the project applicant. This introduces a clear conflict of interest and raises concerns about the validity of the input data used in the predictive model.

The study includes a 3 m tall, 213 m long sound barrier along the northern edge of the BESS area, described as an absorbing barrier with a 0.6 absorption coefficient. The barrier was introduced specifically to ensure predicted sound levels meet the 55 dB(A) noise limit at nearby receptors. However, the report provides no justification for the barrier's height, length, or placement relative to the most affected receptors. The type of material, frequency-dependent absorption characteristics, and construction details necessary to construct an adequate sound barrier are not documented. This lack of definition further limits confidence in the assumptions used for predictive modeling and provides no guidance as to how the sound barrier should be designed and built.

Modeling Results

The report presents predicted sound levels for the proposed Lakeside Solar project in several formats, including a statistical summary of noise impacts across sound level ranges and a tabular list of receptors with predicted levels both with and without the proposed sound barrier. The study reports that all properties are expected to remain below the 55 dB(A) limit, with a barrier north of the BESS equipment required to maintain compliance for several receptors. This information is useful for identifying the most affected properties.

The report also provides a contour map (Appendix 1) illustrating predicted sound levels and receptor locations. While the map offers a general overview, it lacks adequate resolution to fully assess compliance margins or identify localized areas of concern. Higher resolution contour mapping is needed, especially in locations where predicted levels approach the 55 dB(A) threshold.

Additionally, the report does not provide high resolution contour map comparisons showing predicted sound levels with and without the barrier. Without this information, the effectiveness of the proposed mitigation measure cannot be evaluated. Detailed mapping should be presented both with and without the recommended sound barrier to properly evaluate its impact on the results and protection of residents.

Conclusion

The predictive noise study, as submitted, offers a general framework for assessing potential sound impacts from the proposed Lakeside Solar & BESS project but does not provide the level of technical rigor needed for a reliable evaluation. Key modeling inputs are incomplete or insufficiently justified, the reliance on generic equipment data lacks the context required by MPSC standards, and documentation of critical mitigation features, such as the modeled

sound barrier, is limited. These gaps reduce confidence in the study's accuracy and its ability to demonstrate compliance with current, or potentially applicable future noise regulations.

To ensure a defensible review process, the Township would benefit from independently verified modeling data, clearer documentation of assumptions and mitigation design, higher-resolution results, and third-party technical oversight. Until these elements are provided, the conclusions of the submitted noise analysis should be considered preliminary.

Closing Remarks

Perception of New Noise Sources

Due to the typically low ambient sound levels of rural communities, new mechanical or electrical noise sources will stand out. The tonal and intermittent noise associated with the proposed solar energy installation is expected to be distinct and clearly audible. This may be exacerbated by wind and/or temperature inversions. Residents near this equipment are likely to perceive this noise as an unwelcome addition to the local soundscape and may even think it intrusive, even at relatively moderate sound levels. This impact poses a concern for community annoyance. This annoyance may wane over time as residents become familiar with the noise, though for others, particularly where sound levels are higher, the annoyance may persist.

Potential Mitigation

To help reduce the potential for community annoyance, several mitigation measures can be considered in the project planning. These include:

- Specifying lower sound producing equipment
- Establishing a minimum setback distance of 1,000 feet between equipment and residents
- Orient equipment such that cooling ventilation inlet/outlets are directed away from residences
- Incorporating engineered sound barriers to block direct sound paths
- Employing ducted silencers and/or acoustic enclosures to reduce tonal noise emissions from equipment

Applying one or more of these measures can substantially control the noise from renewable energy equipment and reduce the impact created in the community. This can improve community acceptance and long-term compatibility of the facility with surrounding residents.

EXHIBIT J

MCKENNA

November 28, 2025

Planning Commission
White River Township
7386 Post Road
Montague, MI 49437

Subject: **Lakeside Solar, LLC**
Special Land Use and Site Plan Review

Dear Planning Commissioners:

INTRODUCTION

Lakeside Solar, LLC, which is a wholly owned subsidiary of Geronimo Power, LLC, of Bloomington, Minnesota, submitted special land use and site plan review applications to White River Township on September 5, 2025, calling for development of a 150 megawatt (MW) solar energy facility in the Township.

According to the application, the facility will have the capacity to fulfill electrical usage needs of an estimated 39,600 homes each year. White River Township has only 785 homes, according to the 2020 Census.

In addition to the solar arrays, the project will have a co-located battery energy storage system with a rated power capacity of approximately 150 MW and a stored energy capacity of approximately 600 megawatt-hours (MWh). The battery energy storage system is often referred to as the BESS.

Other facilities to be constructed include a switching station, which will be constructed, owned, and operated by International Transmission Company (ITC). The switching station connects the project to the existing 138 kilovolt (kV) Du Pont-Cobb transmission line.

There will also be a collector substation, nine weather stations, an operations and maintenance building, and 44 inverters.

The BESS, ITC switching station, collector station, and operations and maintenance building will be located toward the south end of the project, on the south side of Eilers Road, west of Lamos Road.

ALLOCATION OF ACREAGE

The project is spread over 44 parcels of land that are listed in Table 1. The 44 “parent” parcels contain 1,752.7 acres, but existing homesteads have been subtracted out of several parcels, so the net Project Area (also known as the Land Control Area) measures 1,575 acres.

The Preliminary Development Area is land on which the project facilities would actually be constructed, according to the application. This area measures 982 acres.

HEADQUARTERS
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Table 1: Parcel Summary

No.	Parcel Identification No.	Acreage	Property Owner	General Location
1	61-01-123-200-0002-10	16.44	Barney P Eilers Trust	S side of Eilers, E side of Old Hwy 99
2	61-01-123-400-0001-00	39.15	Michael & Stephenie Cockerill	S side of Post, E side of Chase
3	61-01-123-300-0006-00	39.00	Michael & Stephenie Cockerill	W side of Chase, N side of Hancock
4	61-01-123-300-0004-00	39.19	Michael & Stephenie Cockerill	E side of Lehman, N side of Hancock
5	61-01-123-200-0005-00	1.24	Michael & Stephenie Cockerill	W side of Old Hwy 99
6	61-01-123-100-0005-00	36.81	Michael & Stephenie Cockerill	E side of Lehman
7	61-01-123-100-0002-00	13.61	Michael & Stephenie Cockerill	W of Chase
8	61-01-112-300-0001-00	80.13	John W & Pamela K Degen	N side of Fruitvale
9	61-01-111-400-0001-00	77.74	John W & Pamela K Degen	E side of Chase (extends across Old Hwy 99)
10	61-01-114-400-0001-00	44.43	John W & Pamela K Degen	E side of Chase
11	61-01-114-400-0001-20	15.36	John W & Pamela K Degen	S side of Ramthun
12	61-01-114-200-0004-00	38.84	John W & Pamela K Degen	E side of Chase
13	61-01-113-100-0006-00	12.35	John W & Pamela K Degen	N side of Ramthun
14	61-01-113-100-0005-00	5.29	John W & Pamela K Degen	N side of Ramthun
15	61-01-113-100-0003-00	19.97	John W & Pamela K Degen	S side of Fruitvale
16	61-01-111-200-0001-00	77.84	John W & Pamela K Degen	Between Chase & Old Hwy 99
17	61-01-111-100-0004-10	31.15	John W & Pamela K Degen	W side of Chase
18	61-01-111-100-0005-00	59.46	John W & Pamela K Degen	W side of Chase
19	61-01-111-400-0003-00	20.04	John W & Pamela K Degen	E side of Chase, N side of Fruitvale
20	61-01-111-400-0004-00	20.10	John W & Pamela K Degen	W side of Old Hwy 99, N side of Fruitvale
21	61-01-123-200-0004-00	31.59	Michael Cockerill/Kelly B Whiting	N side of Post, E side of Chase
22	61-01-123-200-0001-00	40.06	Michael Cockerill/Kelly B Whiting	Between Chase & Old Hwy 99, S side of Eilers
23	61-01-114-400-0005-00	39.77	Michael Cockerill/Kelly B Whiting	N side of Eilers, E side of Old Hwy 99
24	61-01-114-300-0004-00	37.32	Michael Cockerill/Kelly B Whiting	N side of Eilers, W. side of Chase
25	61-01-113-300-0004-00	19.60	Michael Cockerill/Kelly B Whiting	N side of Eilers
26	61-01-113-300-0003-00	20.04	Michael Cockerill/Kelly B Whiting	N side of Eilers
27	61-01-124-200-0001-00	40.83	Guter Farms LLC	S side of Eilers
28	61-01-124-100-0001-00	60.66	Guter Farms LLC	S side of Eilers
29	61-01-123-200-0002-00	15.64	Guter Farms LLC	S side of Eilers
30	61-01-113-400-0007-00	26.08	Guter Farms LLC	N side of Eilers, along Pierson Drain
31	61-01-113-400-0001-00	35.11	Guter Farms LLC	S side of Ramthun
32	61-01-113-300-0002-00	71.98	Guter Farms LLC	N side of Eilers, S side of Ramthun
33	61-01-113-300-0001-00	39.98	Guter Farms LLC	S side of Ramthun
34	61-01-124-200-0002-00	56.09	John Ramthun	W side of Lamos
35	61-01-113-400-0009-00	39.48	John Ramthun	W side of Lamos, N side of Eilers
36	61-01-113-100-0004-00	39.98	Robert Wachernagel	S side of Fruitvale
37	61-01-113-100-0008-00	40.05	Robert Wachernagel	N side of Ramthun
38	61-01-114-100-0001-00	77.28	Paul E & Eileen Schroeder	S side of Fruitvale, W side of Chase
39	61-01-111-300-0002-00	75.98	Paul E & Eileen Schroeder	N side of Fruitvale, W side of Chase
40	61-01-111-300-0001-00	80.03	Paul E & Eileen Schroeder	W side of Chase
41	61-01-124-100-0002-00	55.28	Solar II Farms LLC	S side of Eilers
42	61-01-114-400-0004-00	38.63	Michael Cockerill/Kelly B Whiting	N side of Eilers, E side of Chase
43	61-01-123-100-0001-00	62.90	Michael & Stephenie Cockerill	S side of Eilers, E of Lehman
44	61-01-111-400-0006-00	20.20	Jeremy Degen	E side of Old Hwy 99
	Total All Parent Parcels	1752.70		

According to information provided in the special land use application, acreage would be allocated to proposed uses as follows:

Table 2: Allocation of Acreage

Proposed Use	Acres Allocated
Preliminary Development Area	982
Solar Arrays	*733*
BESS	*8.2*
Collector Substation	*3.5*
ITC Switching Station	*3.5 (est.)*
Access Roads	*20.6*

The acres allocated to the uses in italics in Table 2 add up to 768.8, leaving 213.2 acres unaccounted for. According to supplementary information provided by the applicant on November 26, 2025, the unaccounted acreage is the area between the fencelines of the project facility and the Land Control Area boundary.

Appendix A in the special land use application was the source used to compile the information in Table 1. According to the application, lease agreements have been agreed upon with owners of 43 of the parcels. One parcel, 61-01-124-200-0001-00, owned by Guter Farms, LLC, is under a purchase agreement. This is where the BESS, the ITC switching station, and the substation would be located.

The lease agreements and the purchase agreement have been submitted to the Township with supplementary information on November 26, 2025. This information is required from an applicant to prove that he/she has legal authority to pursue approval of a development involving the property in question. Submittal of proof of property ownership (for examples, in the form of title work) is a requirement that has not been addressed.

It is worthwhile examining the acreage figures, but in more detail. According to the U.S. Census, there are 15.8 square miles of land in White River Township. At 640 acres per square mile, there are 10,112 acres in the Township. The Preliminary Development Area—the land on which project facilities would be located—would occupy 9.7% of the land in the Township. The Land Control Area that encompasses the 44 parcels would occupy 15.6% of the land in the Township. Section 16.06(MM)(6) of the Zoning Ordinance indicates that utility-scale solar energy systems shall not occupy or cover more that five (5) percent of the total land area of White River Township. Based on this requirement, the Preliminary Development Area of the Lakeside Solar energy facility must be reduced in size by 476.4 acres, a 48.5% reduction.

AGRICULTURAL ACREAGE

It is also worthwhile looking at the acreage figures from an agricultural perspective. Section 16.06(MM)(11) of the Zoning Ordinance states that utility-scale solar energy systems shall generally not be located on or within prime agricultural soils or areas. Prime farmland is defined by the Natural Resources Conservation Service as land that has the best combination of physical and chemical characteristics for producing food, fiber, and oilseed crops, and is also available for those uses.[1]

[1] Township Ordinance 58-2023 has a more inclusive definition of Prime Agricultural Soils or Areas, which includes the following:

1. Any land or property in a contract or program pursuant to Michigan Public Act No. 116 of 1974, as amended, being MCL 324.36101 *et seq*.
2. Any land or property in or subject to a conservation easement, farmland preservation agreement or the equivalent.

Within the 1,575-acre Land Control Area, 1,008.9 acres (64% of the total acreage) are classified as prime farmlands or prime farmlands if drained. Adding in the farmlands of local importance brings the total to 1,337.5 acres (84.9%). Nearly 35% of the total agricultural acreage in the Township is in the Land Control Area. The application is clearly in violation of Section 16.06(MM)(11).

Another concern with respect to agriculture is land enrolled in a Farmland Development Rights Agreement under "PA 116" (now Part 361 of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended). There are nine parcels enrolled in this program, encompassing approximately 307 acres. The duration of Farmland Development Rights Agreements may range between 10 and 90 years. No information about the duration or status of the Farmland Agreements within the Preliminary Development Area has been provided.

The Michigan legislature, through Public Act 230 of 2023, has determined that the placement of solar panels on property enrolled in PA 116 is considered to be a permitted use when several specific conditions are met. In the November 26, 2025, response to questions, the applicant acknowledged that steps must be taken to defer the Development Rights Agreements. It is unclear if the property owners have been made aware of this state-level requirement.

REGULATORY AUTHORITY

Public Act 233 of 2023 (PA 233) shifts the siting authority for large-scale renewable energy facilities to the Michigan Public Service Commission (MPSC) unless a community adopts a Compatible Renewable Energy Ordinance (CREO). White River Township has adopted a CREO, which allows it to retain local review authority.

Regulations that are applicable to Lakeside Solar are contained in the following Township Ordinances, which amended chapters or sections of the Zoning Ordinance:

- Township Ordinance 58-2023, which amended Chapter 2 (Definitions) and Section 3.45 (Small-Scale Solar Energy Systems), and added Section 16.06(MM) (Utility-Scale Solar Energy Systems).

- Township Ordinance 61-2024, which amended Section 16.06(MM) by adding a new subsection 29, titled "Utility-Scale Solar Energy Systems under PA 233." For solar energy systems with a nameplate capacity of 50 MW or more, subsection 29 incorporates all Act 233 standards dealing with setbacks, fencing, height, noise, lighting, environmental regulations, and host community agreement.

- Township Ordinance 60-2024, which added Chapter 14A, creating a new Renewable Energy Overlay District on brownfield properties in the southeast part of the Township to accommodate renewable energy land uses.

- Township Ordinance 63-2024, which added a new Section 16.06(NN) to incorporate regulations for utility-scale battery energy storage systems.

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3. Any land or property shown as "prime farmland" on a current or future White River Township Master Plan Map (entitled Prime Farmland).
4. Any land or property identified as prime farmland by the Natural Resource Conservation Service (NRCS) of the U. S. Department of Agriculture (USDA).

According to Section 16.06(MM), special land use approval is required for all utility-scale solar energy systems. Thus, Lakeside Solar must comply with all the requirements in Chapter 16 of the Zoning Ordinance. According to Section 16.02, the Planning Commission has the authority to make a final determination regarding a special land use request.

Furthermore, Section 501(3) of the Michigan Zoning Enabling Act (Public Act 110 of 2006, as amended) states that site plan submission, review, and approval shall be required for special land uses. Thus, Lakeside Solar must comply with all the requirements in Chapter 15 of the Zoning Ordinance. According to Section 15.07, the Planning Commission has the authority to make a final determination regarding a site plan proposal.

REVIEW COMMENTS

We have reviewed the plans and documentations submitted by Lakeside Solar, LLC, giving consideration to the regulations in the ordinances and laws specified above, and offer the following comments:

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
Scale of plans	Section 15.03(B)(1)	The plans should be drawn at 1" = 100'. They are drawn at a larger scale.	As a condition of approval, the plans should be drawn at the proper scale.
Location sketch	Section 15.03(C)	Plans do not consistently show properties and streets within one half mile, as well as zoning of surrounding properties.	As a condition of approval, the location drawings should be revised to show properties, streets, existing land use, and zoning within one half mile.
Ownership of property	Section 15.03(C)	Proof of property ownership has not been provided.	As a condition of approval, the applicant should provide proof of property ownership (i.e., title work).
Insufficient site plan information	Section 15.03(C), Section 16.06(MM)(21)(a)	Property lines and dimensions are lacking.	As a condition of approval, the plans should be revised to show the property lines, dimensions, and acreages of all participating parcels on all sheets. In addition, adjacent non-participating parcels should be clearly delineated and identified by property owner.
Insufficient information concerning the BESS	Section 16.06(NN)(3)(d) and (f)	Ordinance No. 63-2024 requires the following information for the BESS: An operations agreement setting forth the operations parameters, the name and contact information of the operator, the applicant's inspection protocol, emergency procedures, and general safety	As a condition of approval, the application package should include an operations agreement and a site plan for the BESS, prepared according to the requirements in Section 16.06(NN)(3)(d) and (f). A detailed construction plan will be required prior to the issuance of building permits

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		documentation. Also, a conceptual plan that consists of a graphical computer-generated depiction of how the BESS will appear from all directions. This information has not been provided.	to ensure that the final layout is consistent with the submitted site plan. The Overall Site Plan on sheet C100 that was submitted on November 26, 2025, does not address all the requirements of Section 16.06(NN)(3)(d) and (f).
Water and septic utilities	Section 15.03(C)	The application and plans do not address the need for well water and septic systems. Presumably, the operations and maintenance building, at the very least, will require such facilities.	As a condition of approval, the plans should be revised to show locations of existing and proposed wells and septic systems.
Parking lots and access points	Section 15.03(C)	Parking lots proposed within the project are not shown. Access points do not have the approval of the Muskegon County Road Commission.	As a condition of approval, the plans should be revised to show all parking areas at the laydown yards and elsewhere, and Driveway Permits shall be obtained for every access point onto a public road.
Proposed screening and landscaping	Section 15.03(C), Section 15.06(B)(3), Section 15.06(B)(4). Section 15.06(B)(7), Section 16.06(MM)(7), Section 16.06(NN)(5)(c)	Screening is proposed around homesteads but not along roads and not around the BESS, operations and maintenance building, loading/unloading areas, and waste collection areas. Civil plans call for Suggested Additional Screening Buffer, but Sheet L100 does not provide details for this buffer. Certain selected plants are inappropriate and there is a need for a greater variety of plants. *(See additional comments regarding screening later in this letter.)*	As a condition of approval, a complete set of landscape plans prepared by a registered landscape architect should be submitted that show the number and species of each proposed plant, spacing with dimensions, and size at time of planting. The landscape plans should also include information about proposed pollinator plant seed mixes. The plans should illustrate where each seed mix will be used within the Preliminary Development Area. The landscape plans should address the deficiencies identified in column three, as well as the deficiencies noted in the comments regarding landscape screening following this chart.

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
Impact on natural features—stands of trees, wooded areas	Section 15.03(C), Section15.06(D)(1) and (D)(2)	Information about tree removal is lacking, including removal of landmark trees.	As a condition of approval, a tree identification plan should be provided for all areas where trees will be removed, which should identify the species of trees 6 inches in caliper and greater that are slated for removal. In addition, the acreage of each wooded area and hedgerow to be deforested should be specified.
Impact on natural features—floodplains	Section 15.03(C)	Solar arrays and equipment encroach into regulated floodplains.	As a condition of approval, all solar arrays and equipment should be completely removed from regulated floodplains.
Impact on natural features—wildlife and the environment in general	Section 15.03(C), Section 16.06(NN)(4)(i)(2), Public Act 233 of 2023	Page 90 of the Special Land Use Application refers to wildlife movement corridors and habitat buffers that have been preserved, but these have not been identified on the plans. Ordinance 63-2024 requires an environmental analysis related to the BESS, which shall assess any potential impacts on the natural environment, including removal of trees, wetlands, and other fragile ecosystems, wildlife, and endangered and threatened species.	As a condition of approval, the plans should be revised to show wildlife movement corridors and habitat buffers that are being preserved throughout the project. The plans should provide details for modified fencing layouts to accommodate wildlife movement. In addition, an environmental analysis shall be prepared for the BESS that meets the requirements in Section 16.06(NN)(4)(i)(2).
Signs	Section 15.03(C), Section 16.06(MM)(19)	Insufficient information has been provided about proposed signs.	As a condition of approval, the application shall be revised to indicate that a two (2) square foot sign will be posted on each entrance gate, which will be kept up to date with the owner's name, the operator's name, and at least two emergency contact numbers.
Name and seal of the professional who prepared plans	Section 15.03(C)	The professionals who prepared civil plans and landscape plans are not	As a condition of approval, the civil plans should be sealed by a civil engineer registered in the State of

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		identified and plans are not sealed.	Michigan and the landscape plans should be sealed by a landscape architect registered in the State of Michigan.
Dimensions of existing and proposed structures	Section 15.03(C), Section 16.06(MM)(15)	The plans lack dimensions of existing and proposed structures, as well as setback dimensions. Solar panels must be a minimum of 3 feet above grade and shall not exceed 12 feet in height. All other structures shall not exceed 35 feet in height. Section 3.1 provides inexact dimensions. Based on the information in that section, solar panels may be as small as 8 sq. ft. or as large as 28 sq. ft. At full tilt they may be only 12 feet in height, or they may be as high as 25 feet in height. This lack of precision is inappropriate for the purposes of zoning enforcement.	As a condition of approval, dimensions (length, width, height, and setbacks, as appropriate) should be added to the plans for the solar arrays, BESS, substations, operation and maintenance building, inverters, and other facilities. Setback dimensions from property lines should also be added, because scaling from the plans is notoriously imprecise.
Location of access roads	Section 15.03(C)	The Special Land Use Application notes that "the final location of the access roads will depend on the equipment selected and final engineering. . ." A change in location of access roads would require reevaluation of the site plan by the Planning Commission.	As a condition of approval, the Planning Commission should note that reevaluation of the site plan will be required if the locations of access roads change. Also, reissuance of driveway permits by the Muskegon County Road Commission may be required.
Surface water drainage facilities	Section 15.03(C), Public Act 233 of 2023	The Special Land Use Application indicates there will be stormwater basins, but none are shown on the civil plans.	As a condition of approval, the Civil Permitting Plans should be revised to show proposed grading and stormwater management basins and improvements.
Fences	Section 15.03(C), Section 16.06(MM)(b)	Page 35 of the Special Land Use Application indicates there will be a 7-8 ft. woven fence around the solar facility and a 6 ft. fence with 1 ft. of barbed wire around	As a condition of approval, the application and plans should be revised to call for a 7 ft. woven fence around all facilities with no barbed

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		the BESS. However, the only detail on sheet C700 shows a 6 ft. chain link fence with 1 ft. of barbed wire. Section 16.06(MM)(10) of the Zoning Ordinance does not permit barbed wire.	wire, which is consistent with NEC regulations.
Exterior lighting	Section 15.03(C), Section 16.06(MM)(29)(e). Section 15.06(B)(6), Section 16.06(NN)(5)(a), Public Act 233 of 2023	Information regarding compliance with dark sky friendly lighting is lacking. Details about exterior lighting are needed to determine compliance with regulations.	As a condition of approval, the application and plans should be revised to specify the manufacturer, type, height (no higher than 22 feet), method of shielding, and locations of all exterior lighting fixtures. In addition, a photometric plan must be submitted to demonstrate compliance with dark sky objectives.
Alternative site analysis	Section 15.03(D)	The application did not include a complete, comprehensive and thorough analysis of the alternative Renewable Energy Overlay District site. A comprehensive analysis would include soil borings, a topographic survey, a preliminary layout, and a detailed cost-benefit analysis.	As a condition of approval, the applicant should complete a comprehensive analysis of the alternative Renewable Energy Overlay District site, which should include, at minimum, soil borings, a topographic survey, a preliminary layout, and a detailed cost-benefit analysis.
Noise generation	Section 15.03(C), Section 16.06(MM)(29)(e), Section 15.06(B)(3), Public Act 233 of 2023	The facility must not generate a maximum sound in excess of 55 average hour decibels as modeled at the nearest outer wall of the nearest nonparticipating dwelling. The applicant's Sound Modeling Assessment was completed without knowing the exact locations of equipment, without knowing the final design and selection of equipment, and without knowing sound power value of equipment. Also, the Sound Modeling Assessment calls for a 3-	As a condition of approval, the Sound Modeling Assessment must be completed redone when the following information is known: the exact locations of all equipment, equipment manufacturers, equipment model numbers, sound power values (spectral), a description of how the sound power values used in the assessment compare with other possible equipment, If the highest sound level equipment was not used for modeling, an explanation why it was not,

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		meters-high sound buffer north of the BESS, but it is not shown on the plans, and no specifications are provided for the buffer. Therefore, the Assessment must be deemed preliminary and incomplete.	and contingency factors for equipment sound level values Where sound isolines show a maximum sound of 50 dB(A) or greater at a receptor, relocation of inverters shall be considered as a means to reduce the sound level. Also, as a condition of approval, the BESS sound buffer should be shown on the plans, and specifications should be provided for the buffer.
Traffic impact	Section 15.03(D), Section 15.06(C)(1) through (C)(6), Section 16.06(MM)(20)	Insufficient information has been provided to determine if a Traffic Impact Assessment should be required. Page 35 of the Special Land Use Application indicates that the final locations of access roads are not known, so submittal of the application may have been premature. Permits from the Muskegon County Road Commission are needed for driveways and use of public roads by heavy construction vehicles. A surety bond may be required to cover the anticipated cost of road repairs related to the project.	As a condition of approval, the applicant shall show final driveway locations, provide projections of peak hour and 24-hour traffic generated on Township roads by the project when construction is underway, obtain and submit copies of required permits from the Muskegon County Road Commission, and post a surety bond to cover the anticipated cost of road repairs related to the project.
Completeness of application package	Section 15.03(D)	Map 2 in Appendix E is missing.	As a condition of approval, the plan set should include Map 2 in Appendix E.
Emergency services	Section 15.06(B)(1), Section 15.06(B)(5), Section 16.06(NN)(3)(n) through (p), Section 16.06((NN)(5)(g), Public Act 233 of 2023	The Operations and Emergency Action Plan is incomplete, lacking information for the Fire Department about how to extinguish a fire and lacking key contacts at Geronimo Power. Sections 16.06(NN)(3)(n) through (p) contain detailed emergency response and fire protection	As a condition of approval, the applicant should submit a comprehensive Operations and Emergency Action Plan for both the solar arrays and the BESS compound that is developed in consultation with the local Fire Department and Police Department.

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		requirements related to the BESS, which have not been addressed. It is unclear if the Fire Department and Police Department have been consulted about the Action Plan.	
Approvals from other agencies	Section 15.06(B)(8), Section 16.06(NN)(3)(s) Section 16.06(MM)(29)(f)	Approvals have not been obtained from the Michigan Department of Environment, Great Lakes and Energy, pursuant to the Natural Resource and Environmental Protection Act (Public Act 451 of 1994, as amended), including Part 31, Water Resources Protection; Part 91, Soil Erosion and Sedimentation Control; Part 301, Great Lakes and Streams; Part 303, Wetlands; and Part 365, Endangered Species Projection. Approvals are also required from the Muskegon County Water Resources Commissioner (Soil Erosion and Sedimentation Control), the Muskegon County Road Commission (driveway permits, use of public roads by construction vehicles), and State Historic Preservation Office (SHPO).	The project may be approved on the condition that all permits from EGLE, the Muskegon County Water Resources Commissioner, the Muskegon County Road Commission, and SHPO shall be obtained and copies submitted to the Township prior to issuance of a building permit.
Compliance with the purposes of the Master Plan	Section 15.06(B)(9)	Given that the Land Control Area occupies 15.6% of the land area of the Township and over 40% of the open land area of the Township, it is evident that the project does not comply with the Master Plan goal of preserving the Township's pastoral setting, rural amenities, open spaces, and scenic beauty. Furthermore, given that 84.9% of the land in the Land Control Area is prime	As a condition of approval, the plans should be modified to shift the project to the Township's Renewable Energy Overlay (REO) District, thereby preserving rural lands, valuable farmlands, and scenic beauty.

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		farmland or farmland of local importance, it is evident that the project conflicts with the Master Plan goal of preserving the Township's farmland base.	
Compliance with the purposes of the Zoning Ordinance—Part 1	Section 15.06(B)(9),	Given the project coverage cited previously in this letter, the project conflicts with the purposes of the Zoning Ordinance, one of which is protecting the stability of the agricultural economy, the rural character, and open space.	As a condition of approval, the plans should be modified to shift the project to the Township's Renewable Energy Overlay (REO) District, thereby protecting the stability of the agricultural economy, the rural character, and open space.
Compliance with the purposes of the Zoning Ordinance—Part 2	Section 15.06(B)(9)	With solar arrays and associated equipment proposed to encroach into regulated floodplains, the project conflicts with the Zoning Ordinance purpose which calls for conserving lands, waters, and other natural resources for their most suitable purposes.	As a condition of approval, all solar arrays and associated equipment should be moved out of regulated floodplains.
Compliance with the purposes of the Zoning Ordinance—Part 3	Section 15.06(B)(9)	The goal of protecting the stability of the agricultural economy raises concern about the nine parcels encompassing approximately 307 acres in the Land Control Area that are enrolled in PA 116 Farmland Development Rights Agreements. No information has been provided regarding these Agreements, and whether property owners are aware they may lose their tax incentives.	As a condition of approval, copies of all Farmland Development Rights Agreement should be submitted, along with written evidence that the property owners are aware of the implications of entering into the lease agreement with Lakeside Solar while being enrolled in a Farmland Development Rights Agreement.
Protection of prime agricultural lands	Section 16.06(MM)(11)	The Zoning Ordinance states that "Utility-scale solar energy systems shall generally not be located on or within prime agricultural soils or areas." The Ordinance further states that "Prime agricultural soils and	As a condition of approval, the Lakeside Solar facility should be moved to the reasonably available land within the Township's designated Renewable Energy Overlay District.

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		areas shall be avoided and not have utility-scale solar energy systems or components thereon unless no other land is reasonably available and facilities will not adversely affect other area uses."	
Stormwater management—Part 1	Section 15.03(C), Section 15.06(D)(3) through (D)(7), Public Act 233 of 2023	A stormwater management plan has not been submitted. The Special Land Use Application refers to the presence of stormwater basins, but none are shown on the civil drawings. There are no plans to safely capture stormwater runoff and release it at a controlled rate to the public storm drainage system. In the absence of a stormwater management system, the project could cause periodic flooding and harm existing drainageways and wetlands.	As a condition of approval, the applicant should submit and implement a stormwater management plan, which shall be prepared by a civil engineer registered in the State of Michigan. The plan should include no direct discharge of stormwater into surface waters. Furthermore, the stormwater management plan must comply with the requirements of the Muskegon County Water Resources Commissioner, as set forth in the Procedures and Design Standards for Stormwater Management.
Stormwater management—Part 2, farm drainage tiles	Section 15.03(C), Section 15.06(D)(3) through (D)(7), Section 16.06((NN)(5)(f)	The application acknowledges that farm drainage tiles will be damaged during construction, but detailed information about repair of the tiles has not been provided. Section 16.06((NN)(5)(f) contains detailed requirements for ongoing inspection and repair of damaged tiles.	As a condition of approval, the application should include plans that illustrate the locations and depths of farm drainage tiles, plus a plan for inspection of all drain tiles by robotic camera every two years and immediate replacement of damaged tiles, pursuant to the requirements in Section 16.06((NN)(5)(f).
Township land coverage	Section 16.06(MM)(6)	Utility-scale solar energy systems shall not occupy or cover more than five percent of the total land area of the Township. The Preliminary Development Area—the land on which project facilities would be located—would occupy 9.7% of the land in the Township.	As a condition of approval, the Preliminary Development Area of the Lakeside Solar energy facility should be reduced in size by 476.4 acres, a 48.5% reduction, to comply with five percent coverage requirement.

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
Maximum Size	Section 16.06(MM)(7)	Utility-scale solar energy systems shall not exceed eighty acres in size per parcel or lot. In addition, according to the ordinance, where two or more utility-scale solar energy systems (or lots or parcels involved) are located within one mile of one another and are owned or operated by the same person or firm, such systems shall be deemed to be one overall utility-scale solar energy system for purposes of Subsection 7 and the total size shall be attributable to each such lot or parcel. Nearly all the land in the Lakeside Solar project is not in compliance with these requirements because of adjacent parcels under the same ownership that exceed 80 acres. For example, noncompliant parcels fall under the ownership of Michael & Stephenie Cockerill, John W. & Pamela K. Degen, Michael Cockerill & Kelly B. Whiting, Guter Farms LLC, John Ramthum, and Paul E. & Eileen Schroeder.	As a condition of approval, the plans should be modified to comply with the maximum size requirements of the Zoning Ordinance, which may require moving the project to the Township's Renewable Energy Overlay District.
Decommissioning plan	Section 16.06(MM)(21)(f). Section 16.06(MM)(24), Section 16.06(MM)(26), Section 16.06(NN)(5)(j)	The Decommissioning Plan cites an obsolete Township Ordinance, No. 51-2019, as the basis for the Plan. The current requirements for decommissioning plans are in Ordinances No. 58-2023 and 63-2024 (for the BESS). Pursuant to Ordinance No. 58-2023, the engineer who prepared the third-party decommissioning cost estimates should be identified.	As a condition of approval, the Decommissioning Plan should be modified to comply with and to cite Township Ordinance 58-2023. The Decommission Plan should include provisions for replace of damaged farm drainage tiles. Also, prior to the start of construction, the applicant shall post with the Township Decommissioning Security as described in Section 16.06(MM)(24).

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
Liability insurance	Section 16.06(MM)(28), Section 16.06(NN)(5)(h)	The application does not address liability requirements in the Ordinance.	As a condition of approval, the applicant shall provide liability insurance in the amount of at least $2 million, pursuant to the requirements in Section 16.06(MM)(28). In addition, the applicant shall shall maintain property/casualty insurance and general liability insurance in an amount of at least $5 million per occurrence, pursuant to Section 16.06(NN)(5)(h).
Visual impact assessment for the BESS	Section 16.06(MM)(4)(i)(1)	Ordinance 63-2024 requires a visual impact analysis for the BESS, which shall include a technical analysis of the visual impacts, including a description of the project, the existing visual landscape, important scenic resources, visual simulations, and mitigation measures to help reduce the visual impacts of the project. This information has not been provided.	As a condition of approval, the application should be modified to include a visual impact analysis for the BESS, which shall meet the requirements in Section 16.06(MM)(4)(i)(1).
Location of electric lines	Section 16.06(MM)(14)	All collection lines and interconnections within the utility-scale solar energy system shall be located and maintained underground, unless above ground installation is approved by the Planning Commission. Page 20 of the Special Land Use Application indicates that a hybrid below ground and above ground electrical collection system is proposed, but the plans need to more clearly indicate which lines are below ground and which are above ground.	As a condition of approval, Appendix E, Map 4, Pages 1-12, should be revised to clearly delineate which electric lines are below ground and which are above ground, so that the Planning Commission can make a determination whether the above ground lines should be permitted.
Gravel fire break	Section 15.03(C)	The Operations and Emergency Action Plan indicates “the storage facility and substation will have	As a condition of approval, sheets C332 and C333 and the Overall Site Plan for the BESS should be revised to

Ordinance Issue	Applicable Regulations	Concerns	Recommended Action
		gravel around the perimeter at least 15 feet to act as a fire break," but this gravel is not shown on the civil plans. The gravel is also not shown on the Overall Site Plan for the BESS that was submitted on November 26, 2925. This is another example of incomplete plans.	illustrate the width, depth, and class of gravel proposed as a fire break around the storage building and substation.

ADDITIONAL COMMENTS REGARDING LANDSCAPE SCREENING

The Civil Site Plans indicate there will be three types of landscape screening:

- Proposed Vegetation Screening – Type 1
- Proposed Vegetation Screening – Type 2
- Suggested Additional Screening Buffer

Sheet L100 provides Landscape Screening Notes & Details. This sheet provides conceptual planting details for Type 1 and Type 2 screening but provides no information about an additional screening buffer. This deficiency should be corrected on revised plans.

Sheet L100 also indicates that screening will be provided only where a solar energy system abuts or is across the road from a residential use that is not otherwise screened by natural vegetation. Consequently, no screening is proposed where solar arrays abut roads, so the rural, pastoral views and environment will be greatly diminished. Thus, the plan is in conflict with the Zoning Ordinance, which calls for screening the entire project (Section 16.06(MM)(8)).

After reviewing sheet L100 in detail, we have identified the following specific concerns:

1. **Plant Materials**. We have the following concerns regarding the plant material selections:

    a. **Black Hills Spruce** (Picea glauca 'Densata') – According to the **Manual of Woody Landscape Plants** by Michael A. Dirr, there are superior evergreen alternatives, one of which is the Serbian Spruce (Picea omorika).

    b. **Common Elderberry** (Sambucus canadensis) – According to Dirr, this plant suckers profusely and requires constant attention if it is to be kept in presentable, decent condition. Based on this analysis of the plant, another species of shrub should be selected.

    c. **Red Osier Dogwood** (Cornus sericea) – According to Dirr, this plant is excellent for massing in large areas. Thus, it is a good plant selection, but it is not being used to its full potential in the proposed planting details..

2. **Need for a Greater Variety of Plants**. Planting a wide variety of species strengthens the health and resilience of the landscape. Just as ecosystems thrive with a mix of plants and animals, landscape communities benefit when no single tree or shrub species dominates. Greater diversity helps reduce the risk of widespread damage from pests, diseases, or environmental stress. Based on these principles and the huge area to be screened, the variety of plants being proposed should, at least, be doubled.

3. **Landscape Design**. The first inclination when developing a plan to screen a large area like a solar farm might be to plant a formal planting of one row of all the same kind of tree in a straight line, evenly spaced (see Planting Detail Type 2). This type of planting plan will result in a fortress wall effect. Alternatively, for the sake of simplicity and ease of planting, a formal scheme involving regular spacing of trees and shrubs might be proposed (see Planting Detail Type 1). While Planting Detail Type 1 has more to offer than Type 2 because of the variety and arrangement of plants, both designs would be better suited in a more formal urban setting. A real set of landscape plans is needed, prepared by a registered landscape architect, that respects the variety, character, and informality of the rural setting in White River Township.

4. **Conflict with BESS Screening Requirements**. The Landscape Screening Notes & Details on sheet L100 conflict with the BESS screening requirements specified in Section 16.06(NN)(5)(c) of the Zoning Ordinance, which call for two rows of Norway spruce trees planted no greater that twelve feet apart trunk to trunk, with the two rows no greater than ten feet apart. The trees shall be at least eight feet tall at the time of planting, measured from the top of the root ball to the base of the leader. The Ordinance states that screening is required around any BESS and around any equipment associated with the system to obscure the BESS from all sides to the greatest extent possible. In contrast with these requirements, Civil Site Plan Sheet C333 proposes no screening around the BESS and related equipment. The Overall Site Plan for the BESS on Sheet C100 submitted on November 26, 2025, proposes no screening as well.

As a condition of approval, the applicant should submit a complete set of landscape plans for the entire project, which should be prepared by a registered landscape architect.

My colleague, Leslie Zawada, and I look forward to reviewing the findings in this letter with the Planning Commission in the near future. In the meantime, if you have any questions, please feel free to contact Leslie or me.

Respectfully submitted,

Christopher J. Doozan, AICP
Community Planning Consultant

C: Lauren Wackernagel, Planning Commission Chair
Ron Bailey, Township Supervisor
Julie Goericke, Township Clerk
Bill Schmiege, Zoning Administrator
Michael Homier, Esq.
Keith Brown, Esq.

EXHIBIT K

Property Value Impact Assessment: Lakeside Solar Project

Submitted to

White River Township, Muskegon County, Michigan

PI: Zhenshan Chen, Assistant Professor

Senior Personnel: Matthew Mair, Ph.D. Student

Department of Agricultural and Applied Economics, Virginia Tech

December 2025

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Executive Summary

Background and Purpose

The Lakeside Solar Project is a proposed 150 MWac utility-scale solar facility in White River Township, Muskegon County, Michigan. Township officials have requested an independent, evidence-based assessment of potential impacts on nearby residential property values. This report provides such an assessment using comparable operating solar farms in the Midwest and state-of-the-art econometric methods. Direct impact evaluation is not possible for the Lakeside site because the facility is a proposed project; consequently, no post-installation property transaction prices exist. To address this, we identify comparable operating solar developments in the region and analyze real estate transactions surrounding those sites. These observed patterns are used to infer the likely impact on property values surrounding the proposed Lakeside project.

Methodology

To ensure the findings are directly applicable to the Lakeside context, the research team identified 27 operating utility-scale solar projects in the Midwest that closely resemble the proposed site in terms of capacity, proximity to water, residential density, and local demographics. The analysis relies on a dataset comprising over 4,000 sample properties (i.e., properties with observable transactions) within one mile and over 86,000 sample properties within five miles of these matched facilities.

Key Findings

- *Geographic Extent of Impact*: The measurable negative impact on property values is **concentrated within a 2.5-mile radius** of the solar facility. The impact is strongest within the first 0.5 miles (-13.4%) and becomes statistically negligible beyond 2.5 miles.
- *Average Property Value Loss*: On average, residential properties located within the 2.5-mile impact zone are projected to sell for **approximately 7.9% less** after the facility becomes operational (statistically significant at the 5% level).
- *Impact on High-Value Homes*: The depreciation effect is **substantially larger for high-value properties** (defined as market values exceeding $400,000). These homes are projected to experience a 11.7% decline in value.
- *Duration of Impact*: A negative price impact appears immediately upon facility operation and **persists for approximately 10 years**, with the strongest effects occurring around Year 7. Market trends indicate that the impact may become negligible after a decade.
- *Annualized Loss*: The total annualized loss for existing residential properties within 2.5 miles is estimated at **$2.72 million per year**.
- *Net Present Value (NPV) of Losses*: Using conservative assumptions, the present-day economic cost of these property losses within 2.5 miles over the 10-year duration is **$20.44 million** with a 7% discount rate and **$22.05 million** with a 5% discount rate.

1. Approach and Contribution

1.1 Conceptual Approach and Objectives

Economic assessments of property value impacts typically compare observed sales near a new infrastructure project (treated properties) with similar properties farther away (control properties). Lacking an operational Lakeside facility, we have constructed a comparative framework for identifying similar solar installations based on observable characteristics. The details of this matching strategy are outlined in Section 2.1.

Across these comparable sites, we examine over ninety thousand residential transactions to conduct our impact analysis, outlined in four integrated components:

1. *Spatial Impact Assessment*: Determine the geographic extent of any measurable property value effects by examining how impacts vary with distance.
2. *Average Impact Analysis*: Estimate the mean property value effects across all affected properties and assess how impacts differ across distance-based proximity groups.
3. *Temporal Impact Analysis*: Evaluate how property value impacts evolve following project operation, including whether effects diminish, persist, or change over time.
4. *Total Impact Analysis*: Evaluate the aggregated property value impacts based on properties around the proposal Lakeside project and results of above analyses.

This integrated approach provides the conceptual foundation for our study and ensures that the resulting findings are grounded in robust, replicable, and geographically relevant evidence.

1.2 Improvements Over Existing Analysis

The proposed analysis substantially improves upon the Adjacent Property Value Impact Report (Appendix L of the Lakeside filing) in several key respects:

- Instead of assuming impacts are limited to adjacent properties, we empirically detect the true geographic footprint of influence.
- Furthermore, our analysis incorporates all available residential transactions around 27 comparison sites, rather than relying on a small set of hand-selected observations.
- We report estimated impacts and confidence intervals from formal models, providing quantifiable uncertainty rather than binary judgments.
- All procedures—including comparable site identification, data screening, proximity definitions, and analytical models—are fully documented in the Technical Appendix. With approval from the township, code will be made available in a public data repository.

2. Results

2.1 Comparative Site Summary

We identified 27 operating utility-scale solar projects in the Midwest (IL, IN, IA, MI, MN, MO, WI) that most closely resemble Lakeside in capacity, proximity to water, residential density, income, and political leaning (see Section 3.1 details of matching process). The closest match is Wapello Solar, LLC (100 MWac, Iowa, 2021), followed by several 5–28 MWac projects. We believe this focused analysis provides the best available evidence for property value impacts of the proposed Lakeside solar project.

The selected 27 sites provide more than 4,000 sampled properties within 1 mile and more than 86,000 within 5 miles. About 40% of the selected sites are within 2 miles of a major lake or river. The capacity of these sites ranges from 5 to 100 MWac, with a median of 9 MWac. Most of the sites are in communities with slightly growing populations. The average census tract median household income of these sites is about $88,000. A list of selected sites is provided in the Technical Appendix Table C2.

2.2 Spatial Extent & How the Effect Changes with Distance

To assess the geographic extent of the property value impact, we employed a distance decay version of the Difference-in-Differences (DID) approach as shown in the Methods Section. Figure 1 highlights the distance decay of the resulting impacts. The negative impact of the solar development on home prices is strongest for properties within the first 0.5 miles (~13.4%). The effect diminishes with distance from the facility, falling to 6–10% between 1 mile and 2.5 miles, and disappears beyond 2.5 miles.

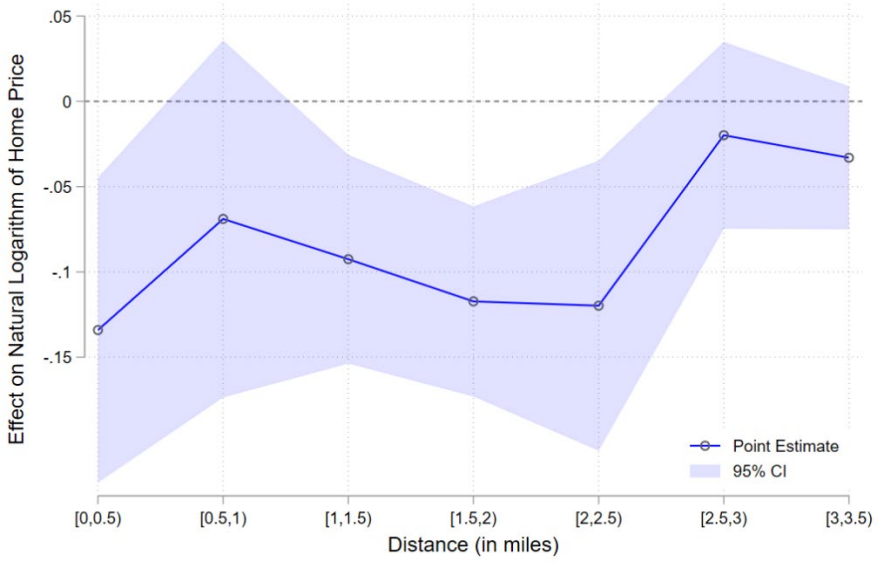


Figure 1: Effect on log home price by distance band.

The results of our spatial analysis inform our decision of "treated" and "control" units for our estimate of the average treatment effect and our analysis of the treatment effect over time. Properties within 2.5 miles of the development (and thus projected to have a significant negative impact on their property values) are assigned to the treatment group. Properties between 3.5 and 6 miles are assigned to the control group. This comparison strategy provides a 1-mile buffer zone between treated and control. Our key assumption is that price trajectories of these two groups follow a similar trajectory over time, which is supported by our analysis in Section 2.4.

2.3 Average Effect Estimates and Effect by Home Value Category

Using these 27 matched sites, we compare the property value impacts between the "treated" sites (within 2.5 miles of the site) and "control" sites (between 3.5 miles and 6 miles of the site). **We project that homes within 2.5 miles of the solar site will sell for about 8% less** (coefficient = -0.0795**, $p < 0.01$), on average due to site installation, compared with similar homes slightly farther away (i.e., 3.5 miles to 6 miles). High-value properties (defined as properties above $400,000 or 80th percentile in market value) experience a significantly larger effect (-11.7%) compared to low-value properties (-6.17%), approximately double in magnitude.

Table 1. Average Property Value Impact Estimates. Standard errors are in parentheses, with stars indicate the following statistical test significance level: * p<0.1, ** p<0.05, and *** p<0.01.

	DID: Proximity Treatment	DID: By Home Value Category
Treatment (Proximity below 2.5 mi) × Post	−0.0795***	
	(0.0257)	
Treatment × Post × High-value (above $400k) home		-0.117*
		(0.0578)
Treatment × Post × Low-value ($400k and below) home		-0.0617**
		(0.0253)

2.4 Effect Over Time

Our event study analysis reveals the varying impacts of the facility development over time. With no clear pre-existing trend difference between the treated and control groups, we can be relatively confident that the effects we observe are not due to unobserved factors. We project that prices of nearby homes (within 2.5 miles of the site) will drop immediately upon operation of the facility and remain lower for about a decade.

The strongest projected impact occurs around year 7, and the impact diminishes thereafter. One possible explanation for this delayed impact is that some negative impacts of solar site developments, such as soil erosion and dust pollution, take time to manifest. Another possible explanation is residential sorting. People averse to solar sites may wish to move away, but house sales take time to complete, and it may take time for sellers to accept giving a discount.

Eventually people with greater preferences toward solar energy move in, and the market impact may diminish after that.

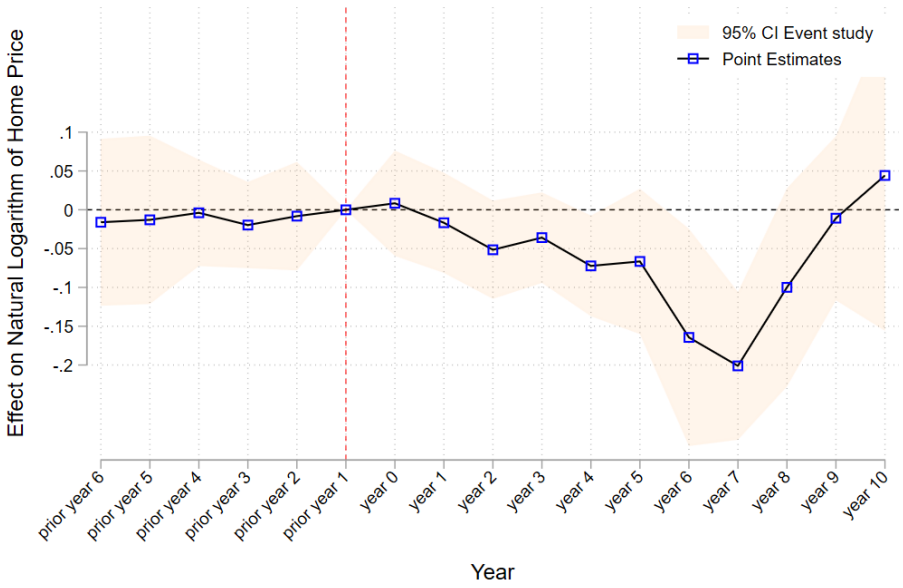


Figure 2: Dynamic price effects before and after solar farm construction. Year 0 is the first year the facility is operational.

2.5 Total Impact Estimates

With a few conservative assumptions (see Section 3.6 for details), we calculate the total property value impact based on coefficient estimates above (Table 2). To express this impact in annual terms—consistent with how economic costs and benefits are typically evaluated—we "annualize" the change in property value using a standard 5% capitalization rate. If we fully consider the impact for all properties within 2.5 miles for Lakeside Solar, the sum of annualized property losses adds up to $2.72 million. Using the ten-year impact timeline from the event study, **the net present value (NPV) of this annualized loss is $20.44 million with a 7% discount rate and $22.05 million with a 5% discount rate**.

Table 2. Total Impact Estimates

Radius	Number of Residential Properties	Annualized Total Loss (2025 $)	NPV of Loss – 7% Discount Rate	NPV of Loss – 5% Discount Rate
1 mile	669	$1,144,154	$8,598,580	$9,276,594
2.5 miles	2,205	$2,720,088	$20,442,092	$22,053,986

3. Methods

Below, we outline a brief description of the methodology used for this analysis. For more details and equations regarding any of the methods below, please refer to corresponding sections in the Technical Appendix.

3.1 Comparative Site Selection

We start by identifying utility-scale solar projects whose characteristics resemble those of the Lakeside Solar Project. Our data source is a national dataset of large-scale solar photovoltaic (LSSPV) sites compiled by Fujita et al. (2023) using data from the US Energy Information Administration (EIA).

We first filter out sites that do not meet key matching criteria. Specifically, we filter for sites that were installed before 2021, so we have enough property transaction data to identify impacts over time. We also filter for sites within neighboring and Midwestern states, including Michigan: IL, IN, IA, MI, MN, MO and WI. Moreover, we filter for sites that were built on "greenfields". [1]

Finally, we filter for sites that have an AC capacity of 5 MW or greater, so that we are only comparing among sites that meet the typical "utility scale" definition set by the EIA. Since the proposed Lakeside solar site is quite large (about 150MWac), it would have been ideal to set the minimum MWac filter higher. However, very large sites are usually built in unpopulated areas - a giant site with over 2,000 residential properties within a 2.5-mile radius like Lakeside Solar is unique in the Midwest. Table 3 provides all giant sites (i.e., above 100 MWac) that are close to rivers or lakes in the selected Midwest states (including sites installed after 2021). Wapello Solar represents the closest comparable site in terms of capacity and proximity to water within our timeframe of analysis (i.e., up to 2021), but the surrounding housing stock has a much lower value compared to Lakeside Solar (with an 80th percentile of $157k). To gather enough observations to identify the property value impact, we include all utility-scale properties in the pool and implement a filter for sites with more than 30 "sampled properties"[2] within a 2-mile radius.

Table 3. Giant Midwest Solar Sites (above 100 MWac) in Proximity to a River/Lake

Project Name	Year Online	Capacity (MWac)	Close to Water	Res. Prop. ≤1 mi	Res. Prop. ≤2.5 mi	Res. Prop. ≤6 mi	Acres	State	County	Grid Region
Point Beach Solar	2021	100	1	37	97	925	408.9	WI	Manitowoc	MISO
Wapello Solar, LLC	2021	100	1	468	856	1603	584.5	IA	Louisa	MISO
Two Creeks Solar	2020	150	1	73	127	3114	741.6	WI	Manitowoc	MISO
River Ferry Solar 1	2023	165.3	1	30	83	695	758.6	IL	Clark	PJM
Dunn's Bridge 1 Solar	2023	265	1	673	1267	4105	3145.0	IN	Jasper	MISO

[1] These are sites that occupy "land that may have previously been wildland, urbanized, cultivated, or reclaimed" (Fujita et al., 2023). This filter ensures that we are not comparing property value changes between sites that previously had fundamentally different land uses such as superfunds or landfills, and whose developments are likely to have drastically different impacts on neighboring properties as shown in Hu et al., 2025.

[2] Sampled properties refer to those properties that are sold during our study period so that we can observe their transaction prices. Note that not all residential properties are sold during our study period. For example, out of 468 properties within 1 mile from Wapello Solar, only 121 are sold and providing price information.

We then develop a "similarity score" matrix for all the sites that passed our filters, involving Euclidean distances based on observable characteristics and associated weights. Table 4 shows the site features and associated weights used in the similarity scores, relative to the proposed Lakeside site. Resulting sites are listed in the technical appendix. For the property value impact analysis, we choose 27 sites that are most like the Lakeside site (see Table C2 in the Technical Appendix), providing just over 4,000 sampled properties within a 1-mile radius of these sites.

Table 4. Factors and Weights in the Similarity Score

Factors	Weights
Lake/River/Ocean Proximity below 2 miles (0/1)	5
Site Capacity (MWac)	2
Population Change % (2020–2024)	1
Tract Median Household Income ($)	1
Presidential Voting Share (Percentage Dem.)	1
No. of Sampled Properties within 1 mile	0.5
No. of Sampled Properties within 5 miles	0.5

3.2 Property Data Collection and Screening

Our property data come from CoreLogic through a data agreement. CoreLogic data contain extensive information about property transactions across the entire United States. Following the procedure of Hu et al. (2025), we screen our property data to only keep residential homes that are less than or equal to 6 miles away from the nearest solar sites. Additionally, we exclude non-arm's-length transactions, new builds, and remove transactions on the same property within 120 days of each other to avoid potential home flipping events. To avoid impacts from the Great Recession, we remove transactions between 2008 and 2010. We keep transactions up to 15 years before installation of a nearby LSSPV site and all transactions thereafter to provide relevant and timely comparisons. The goal of our screening process is to only include transaction prices that reflect fair market values. All transaction prices were adjusted for inflation. For a more in-depth description of our data screening process, please see the Technical Appendix.

3.3 Spatial Extent Assessment

To assess how far the property value impact would reach and decide the proper site-proximity treatment to use in the average effect estimate, we employed a distance decay version of the Difference-in-Differences (DID) approach (as suggested in Guo et al., 2024 and Hu et al., 2025). This distance decay study uses natural logarithm of price as the outcome and proximity intervals (i.e., half-mile bins from 0 mile to 3.5 mile in this case) as the treatment variables. The study assesses the difference in property value change between the treatment groups and a control group – properties that are slightly farther from the site (i.e., 3.5 to 6 mile in this case). To address potential bias from confounding factors, we include a comprehensive set of property-

level control variables, allowing their effect to change over time. To absorb the time-varying external location-specific shocks in the housing market, we incorporate fixed effects on the census tract level and county by year level. The result is presented in Figure 1.

3.4 Estimating Average Property Value Impacts

To estimate the impact of solar projects on nearby property values, it is crucial to control for potential confounders. We employ a widely used generalized DID approach to investigate the effects of LSSPV installation on nearby property values (Kuminoff et al., 2010; Banzhaf, H. S., 2021). Intuitively, this approach compares the change in property values before and after installation for properties close to the LSSPV site (i.e., the treatment group) against the value change for properties farther away but still within the defined vicinity (i.e., the control group).

Based on the results from Section 3.3, we specify the treatment group for average impact analysis as properties within 2.5 miles from solar sites, while the control group are properties in the 3.5-mile-to-6-mile proximity bin. The control variables in the DID estimation are identical to Section 3.3. The average property value impact is given by the coefficient of the treatment-post interaction term.

To differentiate the impact on high-value properties from that on low-value properties, we define a binary indicator for high-value properties (i.e., market value above $400,000 or 80th percentile), based on the property value distribution in Figure 3. This high-value variable is then interacted with the treatment-post interaction term, and associated coefficients will provide the estimates of high-value and low-value impacts.

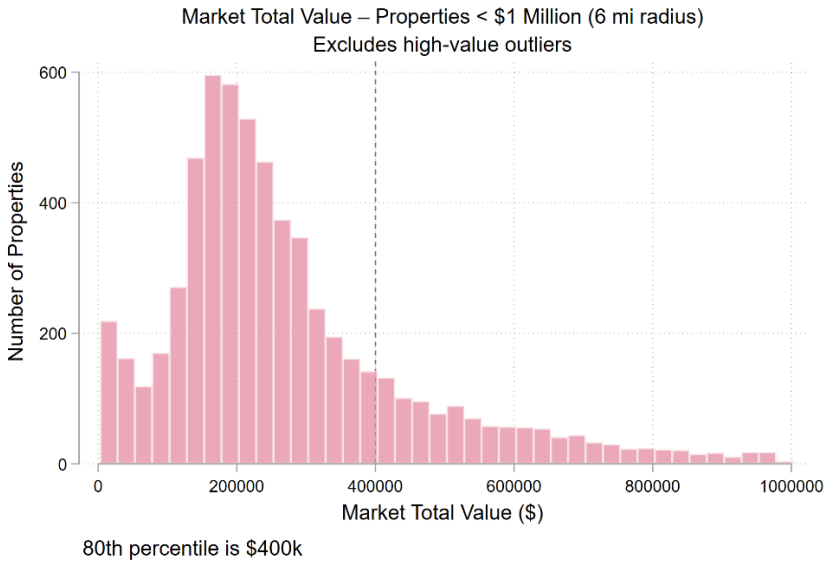


Figure 3: Property Value Distribution within 6 miles of Lakeside Solar. A full version of this distribution is available in the Technical Appendix.

3.5 Temporal Dynamics Analysis

We conduct event studies to explore the timing of the property value impact of solar sites included in this analysis. The treatment here is still specified as properties within 2.5 miles from a solar site, while the post variable (indicating whether the transaction price is before or after the site installation) is revised to a series of binary variables reflecting the transaction year relative to the year of solar site installation (e.g., one year before the installation or three years after the installation). The interaction terms between the relative year variables and the treatment variable show us how the property value impact varies over time.

3.6 Total Property Value Loss Estimate

To calculate the total property value impact, we need to find all residential properties (in Muskegon or Oceana, with or without sales) around the Lakeside solar site (within 6 miles) and identify their treatment status. With the property value impact estimates above, we can assign these impacts to each residential property within 6 miles.

Two reasons rationalize a total impact calculation based on annualized home values. First, the event study suggests that the impact likely diminishes to zero after ten years. Second, even homeowners who do not sell their home incur some losses. An assessment based annualized home values allows us to estimate the welfare impact, independent of whether or not the owner sells the property after the site installation[3]. Such an approach allows us to quantify the aggregate home-associate welfare impact without knowing who sell their homes after the installation.

Using the average treatment effect coefficient estimates (Table 2), we estimate the "annualized loss" for all affected properties using a standard 5% capitalization rate. In this setting, the capitalization rate provides the bridge between a stock measure of property value and the annual flow of housing services that underlies welfare-based interpretations of economic impacts. Conceptually, the capitalization rate represents the ratio of a property's annual net rental value to its market price; for example, a 5% rate implies that a property worth $300,000 yields about $15,000 in annual housing services. Applying this logic in reverse, a reduction in market value can be interpreted as implying a proportional reduction in the annual flow of housing services. Using a standard 5% capitalization rate thus allows us to convert the estimated change in property values into an annual welfare loss, which forms the basis of the long-run economic impact estimates reported below.

Moreover, due to the volume of high-value homes around Lakeside Solar, we will use impact estimates differentiating high-value and low-value homes. The calculation is detailed in the Technical Appendix, and results are presented in Table 1.

[3] Selling at a discount reflects a market behavior that imposes financial losses on the seller, with the act of selling partially contributing to the realized loss. However, the welfare loss exists regardless of whether the property is sold following solar site installation. A proper measure of loss attributable to solar site installation is one that remains independent of individual selling decisions.

We provide the net present value (NPV) of these annualized property losses over the ten-year impact horizon indicated by our event study (Section 2.4). We estimate the NPV using a 5% and 7% discount rate, which are standard benchmarks used in applied welfare analysis and regulatory impact assessments, providing conventional lower- and upper-bounds for sensitivity analysis. These NPV values represent the present-day economic cost of the stream of annualized property value losses over the ten-year horizon, summarizing the long-run welfare impact in a single dollar figure can be directly compared against current project benefits or costs.

There are several reasons to think these total impact estimates being conservative. First, compared to Lakeside Solar, many sampled sites have lower capacity[4], lower housing values (e.g., Wapello Solar) and some sites are not close to lakes or rivers, thus perceived amenity impact for Lakeside solar might be larger than these estimates. Second, annualized house value is calculated with a standard 5% return rate (i.e., capitalization rate), which might be too low compared to the Midwest local gross yield, rendering the estimate conservative. Finally, generalized DID estimates the direct price impact, which is a lower bound of a proper welfare loss measure (Banzhaf, H. S., 2021).

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[4] Although there are reasons to believe that sites with larger capacity may impose higher property value impact, we do not observe direct evidence. Since the current data do not include many large-capacity sites, we expand the dataset to include more states (i.e., CO, NY, and VA, which host more large-capacity sites and not too far from MI) and run an analysis to investigate whether larger capacity increases or decreases the property value impact. The results show that a larger capacity does not significantly change the impact estimate (i.e., the coefficient is .025 with a standard error of .035, statistically insignificant).

Technical Appendix

For: Property Value Impact Assessment: Lakeside Solar Project

Submitted to White River Township, Muskegon County, Michigan

Zhenshan Chen and Matthew Mair, Virginia Tech

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A. Property Data Collection and Screening

To ensure the highest level of accuracy in assessing property value impacts, we utilized transaction-level real estate data from CoreLogic Solutions, LLC. CoreLogic maintains a comprehensive database of property characteristics and historical transaction records across the United States. The dataset includes transactions spanning from 15 years prior to the installation of a solar facility through the present, capturing fair market value trends before, during, and after project construction. Following the methodology of Hu et al. (2025), we establish a set of filters to only include transaction prices that reflect fair market values.

First, consistent with Hu et al. (2025), we categorize properties into 'Residential Homes' (defined as properties under five acres with residential structures) and 'Large-Lot Homes' (properties over five acres). To analyze the impact on residential home value, we only include Residential Homes in our analysis. This distinction is critical as large-lot homes may derive value from potential future solar leasing, offsetting amenity impacts.

Second, a critical step in accurate property valuation is isolating "arm's-length" transactions—sales between a willing buyer and a willing seller where the price reflects fair market conditions, unaffected by distress or pre-existing relationships. We applied a rigorous screening process using CoreLogic's proprietary transaction indicators. CoreLogic has their own indicator of "arm's-length" transactions; all properties that did not have this indicator were dropped. To further ensure validity, we excluded transactions flagged as short sales, foreclosures, sales between relatives, bulk investor purchases, sales for new builds, or sales with incomplete records.

Beyond the arm's-length filters, we applied additional screens to remove market anomalies and statistical outliers that could bias the results. To prevent price distortions from speculative "flipping" (where a property is bought and resold quickly), we removed any transaction occurring within 120 days of a previous sale of the same property. To avoid the confounding effects of the 2008 financial crisis, which created severe market disequilibrium unrelated to solar development, we excluded all transactions occurring between 2008 and 2010. Finally, to diminish the influence of extreme outliers, we excluded transactions falling in the bottom 1st percentile and top 99th percentile of the price distribution.

For the impact analysis, we screened the data to keep only residential homes located within a 6-mile radius of the nearest solar site. All transaction prices were adjusted for inflation using the Consumer Price Index (CPI) to reflect constant dollar values (i.e., 2024 USD in this analysis).

B. Summary of Residential Properties around Lakeside Solar

The proposed Lakeside Solar Project is a 150MWac utility-scale solar facility located in White River Township, Muskegon County, Michigan. The project is situated immediately adjacent to White Lake. Because the facility is not yet operational, direct observation of post-construction transaction prices is impossible. Therefore, this assessment relies on identifying the inventory of existing residential stock surrounding the proposed site to apply impact estimates derived from comparable operating sites (see Section C).

To characterize the residential housing stock surrounding the Lakeside Solar project, we utilized property assessment and transaction data from CoreLogic. We implemented the screening process outlined in Section A.

The residential stock surrounding the Lakeside Solar project includes a diverse range of property values. Figure A1 (corresponds to Figure 3 in the Main Report) and Figure A2 illustrate the distribution of market total values for properties within the 6-mile radius.

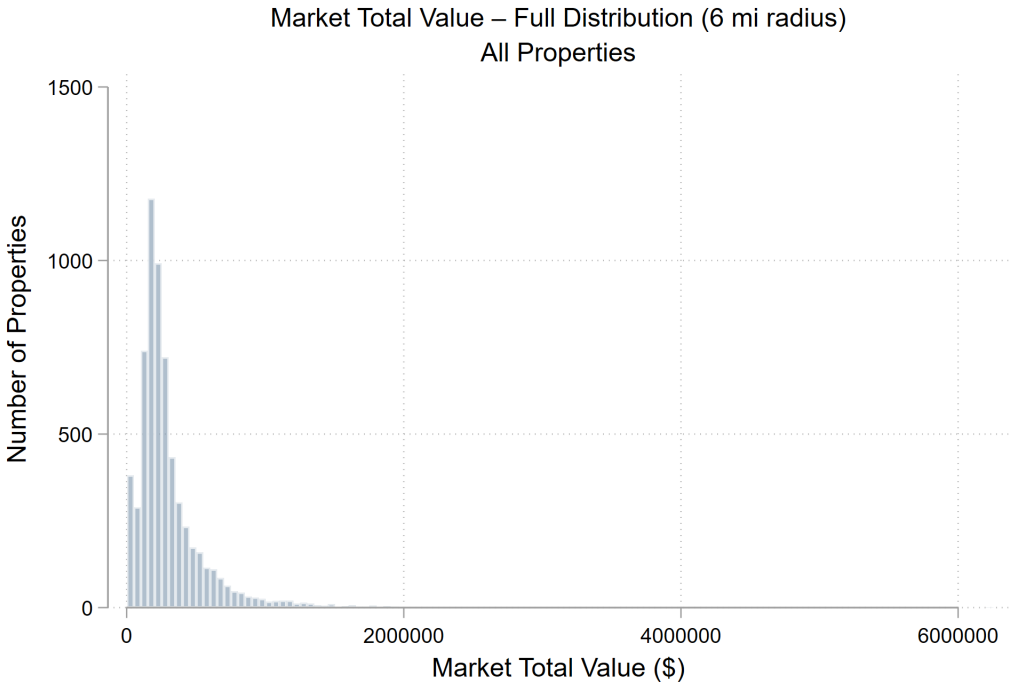


Figure A1: Distribution of market total values (in 2024 dollar) for all properties within a 6-mile radius of the proposed Lakeside Solar development.

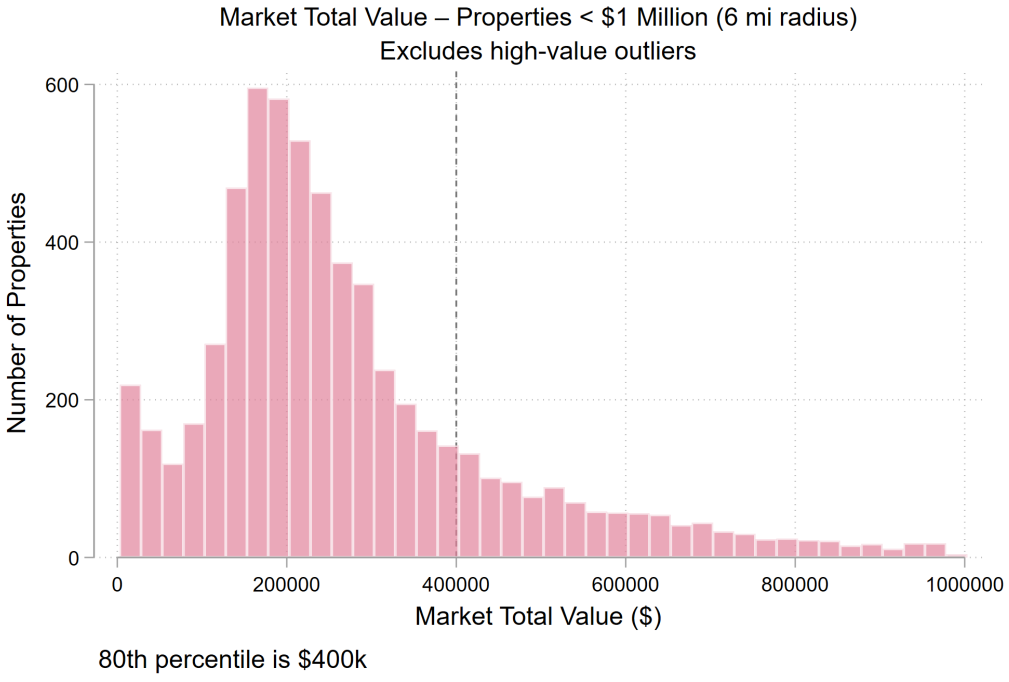


Figure A2: Distribution of market total values (in 2024 dollar) for all non-outlier properties within a 6-mile radius of the proposed Lakeside Solar development. Excludes properties with a total market value exceeding $1,000,000.

Given the specific demographics of the White River Township and White Lake area, we differentiate between "standard" and "high-value" properties in our impact analysis. Properties with a market value above $400,000, which correspond to approximately the 80th percentile of the local market distribution, are classified as “high-value”. Heterogeneity analysis (detailed in Section E) indicates that higher-value properties may experience differential impacts compared to the average housing stock. The distribution data confirms a significant cluster of high-value homes, likely attributable to lake proximity and associated amenities.

C. Comparative Site Selection

To estimate the potential property value impacts of the proposed Lakeside Solar Project, we identified operating utility-scale solar projects in the Midwest with characteristics most similar to the Lakeside site. Our data source is a national dataset of large-scale solar photovoltaic (LSSPV) sites compiled by Fujita et al. (2023) using data from the US Energy Information Administration (EIA) – the data is updated in 2025 to include more recent sites.

Our first step involves filtering out sites that do not meet key matching criteria. Sites that did not meet the following criteria were not used in the analysis. As a first step, we filter for sites that were installed up to 2021, to ensure sufficient post-construction transactions to observe market responses over time. We also restricted the search to neighboring and Midwestern states with similar agricultural and residential landscapes: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, and Wisconsin. We filtered for sites built on "greenfields”. These are sites that occupy “land that may have previously been wildland, urbanized, cultivated, or reclaimed” (Fujita et al., 2023). Sites developed on brownfields (e.g., landfills, Superfund sites) were excluded because their redevelopment often improves property values by remediating a disamenity, which is fundamentally different from converting farmland to solar use.

Additionally, we filter for sites that have an AC capacity of 5 MWac or greater, consistent with the Energy Information Administration (EIA) definition of "utility-scale". While the proposed Lakeside facility is large (150MWac), existing solar sites of this magnitude in the Midwest are typically located in unpopulated areas. Restricting the sample to sites over 100 MWac (or even 50MWac) would yield insufficient data for statistical analysis (e.g., Wapello Solar in Iowa is the only approximate match in size and proximity to water within the study timeframe). A giant site with 150 properties within a 2-mile radius like Lakeside solar is unique (i.e., virtually no other similar sized sites by 2021 do this).

To ensure statistical validity, a site must be surrounded by an active real estate market. We applied a secondary filter requiring candidate sites to have more than 30 "sampled properties" (residential properties sold during the study period) within a 2-mile radius. This ensures that the econometric models have enough observed price points to detect reliable impact estimates. This

filter also addresses our concern of comparing sites located in isolated, rural areas to the Lakeside Solar site.

From the pool of 104 sites passing the initial filters, we selected the final comparison group using a Similarity Score Matrix. This process calculates the Euclidean distance between the characteristics of the proposed Lakeside site and each candidate site, applying specific weights to prioritize the most relevant factors. The following site and community features, and their accompanying weights, were used to evaluate the similarity scores, relative to the proposed Lakeside solar site:

Table C1. Factors and Weights in the Similarity Score

Factors	Weights
Lake/River/Ocean Proximity below 2 miles (0/1)	5
Site Capacity (MWac)	2
Population change % (2020–2024)	1
Tract Median Household Income ($)	1
Presidential Voting share (Percentage Dem.)	1
No. of Sampled Properties within 1 mile	0.5
No. of Sampled Properties within 5 miles	0.5

We assign a high weight to having a major body of water (i.e., lake, river, ocean) within proximity, since location on or near the waterfront is reasoned to generate significant amenity value for nearby properties. Residents of these communities may place a larger emphasis on visual characteristics, leading to stronger reactions to solar site developments. Site capacity is the next most important characteristic since giant sites like Lakeside Solar (i.e., 150 MWac) are likely to have different challenges and impacts than smaller sites, even within the utility scale class (i.e., >5 MWac). Hu et al. (2025) observe significant differences in treatment effects across county political leaning and county median household, so we include these as weights to account for some of these demographic differences. The percentage change in population helps account for underlying property value trajectories (i.e., whether people are moving into or out of a region). Finally, the number of sampled properties nearby is included as a weight to help us match to solar sites that impact a large number of nearby properties, as is the projected case with Lakeside Solar.

We selected 27 sites with the highest similarity score (Table C2). This number of sites was selected since it provides at least 4,000 sampled properties within 1 mile. This sample size enables robust estimation of site development impacts and is consistent with the methodology of Hu et al. (2025). Additionally, these sites provide more than 86,000 sampled properties within 5 miles.

Table C2: 27 Comparable Sites Based on Similarity Score

Site Name	State	Year	AC Capacity	Close to Water	Sampled Prop. within 1 Mile	Sampled Prop. Within 2 Miles
Lakeside Solar	MI	2026	150	1	53	150
Wapello Solar, LLC	IA	2021	100	1	121	232
Logansport Solar	IN	2021	16	1	205	483
Peru 2	IN	2021	10	1	17	187
St. Cloud Solar (CSG)	MN	2018	5	1	48	195
Sherburne North Project (CSG)	MN	2018	5	1	40	89
Tiller (CSG)	MN	2018	5	1	39	216
Nautilus Saint Cloud Solar (CSG)	MN	2019	5	1	53	195
Sherburne Community Solar	MN	2018	5	1	13	97
Big Lake Holdco Solar (CSG)	MN	2017	5	1	148	1343
Big Lake Project (CSG)	MN	2018	5	1	160	1292
Sartell Holdco (CSG)	MN	2019	5	1	426	2285
Demille Solar Farm	MI	2017	29	0	0	71
St. Joseph Solar	IN	2021	20	0	66	285
Bingham Solar, LLC	MI	2020	20	0	116	770
O'Brien Solar Fields	WI	2021	20	0	0	987
Turrill Solar Farm	MI	2017	20	0	0	67
Delta Solar Power II	MI	2018	16	0	191	880
Indy Solar I, LLC	IN	2013	10	0	149	400
IND Community Solar Farm 1st Phase	IN	2013	10	0	0	115
Crawfordsville 5 Solar Park	IN	2020	10	0	2	184
Richmond 5	IN	2021	9	0	199	735
Dane County Airport Solar	WI	2020	9	0	0	650
Indy Solar III, LLC	IN	2013	9	0	222	723
Delta Solar Power I	MI	2018	8	0	8	311
IMPA Anderson Solar Park 2	IN	2017	8	0	199	505
West Waconia Solar	MN	2016	9	0	193	554
Indianapolis Motor Speedway Solar PV	IN	2014	9	0	1443	4036

The sites are ranked based on similarity score, with the highest ranked site being Wapello Solar, a 100 MWac site developed in Iowa in 2021. 'Year' indicates the year the site became operational and 'Close to Water' is a binary (0/1) variable indicating whether the site is within 2 miles of a major body of water (i.e., lake, river, ocean). The 'Sales' columns indicate the number of valid sales (see Section A for filtering criteria) after the site development.

About 40% of the selected sites are within 2 miles of a major lake or river. The capacity of these sites ranges from 5 to 100 MWac, with a median of 9 MWac. Most of the sites are in communities with slightly growing populations. The average census tract median household income of these sites is about $88,000.

D. Spatial Impact Assessment

To determine the geographic extent of property value impacts and rigorously define the boundary between "treated" and "unaffected" properties, we employed a spatial distance decay model within a Difference-in-Differences (DID) framework (as suggested by Guo et al., 2024 and Hu et al., 2025). Instead of assuming a uniform impact radius, this method empirically tests how price effects change as the distance from the solar facility increases. By analyzing impacts in granular distance bands (0.5-mile intervals), we identify the specific threshold where the impact on property values becomes statistically indistinguishable from zero. For the distance-decay model shown in Fig. 1, a series of proximity intervals (the 0.5-mile bins) are used as treatment variables. Properties in the interval between 3.5 and 6 miles serve as the control group, which serve as the counterfactual baseline, representing local market trends for properties that are sufficiently distant to be unaffected by the facility's direct externalities.

The spatial extent of the impact is estimated using the following regression equation:

$$\ln(P_{it}) = \beta_0 + \beta_1 Post_{it} + \sum_{m=1}^{M-1} \beta_2^m T_i^m + \sum_{m=1}^{M-1} \beta_3^m Post_{it} \times T_i^m + \delta_k \sum_{k=1}^{K} X_{it}^k + \gamma_k \sum_{k=1}^{K} (Post_{it} \times X_{it}^k) + \tau_{ct} + \varepsilon_{it}, \quad (1)$$

where:

- $\ln(P_{it})$: The natural logarithm of the transaction price for property *i* in year *t*.
- $Post_{it}$: A binary indicator equal to 1 if the transaction occurred after the solar facility's installation date, and 0 otherwise.
- T_i^m: A series of binary indicators representing specific proximity intervals (distance bands) from the solar site. For this analysis, we utilized 0.5-mile intervals ranging from 0 to 3.5 miles (e.g., 0–0.5 mi, 0.5–1.0 mi, etc.).
- $Post_{it} \times T_i^m$: The key interaction terms. The coefficients β_3^m represent the estimated percentage impact on property values for each specific distance band after the solar facility becomes operational.
- X_{it}^k: Vector of property controls: total bedroom number, total bathroom number, building age, and natural logarithms of distances to the nearest transmission line, the nearest primary road, and the nearest metropolitan area.
- τ_{ct}: Fixed effects at the census tract and county-by-year levels. These absorb time-invariant location characteristics and time-varying local economic shocks, ensuring the estimates isolate the solar facility's impact.
- ε_{it}: Error term.

All standard errors are two-way clustered at the census tract and year level. The results of this spatial model (presented in Section 2.2 of the Main Report) reveal that negative price impacts are statistically significant and most pronounced within 0.5 miles (-13.4%) and remain significant up to 2.5 miles. Beyond 2.5 miles, the coefficient estimates become statistically indistinguishable

from zero. Consequently, for the subsequent Average Impact Analysis and Total Impact calculations, the "Treatment Zone" is defined as the area within 2.5 miles of the facility.

E. Estimating Average Property Value Impacts

We employ a widely used generalized DID approach to investigate the effects of LSSPV installation on nearby property values (Kuminoff et al., 2010; Banzhaf, H. S., 2021). Intuitively, this approach compares the change in property values before and after installation for properties close to the LSSPV site (i.e., the treatment group) against the value change for properties farther away but still within the defined vicinity (i.e., the control group).

Based on the results of the spatial assessment (Section D), the groups for this analysis are defined as follows:

- Treatment Group ($T_i = 1$): Residential properties located within 2.5 miles of the solar facility.
- Control Group ($T_i = 0$): Residential properties located between 3.5 miles and 6 miles from the solar facility.
- Buffer Zone: Properties located between 2.5 and 3.5 miles are excluded from this specific estimation to ensure a clear distinction between affected and unaffected market segments.

The general DID framework of our residential home study is as follows:

$$\ln(P_{it}) = \beta_0 + \beta_1 Post_{it} + \beta_2 T_i + \beta_3 Post_{it} \times T_i + \delta_k \sum_{k=1}^{K} X_{it}^k + \gamma_k \sum_{k=1}^{K} \left(Post_{it} \times X_{it}^k\right) + \tau_{ct} + \varepsilon_{it}\,, \quad (2)$$

where the parameter definitions remain the same as in Equation 1, except we use a single binary treatment as defined above, and the average treatment effect will be given by β_3. The control variables in the DID estimation are identical to those outlined in Section D. All standard errors are two-way clustered at the census tract and year level.

Our DID model relies on the assumption that the LSSPV siting process is independent of the price trends over time conditional on the covariates (i.e., the parallel trends assumption). We conduct pre-trend tests with the event study model where pre-treatment trend differences would show up and suggest a violation of the parallel trend assumption.

The preliminary data analysis for the Lakeside area indicated a significant presence of high-value homes near White Lake. To account for potential variation in how different market segments react to solar development, we also extended the DID model to differentiate impacts by property value.

A binary indicator, $HighVal_i$, is defined as equal to 1 if a property's market total value exceeds $400,000 (representing the 80th percentile of the local distribution), and 0 otherwise.

We then modified the baseline equation to replace the $Post_{it} \times T_i$ term with triple-interaction terms involving $HighVal_i$:

$$\ln(P_{it}) = \cdots + \beta_{high}(Post_{it} \times T_i \times 1.HighVal_i) + \beta_{low}(Post_{it} \times T_i \times 0.HighVal_i) \ldots, \quad (3)$$

so that the high-value average impact is given by β_{high} while the low-value impact given by β_{low}. This specification allows us to empirically test whether premium properties, which often capitalize on specific amenities (e.g., lake views), are more sensitive to the disamenities associated with utility-scale solar infrastructure. The results are highlighted in Table 1.

F. Temporal Dynamics Analysis

To ensure that the estimated impacts are caused by the solar facility and not by pre-existing market trends, we employed an Event Study framework. This analysis serves two critical functions:

1. Testing for Pre-Trends: It verifies the "Parallel Trends Assumption" by checking if property values in the treatment and control groups were moving in sync *before* the solar facility was built. Statistically insignificant estimates in the years prior to construction support our assumption that the control group is a valid counterfactual.
2. Establishing Impact Duration: It empirically tracks how the impact evolves year-by-year after installation, establishing the specific time horizon (persistence) of the economic loss.

We replaced the single "Post" indicator from the standard DID model with a series of binary variables representing specific years relative to the facility's installation date. The model is specified as follows:

$$\ln(P_{it}) = \alpha_0 + \alpha_1 T_i + \sum_{j \neq -1}^{J} \beta_j YearR_{jt} + \sum_{j \neq -1}^{J} \gamma_j (T_i \times YearR_{jt}) + \delta X_{it} + \eta(Post_{it} \times X_{it}) + \tau_{ct} + \varepsilon_{it}, \quad (4)$$

where:

- T_i: Binary indicator for the treatment group (properties within 2.5 miles).
- $YearR_{jt}$: A set of "event study" dummy variables indicating the transaction year *t* relative to the installation year $j = -3$ implies 3 years before operation; $j = 2$ implies 2 years after).
- $T_i \times YearR_{jt}$: interaction terms of interest. The coefficients γ_j capture the percentage difference in property values between the treatment and control groups for each specific year j.
- Normalization: The year immediately prior to installation ($j = -1$) is excluded to serve as the baseline for comparison.

The results of this analysis (presented in Section 2.4 of the Main Report) confirm the validity of the study design:

- Pre-Installation Phase ($j < 0$): The coefficient estimates for the years leading up to construction are statistically indistinguishable from zero. This confirms that there were no pre-existing downward trends in the treatment zone properties compared to the control group.
- Post-Installation Phase ($j \geq 0$): Property value impacts manifest immediately upon the facility becoming operational (Year 0).

The event study reveals distinct temporal dynamics that define the "impact life cycle" for the Lakeside assessment. Prices in the treatment zone drop immediately upon operation. The negative effect gradually grows, reaching its maximum magnitude (approximately -12%) around Year 7. The negative impact persists for a decade but becomes statistically insignificant after Year 10. Based on these empirical findings, the Total Impact Calculation (detailed in the subsequent section) utilizes a defined 10-year time horizon for determining the Net Present Value (NPV) of property losses, rather than assuming a perpetual loss.

G. Total Property Value Loss Estimate

To provide a comprehensive estimate of economic impact, we convert the "stock" measure of property value depreciation into a "flow" measure of annual welfare loss. Market value represents the present value of the future stream of housing services (amenities, utility, and shelter) a property provides. Therefore, a reduction in market value implies a proportional reduction in the annual flow of these services. By "annualizing" the loss, we estimate the yearly economic cost borne by homeowners, independent of whether they choose to sell the property. This ensures the assessment captures the total welfare loss to the community, not just the realized financial loss of those who transact.

We calculate the annualized loss for each residential property *i* located within the 2.5-mile Treatment Zone using a standard capitalization rate with the following formula:

$$Annualized\ Loss_i = Market\ Value_i \times Impact\ Coefficient_i \times Cap\ Rate\ , \quad (5)$$

where:

- Market Value (V_i): The current total market value of the property derived from CoreLogic assessment data.
- Impact Coefficient (β): The estimated percentage loss derived from the Average Impact Analysis (Section E).
- Capitalization Rate (5%): We utilize a 5% capitalization rate. This standard benchmark implies that a property's annual housing services are valued at roughly 5% of its capital value (e.g., a $300,000 home yields $15,000 in annual services).

The total annualized impact is calculated as the summation of $Annualized\ Loss_i$ across all residential properties within 2.5 mile of Lakeside solar.

Finally, to express future losses in present-day dollars, the total impact is reported as the Net Present Value (NPV) of these annualized losses over the duration of the impact. Based on the Temporal Dynamics Analysis (Section F), which indicates that price effects persist for approximately one decade before dissipating, we define the impact horizon (T) as 10 years. We denote the discount rate with r, and NPV is calculated using two standard regulatory benchmarks (5% and 7%) to provide a sensitivity range. In summary, NPV is calculated using the following formula:

$$Total\ NPV = \sum_{i=1}^{N} \sum_{t=0}^{9} \frac{Total\ Annualized\ Impact}{(1+r)^t}, \quad (6)$$

where:

- N is the total number of residential properties in the 2.5-mile Treatment Zone (2,205 properties).
- The summation runs for 10 periods (Years 0 to 9), reflecting the immediate onset of impacts identified in the event study.

We also calculate the NPV of annualized losses for properties within a 1-mile radius. The results of our total average impact analysis are reported in Table 2.

This calculation likely represents a conservative lower-bound estimate of the total welfare loss for several reasons. First, the Generalized DID model estimates direct transaction price changes which is a lower bound of a proper welfare loss measure (Banzhaf, H. S., 2021). It does not explicitly capture non-market values (e.g., existence values of local ecosystems) unless they are capitalized into housing prices. Additionally, the 5% rate may be lower than gross rental yields in some Midwest markets; a higher capitalization rate would result in a higher estimated annual welfare loss. Furthermore, compared to Lakeside Solar, many sampled sites have lower capacity or lower housing values, and some sites are not close to lakes or rivers, thus perceived amenity impact for Lakeside solar might be larger. Finally, impacts beyond 2.5 miles are assumed to be zero for this calculation, even though minor residual effects may exist just beyond the boundary.

Property Value Impact Assessment: Lakeside Solar Project

Analysis for White River Township, Muskegon County, MI

Zhenshan Chen and Matthew Mair, Virginia Tech

COLLEGE OF AGRICULTURE AND LIFE SCIENCES
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VIRGINIA TECH

Executive Summary

Objective: Assess potential property value impacts of the proposed 150 MWac Lakeside Solar facility.

Approach: Independent, evidence-based assessment using property transactions near 27 comparable operating solar sites in the Midwest.

Core Conclusion: Measurable negative impacts are projected for properties within **2.5 miles** of the facility, with significant variation based on home value.

Economic Scale: Total annualized property loss estimated at **$2.72 million per year** for the affected zone.

Methodology & Data Approach

- **Rigorous Comparative Analysis:** Direct impact evaluation is impossible as Lakeside is not yet built. We analyzed real-world transactions around similar existing sites.
- **Data Source:**
  - **27 Operating Projects:** Selected from Midwest states (IL, IN, IA, MI, MN, MO, WI) matching Lakeside in capacity, water proximity, and demographics.
  - **Robust Sample Size:** Over **4,000** sampled property (i.e., with transactions) within 1 mile and **86,000+** within 5 miles of matched facilities.
- **Analytical Model:** State-of-the-art **Difference-in-Differences (DID)** econometrics to isolate solar farm impacts from general market trends.

Key Findings – Impact Concentration & Magnitude

- **Spatial Extent :**
  - Negative impacts are statistically significant only within a **2.5-mile radius**.
- **Average Property Value Loss:**
  - Homes within the 2.5-mile zone are projected to sell for **~7.9% less** on average.
- **High-Value Home Sensitivity:**
  - Properties valued >$400k experience nearly double the depreciation (**-11.7%**) compared to lower-value homes (**-6.17%**).

Key Findings – Duration and Total Impact

- **Timeline of Impact:**
  - **Immediate:** Price drops occur immediately upon facility operation.
  - **Duration:** Persists for approximately **10 years**, peaking around Year 7.
- **Aggregate Economic Loss (2.5-mile radius):**
  - **Annualized Loss: $2.72 million** per year in suppressed property value.
  - **Net Present Value (10-Year Horizon):**
    - **~$20.44 million** (at 7% discount rate).
    - **~$22.05 million** (at 5% discount rate).

Summary for Township Consideration

- **Evidence-Based Impact:** Solar farms of this scale in this region create a measurable "disamenity" zone extending 2.5 miles (~7.9% property value loss).
- **Temporary but Significant:** While the market may recover after 10 years, the interim economic loss to the community's asset base is substantial (~$20M+ NPV).
- **Policy Implication:** Mitigation strategies or compensation frameworks can focus on the 2.5-mile radius, with special attention to high-value homes or the intense impact zone (e.g., within half-mile).
- **Estimates likely conservative**: comparison sites had smaller capacity, fewer neighboring homes or lower home values, and many lacked lakefront proximity - actual Lakeside impacts may be higher.

EXHIBIT L

Inder Majumdar

12/12/2025

Economic Impact Report Evaluation: Lakeside Solar Proposal

Executive Summary

This report evaluates how three cited studies (the "Studies") are summarized and applied in an Economic Impact Report (the "Economic Impact Report") submitted to White River Township in support of the Lakeside Solar Project (the "Project"). The Economic Impact Report states that the Project (a 150 megawatt solar installation) would have "minimal economic impact" on adjacent property values. For each Study, I compare the Economic Impact Report's characterization to what the Study actually measures and reports, and I identify key limitations that affect how reliably each Study can be applied to the Project. I also benchmark the cited Studies against a recent nationwide peer-reviewed analysis (Hu et al., 2025) that provides substantially broader data coverage and a more modern empirical design.

UT Austin (2018). The Economic Impact Report correctly notes that this study is survey-based and does not analyze property sale prices. The study relies on questionnaire responses from a small number of property tax assessors and includes descriptive mapping of solar sites, rather than a sales-based comparison of "treated" versus "control" properties. While most respondents reported no observed impact on nearby home values, the study acknowledges a low response rate, which limits generalizability. The study also reports that some assessors perceived potential value declines at closer distances and for larger facilities. Finally, the authors note that most respondents reported limited training or formal guidance for valuing properties near utility-scale solar installations, which may help explain why formal adjustments were rare.

University of Rhode Island (2020). The Economic Impact Report cites this study for the finding that, in rural areas, the estimated post-construction home price impact of nearby solar development is statistically indistinguishable from zero under the authors' rural classification. The Economic Impact Report also correctly notes that the study's negative effects are concentrated in non-rural settings and that the study does not find meaningful differences in estimated impacts by project size within its sample. However, the Economic Impact Report does not emphasize the study's broader finding of a statistically significant average decline in home values within one mile of solar installations when rural and non-rural areas are considered together. The study also reports stronger negative impacts for homes very close to installations (including within 0.1 miles, approximately 500 feet) and highlights larger effects for solar projects sited on previously undeveloped ("greenfield") land in non-rural settings. In addition, I find no evidence that the study's dataset contains projects comparable in scale to a modern 150-MW installation, which limits the strength of extrapolation to the Project's size.

Abashidze & Taylor (2022). The Economic Impact Report accurately conveys this study's primary conclusion with respect to land: the authors do not detect a statistically significant change in the

sales prices of nearby vacant agricultural land associated with the construction of utility-scale solar farms in North Carolina. The Economic Impact Report also correctly notes the study's secondary finding of a small "option value" effect—farmland near transmission infrastructure may increase modestly in value after a nearby solar installation is built, consistent with increased suitability for future solar development. However, this study is explicitly limited to vacant agricultural land transactions and does not provide evidence regarding residential property values or homeowner impacts, which is of special concern to White River given the large number of residences within one mile of the installation site.

Hu et al. (2025). Hu et al. provide the most comprehensive benchmark currently available. Using a nationwide transaction dataset covering millions of property sales near thousands of large-scale solar sites, the authors estimate an average decline in residential property values of approximately 4.8% within three miles after construction, with larger effects closer to the site and attenuation over multiple years. The study simultaneously finds positive effects on agricultural and undeveloped land values near installations, consistent with increased development potential, and notes that for large-lot properties the land value effect may partially offset residential value declines. However, this offset will not occur for smaller parcel properties. The study's national scope, modern data coverage, and extensive heterogeneity analysis provide a stronger basis for project-level benchmarking than the earlier, narrower studies cited in the Economic Impact Report.

Summary of Findings. Of the three Studies relied upon in the Economic Impact Report, only Abashidze & Taylor (2022) is a peer-reviewed journal article; the UT Austin (2018) and URI (2020) studies consist of a survey-based policy report and a regional transaction-based analysis limited to Massachusetts and Rhode Island, respectively. Taken together, the cited Studies provide partial support for the Economic Impact Report's conclusion of "minimal economic impact," particularly with respect to nearby agricultural and undeveloped land, for which impacts are generally found to be small or statistically indistinguishable from zero. However, the Economic Impact Report does not consistently emphasize that portions of the cited literature—most notably the URI study and the nationwide benchmark analysis by Hu et al. (2025)—document measurable negative impacts on residential property values in certain contexts. These impacts are not uniform across properties but are concentrated among homes located relatively close to large-scale solar facilities. Across multiple studies, residential properties within approximately one mile of an installation, and especially those in very close proximity, are more likely to experience modest value depreciation than properties located farther away. Accordingly, the conclusion of "minimal economic impact" is sensitive to site-specific conditions, including the distance of nearby homes from the project boundary, parcel size (which affects whether land value gains may offset residential losses), visibility and siting characteristics, and surrounding land use context. In addition, the reliability of that conclusion depends on extrapolating findings from studies that include relatively few projects comparable in scale to a 150-megawatt facility. Such extrapolation introduces uncertainty that is not fully addressed in the Economic Impact Report.

In sum, the weight of the evidence suggests that large-scale solar development is unlikely to produce widespread or severe property value impacts for farmland and more distant residences. At the same time, the literature indicates a non-trivial risk of localized residential impacts for some nearby homeowners. A balanced interpretation therefore supports a finding of generally modest average impacts, coupled with the possibility of unevenly distributed effects that warrant careful, site-specific consideration.

Study 1: University of Texas, Austin (2018)

This study is a policy research project conducted by researchers at the University of Texas' LBJ School of Public Affairs. The study combines a geospatial survey of solar installations up until 2015, with solar sites ranging in size from 1 to 102 megawatts, with a questionnaire of property assessors. The study does not use econometric analysis (e.g. regression) to make claims about the impact of large-scale solar installations. Instead, the study relies on geospatial descriptives and a survey of expert opinions. The study therefore lacks the "control versus treatment" sales comparisons that characterize both econometric or paired sales analyses, and should not be viewed as a means to claim any "cause and effect" relationship. While the geospatial survey of solar sites is comprehensive given the number of existing sites at the time, the sample size for the survey is small (37 responses nationwide), raising concerns about representativeness and potential response bias given the low response rate (only those with strong views might be more likely to respond).

The study finds that the majority of assessors reported no negative impact on nearby home values: 66% of respondents stated that they had not previously adjusted property values based on proximity to a large-scale solar installation. 11% of respondent assessors claimed a positive impact. While the authors do not point to specific mechanisms, it's possible that the responding assessors claimed a positive benefit from tax or lease benefits. The remaining assessors claimed a negative potential impact, with results driven by a few assessors that predict the potential for high negative impacts. It's important to note that assessors with actual experience gave smaller negative estimates (for example, on average -3% at 100 feet from a 20 MW site). The study is mostly forthright about its limitations. First, it acknowledges that no actual market sales were analyzed to verify survey opinions. It also notes that their analysis does not differentiate between ground-mounted and rooftop solar installations, which could yield unobserved differences in disamenity value. The report also concedes a low survey response which limits generalizability. Finally, only two respondents indicated that their professional manual or other training materials provide any instructions regarding residential assessments near utility-scale solar installations. The authors speculate that

Since this report was not a peer-reviewed economics study, several weaknesses go unstated in the report but are nonetheless important to consider. First, given the small sample size, the report is unable to capture the full range of market conditions that might give rise to property value changes that result from a large-scale solar installation. For example, no assessors from California responded to the survey. California includes a relatively large number of large-scale solar installations and mixed land use which could better represent the opportunity costs faced by communities with a variety of economic alternate uses, such as White River. Out of the 36 assessors that responded, almost half (14/36) came from the US Southeast, while only 5 come from the Midwest (none are from Michigan). Additionally, the small sample size raises questions about potential response bias. Finally, the study's geographic analysis and survey questions include utility-scale characteristics that differ considerably from the Lakeside Solar project. The largest installation featured in the study is just over 100 megawatts and contains 419 properties within 3 miles. By comparison, the lakeside solar installation contains over 600 properties within 1 mile alone. We should be cautious about extrapolating the "no impact" finding to a project of this size without further empirical data.

Overall, the report's use of this study is accurate in substance but misses important caveats that warrant further exploration. The report portrays negative responses as speculative. It's important to note that these negative responses are driven in part by a perceived negative impact on home prices at close range (within 1,000 feet of a large MW facility), proximity that is especially

relevant to the proposed solar installation. The small sample size limits the study's ability to capture heterogeneity across housing markets, land use contexts, and project scales. No assessors from California responded, and responses are geographically concentrated, with nearly half originating from the southeastern United States and only a small number from the Midwest. Finally, the largest facility referenced in the study is slightly over 100 megawatts, whereas the proposed Project is 150 megawatts and affects a substantially larger number of nearby properties. As a result, extrapolating the UT Austin findings to the Project requires caution.

Study 2: University of Rhode Island (2020)

This study analyzes actual home sales in Massachusetts and Rhode Island using a standard "hedonic" regression approach, paired with a difference-in-differences design and a repeat-sales framework. Stated directly, the authors compare how sale prices changed for homes very near a solar farm before and after construction, versus how prices changed over the same period for similar homes a bit farther (3 miles) away. This design helps control for normal fluctuations in the housing market and for differences in the homes themselves that could otherwise distort the results. The study includes more than 71,000 home sales located within one mile of 208 solar installations (the "treated" group) and more than 343,000 home sales located between one and three miles away (the comparison group). The main result is that price impacts are not uniform as a function of distance from the solar installation and urban/rural designation. The study finds that negative price effects are concentrated in non-rural areas, while the estimated effect in rural areas is statistically indistinguishable from zero, given the authors' definition of "rural." The authors also report that, within their sample, they do not find meaningful differences in the estimated impact based on the solar project's size (measured in megawatts).

The economic impact report provided as part of the application materials uses this study to support the statement that "not only are there no impacts on homes in similar areas as the proposed Project, but any differences in the size of a farm are similarly not demonstrating an impact." This summary is generally consistent with how the authors describe the rural subsample results and their size test. However, the Economic Impact Report leaves out important context from the study that matters for applying the findings to a specific proposal like Lakeside Solar. First, the study's overall result is a statistically significant average decline in home values for properties within one mile after construction. The Economic Impact Report does not highlight this overall decline, presumably because it is focusing on the rural portion of the sample. Second, the study emphasizes that land use and siting context matter. In particular, it reports substantially larger negative effects for solar farms built on previously undeveloped "greenfield" land in non-rural areas. This is relevant because the Lakeside Solar Project is also a greenfield development (on farmland), even though it is located in a rural township. The URI results do not show a significant decline for rural greenfield sites under the authors' classification, but the greenfield finding still signals that the same type of development can produce different outcomes depending on how close homes are, how visible the facility is, and whether the surrounding area is more developed or more open. At minimum, this part of the study points toward the importance of proximity and local land use conditions; issues that deserve explicit discussion when applying the results to a particular site.

Third, the "no difference by size" finding needs a clear caveat that the economic impact report does not provide. The URI dataset contains very few large installations by today's standards. In their sample of 208 solar sites, about half are 2 megawatts or smaller, and only 13 sites are larger than 5 megawatts. By contrast, Lakeside Solar is proposed at roughly 150 megawatts, which is orders of magnitude larger than most projects in the URI study. In other words, the study's size test is mainly comparing small projects to slightly less small projects; it does not meaningfully test whether extremely large projects behave differently. Because the data include so few large installations, it is not safe to treat the "no size effect" result as strong evidence that scale will not matter for a 150-megawatt facility. The study's findings are therefore limited in the sense that they may not hold when extrapolated far beyond the project sizes observed in the underlying data.

Overall, the URI study provides credible, transaction-based evidence that home price impacts from nearby solar are modestly negative on average when rural and non-rural areas are considered together, that the negative impacts are concentrated in non-rural settings and among very nearby homes, and that rural areas show estimates near zero under the authors' definition of "rural." The use of this study is accurate insofar as it relies on the rural subsample results and reports the study's size test, but the study's broader average decline and its strongest heterogeneity result related to greenfield siting requires consideration in this context. The "minimal impact" conclusion depends on the Project truly matching the rural context in the URI study and on accepting that results from a dataset dominated by small installations can be applied to a very large, 150-megawatt facility. Such extrapolation is unlikely to be accurate.

Study 3: Abashidze & Taylor (2022, Land Economics)

This study examines whether the construction of utility-scale solar farms affects the market value of vacant agricultural land, and it is explicitly limited to that property class. Published in *Land Economics*, a peer-reviewed economics journal, the study focuses solely on agricultural land transactions in North Carolina and does not analyze residential properties, mixed-use parcels, or properties with homes or other structures. The authors assemble a comprehensive dataset that combines agricultural land sales with detailed geographic information on the location and timing of 451 utility-scale solar farms, each with a capacity of at least one megawatt. The purpose of the study is narrowly defined: to determine whether farmland located near a solar installation sells for more or less after the solar farm is built, relative to comparable farmland not exposed to nearby solar development. Methodologically, the study uses a hedonic regression framework that compares farmland sale prices before and after the construction of a nearby solar facility, while controlling for parcel characteristics and broader land market trends. In practical terms, the authors compare how agricultural land prices changed over time for parcels located close to a solar farm with how prices changed for parcels farther away or in areas without nearby solar development. Geographic information systems (GIS) are used to measure distances between parcels and solar installations, and multiple distance thresholds are tested to ensure results are not sensitive to a particular definition of "nearby." Importantly, the analysis deliberately excludes residential attributes and housing-related amenities, reflecting the authors' focus on land valued primarily for agricultural production or future development potential, rather than for residential use.

The primary finding of the study is that the construction of a nearby solar farm has no statistically significant direct effect on the sales prices of surrounding agricultural land. Across a wide range of model specifications and distance bands, the estimated impact of solar proximity on farmland values is not statistically distinguishable from zero. In simple terms, farmland near a solar installation appears to sell for roughly the same price it would have sold for had the solar farm not been built. The study therefore provides no evidence that utility-scale solar development reduces the market value of adjacent agricultural land. In addition to this main result, the study identifies a secondary and more limited effect that the authors describe as an "option value." Specifically, they find that after a solar farm is constructed, agricultural land that is both close to the solar installation and close to existing electrical transmission infrastructure may increase modestly in value. The authors interpret this as the market pricing in the possibility that such land could itself be suitable for future solar development, either through leasing or sale to a solar developer. This effect is not

large, does not apply to all farmland near solar farms, and does not reflect a general appreciation of agricultural land. Rather, it is a localized and conditional effect tied to future development potential.

The proposal's Economic Impact Report accurately conveys these findings and appropriately limits them to agricultural land. It correctly states that the study examined hundreds of utility-scale solar farms and found no direct negative spillover effect on the sales prices of nearby farmland. It also accurately quotes the authors' discussion of the option value effect, noting that farmland near solar installations and transmission lines may increase modestly in value after construction. However, it is important to emphasize that this study does not provide evidence about residential property values or the experience of homeowners, and its findings cannot be extended to those property types. Abashidze and Taylor intentionally restrict their analysis to vacant agricultural land in order to reduce heterogeneity and focus on land valued for production or development. As a result, the study does not address whether solar farms affect the value of nearby homes, farmhouses, hobby farms, or mixed residential–agricultural parcels where scenic amenities or residential disamenities may play a role. To the extent the study is cited in discussions of broader property value impacts, its relevance is confined to agricultural land only.

The authors are explicit about additional scope limitations. Their data cover approximately the first decade of solar development in North Carolina, with solar farms constructed through roughly 2017 and land sales observed in the years immediately following construction. The study therefore cannot speak to long-term impacts beyond roughly ten years, nor to scenarios in which solar development becomes so widespread that it fundamentally alters regional agricultural economies. Several additional considerations follow from the study's narrow scope. Agricultural land markets differ across states in terms of crop mix, land values, and development pressure, so direct transfer of results from North Carolina to Michigan should be done with appropriate caution.

In terms of relevance to the Lakeside Solar Project, this study is well suited to addressing concerns about the value of farmland and vacant land surrounding the proposed site. Abashidze and Taylor's findings suggest that such parcels should not lose market value due to the presence of a nearby solar facility and may, in limited cases, gain value due to future development potential. At the same time, the study offers no evidence regarding residential property values, and it should not be interpreted as speaking to the experience of nearby homeowners. Overall, Abashidze & Taylor (2022) provides strong, peer-reviewed evidence that utility-scale solar development does not reduce the value of nearby agricultural land. The consulting firm's use of this study is accurate and appropriately limited to agricultural parcels. Its findings support the conclusion that the Lakeside Solar Project is unlikely to adversely affect surrounding farmland values, while leaving open separate questions about residential property impacts that must be informed by other studies.

Benchmark Study: Hu et al. (2025, PNAS)

Hu et al. (2025) represent the most comprehensive and methodologically rigorous study to date on the property value impacts of large-scale solar development. Published in the *Proceedings of the National Academy of Sciences* (PNAS), one of the most selective peer-reviewed journals in the sciences, the study underwent extensive external review and reflects the current state of empirical research on this topic. Unlike earlier studies that focus on a single state or region, Hu et al. analyze a nationwide dataset covering 8.8 million real estate transactions located near 3,699 large-scale solar photovoltaic

(LSSPV) sites across the United States. The scope, scale, and analytical depth of this work make it an appropriate benchmark against which to assess claims of "minimal economic impact."

Methodologically, Hu et al. employ a difference-in-differences framework similar in spirit to the approach used by the Rhode Island study, but generalized to the entire country and enriched with additional layers of analysis. In simple terms, the authors compare how property values change over time for properties located near a large solar installation before and after construction, relative to comparable properties located farther away or not exposed to solar development. The models include extensive controls for property characteristics, time trends, and local economic conditions, allowing the authors to isolate the effect of solar development from broader housing market dynamics. Importantly, the study also directly investigates potential causal mechanisms and heterogeneity, including visibility of the solar facility, prior land use (greenfield versus brownfield), political context, and parcel size. This breadth allows the authors not only to estimate average effects, but also to explain why impacts differ across settings.

The central finding of Hu et al. is that large-scale solar development has a bifurcated effect on nearby property values. On the one hand, residential properties experience a statistically significant decline in value following the construction of a nearby solar installation. On the other hand, agricultural and undeveloped land values increase. Quantitatively, the study estimates an average decline of approximately 4.8 percent in residential property values within three miles of a large solar site after construction. By contrast, agricultural or vacant land values increase by roughly 19 percent within two miles of a solar installation. These effects are measured relative to appropriate control areas and are statistically significant, indicating that they are not driven by random variation or unrelated market trends.

Several features of these results are particularly important for evaluating claims of minimal economic impact. First, the negative effect on residential properties is strongly driven by proximity. Homes located very close to a solar installation experience the largest relative declines, while the effect diminishes with distance. The authors also find that the residential impact weakens over time after construction, suggesting that part of the effect may be tied to an initial shock or stigma that fades as communities adjust or as uncertainty about the project resolves. Nonetheless, within the timeframe studied, the negative effect remains observable and only dissipates after multiple years. Second, the study finds that the residential price effect is robust to controlling for whether the solar facility is physically visible from the home. In other words, even when visibility is accounted for, proximity to a solar installation is associated with lower home values. This suggests that the effect is not solely driven by visual intrusion or aesthetics, but may also reflect broader perceptions or attitudes about living near a large solar facility. The authors interpret this pattern as consistent with a "stigma" or perception-based mechanism, though they are careful to note that unmeasured physical factors cannot be entirely ruled out.

Third, the positive land value effect is substantial and reinforces earlier findings in the literature. The roughly 19 percent increase in nearby land values reflects the creation of development potential, effectively confirming and amplifying the "option value" mechanism identified by Abashidze and Taylor, but at a national scale. Land near an existing solar installation becomes more attractive for future solar development, and that potential is capitalized into land prices. This finding is economically meaningful and suggests that solar development can create disparate outcomes in geographically similar areas.

A particularly important nuance for rural areas is Hu et al.'s finding regarding large-lot residential properties. Many rural homes sit on several acres of land, meaning the property consists of both a residential structure and a substantial land component. The study shows that for such properties, the increase in land value can partially or fully offset the decline in the value of the home itself. As a result, the net effect on total property value for large-lot rural homeowners may be close to zero or even positive, even though the residential structure alone experiences a decline. By contrast, owners of small residential lots near a solar installation experience the negative home value effect without any meaningful offset from increased land value.

Hu et al. also document substantial heterogeneity based on social and political context. The negative residential impact is significantly attenuated in counties that lean heavily Democratic, which the authors interpret as reflecting greater acceptance of renewable energy or complementary local policies that mitigate negative perceptions. Similarly, solar installations built on brownfield sites or previously developed land produce much smaller residential value penalties than installations built on greenfield land. This finding aligns closely with earlier work showing that solar development on open, undeveloped land is more likely to be perceived as a loss. Conversely, the authors find that some factors commonly cited in public debates—such as panel orientation, tracking technology, or precise visibility angles—do not meaningfully change the estimated impacts, reinforcing the conclusion that perception and context matter more than technical design details.

From a methodological standpoint, Hu et al. set a high standard. The combination of nationwide coverage, millions of transactions, and extensive robustness checks provides strong internal and external validity. The study directly addresses concerns about non-random siting of solar projects by focusing on changes over time rather than levels, and the results are consistent across alternative specifications and control definitions. Importantly, the data include the modern wave of large solar installations, meaning the findings are directly relevant to contemporary projects rather than early, small-scale developments.

The relevance of this study to the Lakeside Solar Project is substantial. At 150 megawatts, Lakeside clearly falls within the class of large-scale solar projects analyzed by Hu et al., unlike earlier studies where projects of this size were largely absent. The project is a greenfield development in a rural area, conditions under which Hu et al. would predict a residential value impact that is not fully mitigated by political or land-use factors. At the same time, some surrounding parcels may be large-lot properties or agricultural land, where increased land value could offset residential losses or even produce net gains. As a result, Hu et al. suggest that the economic impact of Lakeside Solar is likely to be unevenly distributed: some nearby homeowners, particularly those on small lots very close to the site, may experience modest losses, while landowners may experience gains.

Taken together, Hu et al. (2025) provide the strongest available evidence for evaluating claims of minimal economic impact. The study confirms that impacts are generally modest rather than dramatic, but it also demonstrates that they are real, measurable, and context-dependent. When viewed alongside the earlier studies, Hu et al. support the conclusion that large-scale solar projects do not produce widespread economic harm, but they also make clear that "no impact" is not an accurate characterization. For the Lakeside Solar Project, the weight of evidence supports a conclusion of modest average impacts with localized negative effects for some residential properties, offset in part by gains in land value for others.

Legal Disclaimer

This report evaluates how selected academic studies are summarized and applied in the Economic Impact Report submitted in support of the Lakeside Solar Project. The analysis is limited to the content of the cited studies and publicly available project materials. The discussion herein reflects a professional assessment of methodological scope, relevance, and evidentiary support. It is not intended to characterize the intent, competence, or good faith of any consulting firm or individual. Reasonable analysts may differ in their interpretation or emphasis of the cited literature.

EXHIBIT M

A Professional Scientific Opinion: Consideration of the Proposed Solar Farm for White River Township

Dr. Jennifer L. Jermalowicz-Jones, CLP, CLM
Restorative Lake Sciences
Republic, Michigan
December, 2025

Introduction:

In 2005, a Master Plan was developed for White River Township with multiple objectives to maintain balance within the Township lands and also serve as a legal foundation for the White River Township Zoning Ordinance. Although Master Plans are an adaptive document and will change over time with the growth of the Township, most objectives transfer over to the revised or amended plans. The original White River Township Master Plan had 10 key goals with some of the most relevant to this proposed project promoting the preservation and enhancement of the community's character, encouraging the preservation and protection of natural and environmental resources (this defines natural capital discussed below), and identification of areas within the township suitable for different types of land use and development. This last aspect is critically important as the topics below (index of biotic integrity and community capitals framework evaluation) should be established with baselines to determine potential impacts of land use conversions such as farmland or vacant lands to solar development.

Municipal governance was recommended by Burström and Korhonen (2001) as a means to reduce impacts of industry and society on natural resources (a.k.a industrial ecology). They further cite that over the past three decades; municipalities have accumulated increased responsibilities for environmental actions. The responsibilities include the contributions of technical services, social services, infrastructure operations and management, purchasing of materials, employment of citizens, local planning, authoritative roles, and transference of information to local residents. Undoubtedly, continued assurance of these services results in increased stability and resilience of the municipal community. The capacities of these municipal responsibilities can be determined through the recognition and measurement of community capitals present within the municipality.

With 1,240 townships in the State of Michigan, the opportunities for local empowerment and governance are high yet overwhelming. There is much concern over the ability of municipalities and residents to effectively manage ecosystems with often limited knowledge of these complex ecosystems. Odum (1969) defined an ecosystem as a unit that is comprised of all organisms in a location which interact with the physical environment and results in energy fluxes and trophic structure within the system.

The metabolism of the local area (urban metabolism) as initially defined by Wolman (1960), may also be subject to energy flows from outside the boundary of the natural resource (Huang et *al.*, 2010) and thus consideration of these extraneous flows can be critical. Swain and Hollar (2003) offer a method for the measurement of progress in a community using community indicators as a means to evaluate quality of life for residents. This is an aspect that should not be overlooked as the residents and their tax contributions are what drives the economic, social, human, and cultural capital in a community.

The proposed Lakeside Solar LLC (Geronimo) project for White River Township proposes large annual revenue streams for community services and may reduce global CO_2 emissions by providing "green, clean" energy and creating three full-time jobs. The disadvantages of this proposed solar "farm" project, may include the following:

1. It would occupy nearly 16% of the total land within the White River Township boundary (1,576.2 acres),
2. The creation of only three long-term full-time jobs within the community,
3. A large number of "access roads" will be created where there was once farmland or vegetation. Thus, numerous vehicles will utilize these roads burning fossil fuels in the process which would contribute more emissions than would have otherwise existed,
4. Disruption and potential displacement of the wildlife that utilize the Pierson Drain, Flower Creek, Little Flower Creek, Sadony Bayou, and numerous ponds as the watercourses that exist within the township boundary,
5. Destruction of valuable farmland and green space that could have accomplished the same removal of CO_2 through encouragement of abundant crop and plant growth,
6. Potential disruption of migration of wildlife from the critical dune habitat at the west to the Pierson Drain and other green space that would be fragmented due to the large-scale solar farm,
7. Measurable destruction of "natural capital" with replacement by built and technical capital. Natural Capital is a critical component for sustainable communities, especially rural areas with abundant wetlands, dunes, water bodies, and parks,
8. Likely reduction of other forms of community capitals such as social, human, and cultural capitals that are key to the municipal tax base and contribute to financial capital. Such reductions can reduce the resilience of a community and lower the overall sustainability,
9. Likely reduction in site-specific indices of biotic integrity (IBI) that may reduce key ecosystem services offered by each specific habitat, and

10. Section 226(7)(f) of PA 233 would be violated with unsustainable loss of farmland in White River Township.

Definition of Natural Capital, Local Examples, and Importance to the White River Township Community:

In 2004, a community capitals framework (CCF) was introduced to communities throughout the U.S. (Flora, 2004). The framework defined various community resources "capitals" that exist and have important functions in a given community. The capitals were found to be highly interactive (Figure 1) with some quite dependent upon other forms for optimum community sustainability. The identified seven forms of community capitals included: 1)social, 2)natural, 3)cultural, 4)human, 5) built/technical, 6) political, and 7) financial. The capitals function to increase community resilience and prevent ecosystem service losses over time. Walker and Salt (2006) offer the term "resilience", which they define as: "The capacity of a system to absorb disturbance and still retain its basic function and structure." Since then, much scholarly research has been conducted to measure the capitals within a community using proxy indicators specific to a region. The critical elements of these forms of capital are described here:

- Social capital: interactions among individuals/groups in community
- Cultural capital: world views, behavior, customs, legacy, etc.
- Natural capital: natural resources, lakes, forests, etc.
- Built/Technical: infrastructure, utilities, GIS, etc.
- Financial capital: tax revenues, donations, loans, etc.
- Human capital: populace, knowledge, skills, etc.
- Political capital: power, local governance

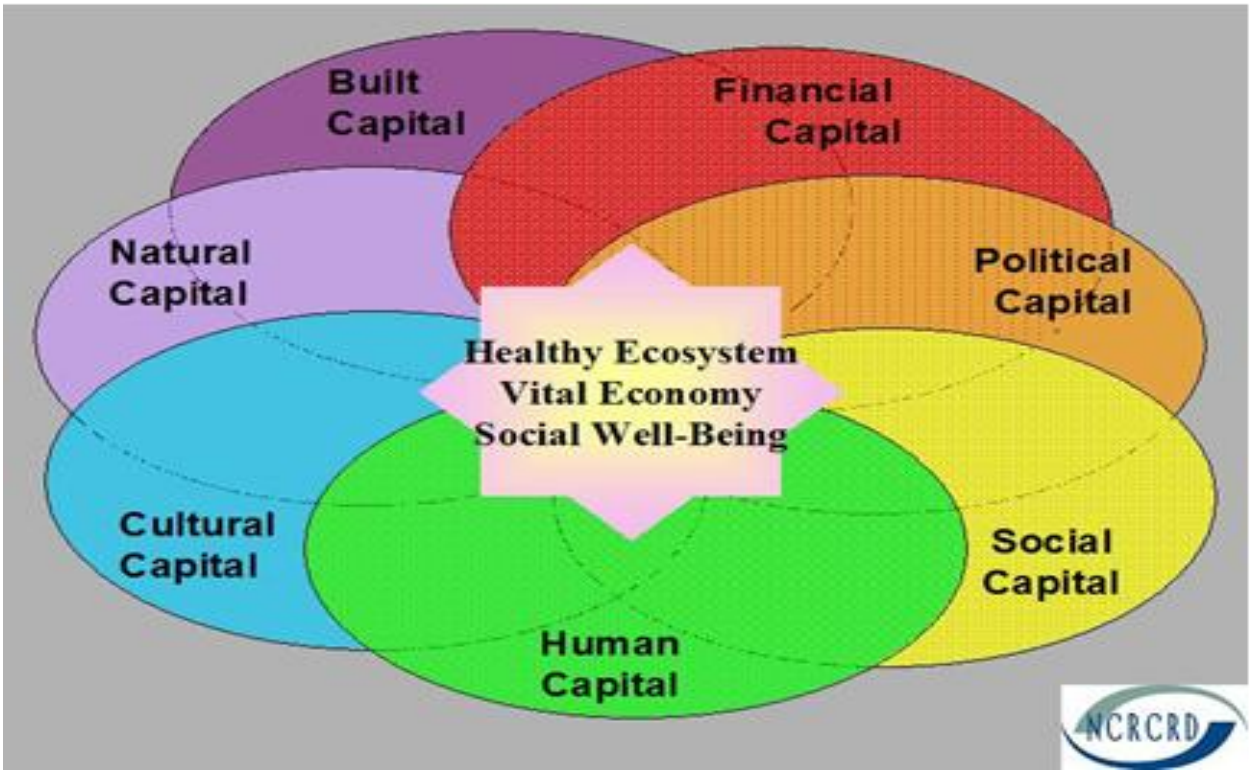


Figure 1. Diagram of the community capitals and their interactions for community well-being and sustainability. Adapted from Flora (2004).

Capitals are defined as existing resources that are used to develop new and stronger resources. Natural, cultural, and human capitals comprise the foundation of community composition. Mäler (2000) reminds us that natural capital often encompasses complex, non-linear systems that are difficult to predict. The behavior of these systems must not be overlooked since there exists an urgent need to measure the resilience of these systems and a thorough understanding of them is pivotal for successful conservation. Additionally, consideration of both the costs of conservation and the costs of a potentially damaged resource state are necessary information to make sound and often sacrificial management decisions.

Natural Capital is the form that describes natural systems such as forests, wetlands, grasslands, pasture lands (farms), lakes, dunes, creeks, etc. Farms may be defined as natural capital but may also be partially considered built capital as they were once likely forested or wetlands converted from the original land use status. Since farms do harbor vegetation and associated wildlife that graze on the vegetation, natural capital is a more likely categorization. This means that reduction of farmland in White River Township would result in reduction of natural capital and the ability of wildlife to use those farms as migratory corridors from interior habitats to those adjacent to the critical dunes, Lake Michigan, and the creeks (Flower Creek and Little Flower Creek) and the Pierson Drain.

Costanza and Daly (1991) cautions that a lack of knowledge of the degree of natural capital in a community may likely result in a poor understanding of the ecological economic system in a community and render it nearly impossible to assign value to various forms of natural capital relative to ecosystem services. They also advocate for a natural capital depletion (NCD) tax to incentivize communities to preserve natural capital where it is present.

Importance of Farmland as Natural Capital:

Farmlands are generally a form of natural capital converted from wetlands or grasslands. "The reduction of the original habitats often results in loss of habitat heterogeneity through reduced crop diversity and hedgerow removal at local scales and homogenization of land-use types at landscape scales (Tscharntke *et al*. 2005). Restoring habitat heterogeneity has been proposed as a 'universal management objective' that would increase biodiversity in agricultural systems (Benton, Vickery & Wilson 2003). However, the suitability of this objective has been disputed for low-intensity agricultural landscapes (Batáry *et al*. 2011). In agricultural landscapes, relationships between habitat diversity and species richness are taxon specific and scale dependent (Jeanneret, Schüpbach & Luka 2003)". Regardless, the replacement of farmland or grasslands with solar panels results in a loss of natural capital which is currently abundant in the Township. Figure 2 below displays the function and services provided by natural capital relative to food, water, energy, and carbon storage. Solar farms would not contribute food and water resources like agricultural farms would and the carbon capture from solar farms follows only from reduced emissions which may not occur given the abundance of access roads and necessary travel from maintenance vehicles. Once natural capital such as farmland is removed, it is nearly impossible to reclaim it even after the solar farms are decommissioned in the future. To assist in the decision-making by policy makers, local leaders, and property owners, Ekins et *al*., (2003) offer a framework for the determination of the threats to natural capital (i.e. social, cultural, economic, or ethical) and how activities, customs, or attitudes may have negative impacts on natural capital. Also offered are ways to ease the pressures present.

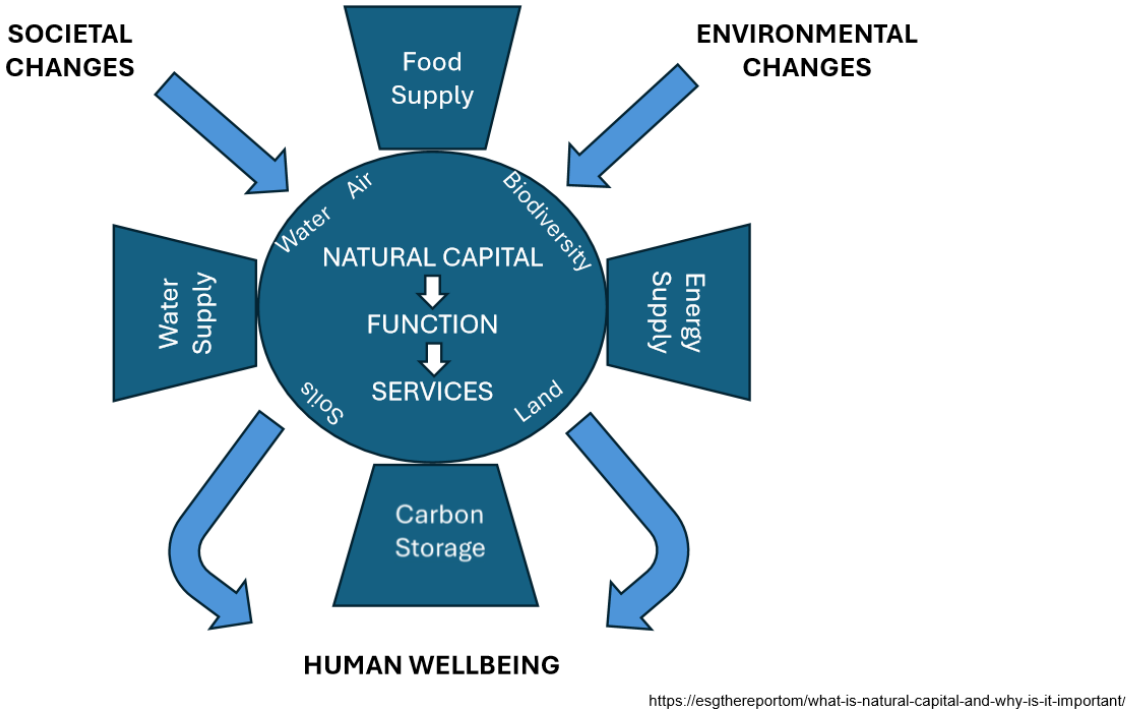


Figure 2. A diagram demonstrating the function and services provided by natural capital relative to food, water, energy, and carbon storage.

What is the Index of Biotic Integrity and Why is it Important?

An index of biotic integrity (IBI) is a metric used to sample, evaluate, and describe the species richness of organisms and biological condition with multiple metrics in a given environment. It was first created by Dr. James Karr in 1981 to evaluate components of streams for compliance with the Clean Water Act of 1972. The higher an IBI value is, the closer an environment is to its original and best functioning state. In general, the more human disturbance presence, the lower the IBI. IBI's can thus be used to determine the degree of degradation done to a particular ecosystem by human development or other impactful events. IBI's can establish baseline conditions for site evaluation, minimize or avoid future adverse project impacts, assist with the formation of alternatives for mitigation, and locate and identify troubled ecosystems as restoration candidates. Figure 3 below displays an example of IBI's calculated for multiple stream reaches with potential site impacts. In this example, the Caney stream has the highest IBI and thus would be most vulnerable to potential changes in habitat and thus it can be prioritized.

Table 2. Example of how the Index of Biotic Integrity (IBI) scores are used to evaluate site-specific impacts at four streams in the Lower Quachita Mountains Ecoregion, Arkansas (Adapted from Hlass, Fisher, and Turton, (1998)).

Stream	Average IBI Score for Stream Reach	IBI Score for Site	Site Impact
Caney	33	33	no site-specific impacts detected
Brushy	33	22	adjacent livestock pasture
Harris	29	26	cattle watering hole, adjacent clear cut area
Moore	24	18	pipe crossing with bare slopes, gullying

Figure 3. An example of an IBI scoring assessment for stream reaches in Arkansas with noted potential site impacts.

At this time, the many areas of natural capital in White River Township have not had IBI's established and thus any potential damage from the large solar farm to these systems is likely to remain unknown. Although there have been larger-scale or micro-regional data analyses conducted using the Michigan Natural Features Inventory (MNFI) database and the US Fish and Wildlife Service Information for Planning and Consultation System (IPaC) database, these data sources cannot assess at the site-scale level.

An absence of this level of sensitive data such as the IBI's reduces the degree of confidence that is needed to make scientifically-sound decision-making relative to destruction of vegetated farmland and conversion to relatively impervious solar farms. The absence of critical IBI data can therefore enable development activities that could have devastating or substantial impacts to sensitive ecosystems (regardless of size) and may lead to violation of objectives listed in the White River Township Master Plan. Such broad environmental studies that utilize the databases described above are often used naively to evade potential findings that would likely be overlooked but less likely with site-scale IBI metrics. The data used by corporations may then be skewed towards the company focus and away from unique ecosystems and sites that may serve critical ecological services in the proposed developed area. Additionally, IBI metrics are amenable to statistical analyses which yield a source of unbiased confidence for neutral decision-making.

Given the data input to obtain an accurate IBI for a given ecosystem, an underestimate of IBI may ultimately lead to an underestimation of natural capital. As described above, if natural capital is reduced, other forms of community capitals are then altered. In a geographic region such as White River Township, the disappearance of natural capital would likely result in a reduction of population since many residents may leave the area and that would lead to a reduction in social capital and a measurable loss in municipal tax base and financial capital. With that reduction, there would also be an inherent loss in human and cultural capital as well which then reduces the resilience of the White River Township community and ultimately results in a less sustainable community. Such an outcome conflicts with goals in the Master Plan as well as goals set by the solar company in a sustainability context.

Conclusions and Recommendations for White River Township:

Given the defined forms of community capitals described above and the integration of them within White River Township and the lack of site-specific IBI data, progression to a large-scale solar farm with the data analyzed to date is not recommended. If this project is approved, then the original biotic integrity of the numerous forms of natural capital will remain unknown without a baseline and thus low statistical certainty relative to measurable or predictive impacts of the solar farm on natural capital and the connections to other forms of community capital. Thus, in addition to IBI's for each unique type of ecosystem, a detailed White River Township Community Capitals Framework Evaluation should also be conducted. Such an evaluation will use professionally developed proxy indicators supported by the scientific community (peer-reviewed) that are specific to the Township boundary to inventory the baseline levels of each form of capital and the potential interactions among capitals that may be altered due to this solar farm development.

Ignorance of these factors may lead to a less resilient community that is much less able to absorb changes or disturbances over time and also potentially experiences reduced sustainability which would directly conflict with the Township Master Plan. Fey et *al*., (2006) discuss methods for measurement of community capitals through research that may be useful for White River Township.

Implementation of IBI metrics and community capital inventories may seem daunting and potentially costly with the short-term costs, but the potential long-term collapse of community resilience and ecosystem biotic integrity could be immensely more costly.

Lakeside Solar (Geronimo) specified that they considered the Chemours Montague site as a possible alternative site but unfortunately determined that it was not suitable due to environmental, financial, and logistical reasons. This is unfortunate as a site is needed that would spare a lot of the farmland and green space from development and not change the acreage of industrial land originally described in the Master Plan or violate PA 233 Section 226(7)(f) as earlier mentioned.

Consideration of a Natural Capital Protection Ordinance:

Prior to the implementation of any project that may reduce natural capital, it may be useful to establish a Natural Capital Protection Ordinance (NCPO) that includes a thorough inventory of all forms of natural capital within White River Township and includes methods for the preservation of natural capital as a critical non-renewable resource. The elements that should be considered for an NCPO include the following:

I. Definition of Natural Capital
   A. Examples of Natural Capital in White River Township
      1. Critical Dunes (overlay)
      2. White Lake region
      3. Pierson Drain (empties into Lake Michigan—Great Lake ecosystem) and other creeks and ponds
      4. Groundwater (recharge critical, well water primary residential drinking supply)
      5. Others as identified by land use
   B. Importance of Natural Capital
      1. Ecosystem services and valuation (Heal 1999, among others)
      2. Interacts/supports other forms of capital (Flora et al, 2004)
      3. Critical for sustainable community (definition and characteristics of sustainable community)
         a. *The finite natural resources of White River Township provide residents with access to clean air and water, fertile soil, productive lakes and forests contributing to human well-being. No viable alternative exists that supports all people of all social economic levels to enjoy clean water as the cleansing Pierson drain and local aquafer provide to residents. Substantial prime and locally important farmlands are important for crops but also sequester large*

quantities of carbon. Social equity to the benefits and services of these natural systems must be guaranteed.

4. Interactions with other forms of capital critical for community sustainability (Jermalowicz-Jones, 2017, among others)

II. Inventory/Measurement of Natural Capital in White River Township
   A. Classification of rare, sensitive, endangered, threatened species (MNFI data and preferably ground-truthed inventories); TWP could have an account with MNFI for continual inquiries as development is proposed and when new features are discovered
   B. Sensitive habitats
      a. *The Michigan Natural Features Inventory was used to determine that 64 animals and 41 plants that are Extinct, Threatened, or of Special Concern potentially live in White River Township. These species disproportionately rely on bogs, coastal plain marshes, southern wet meadows, submergent marshes, and intermittent floodplains*.
   C. Bio-rarity Index from MNFI for a region (high Bio-rarity would promote measurement of IBI below)
   D. Biodiversity and Index of Biotic Integrity (IBI) at site-specific scale

III. Determination of setback distances/compatibility with existing zoning ordinances
   A. Scientific literature—support of setbacks for specific natural capital areas

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EXHIBIT N

Review of the Vegetative Management Plan

as written for Lakeside Solar LCC by Applied Ecological Services in Appendix G of the SUP Application

for White River Township, Muskegon County, MI

Prepared by Connie J. Crancer, November 2025

INTRODUCTION

This report examines the Lakeshore LLC Special Land Use Permit for Solar Arrays in the White River Township, Muskegon County, MI. Specifically as it pertains to the Vegetative Management Plan (VMP) section in Appendix G written by the Applied Ecological Services of Minnesota.

My intention is to look for adherence to Best Management Practices (BMP's) of native vegetation installation and maintenance and suggest where BMP's could be incorporated so that the creation of native species habitat is of the highest standard.

I examined how the Applied Ecological Service (AES) Vegetative Management Plan (VMP) stands up to Best Management Practices of establishment and management of perennial native vegetation and habitat at the solar site under consideration as it pertains to two guiding documents: the White River Township, Muskegon County, Michigan ordinance NO. 58-2023 on solar array establishment, and Michigan Public Act 230 of 2023.

The White River Township (WRT) ordinance 58-2023 states on page 11, #9 with the heading of groundcover states that "native pollenating plants shall be planted and maintained….for bees, butterflies, birds and other wildlife." The WRT zoning ordinance is written to support all wildlife via native plants as ground cover.

Public Act 230 of 2023 (PA 230) states: "The solar facility site is designed, planted, and maintained with groundcover that achieves a score of at least 76 on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites developed by the Michigan State University Department of Entomology or is designed, planted, and maintained in compliance with NRCS Cover Standard 327 (31) (Appendix A). Public Act 230 of 2023 modifies the rules of farmland preservation to allow solar energy projects to be placed on farmland enrolled in Public Act 116 (Farmland and Agricultural Lands Preservation Act).

The Michigan State University (MSU) Scorecard (24) and guidelines for NRCS CS 327 (32-36) are intended to be used for goals, planning and assessment through the life of the solar project. See Appendix B for MSU Scorecard and Appendix C for the NRCS Conservation Practice Effects - Network Diagram for Conservation Cover 327. Both of these can help to understand the intention of the Michigan Public Act 230

The MSU scorecard assigns scores and goals for supportive pollinator habitat such as site planing and development, site preparation prior to implementation of seeding, insecticide risk and available complimentary habitat within 0.25 miles. Plant scores and goals for native plant species include species diversity, percent dominance and seasonal flowering.

One of the expressed purposes for the NRCS Conservation Cover (CC) 327 is to enhance wildlife, pollinator and beneficial organism habitat with expressed criteria to plant a diverse mixture of grasses and forbs (flowering plants) species to promote bio-diversity, and to use approved habitat appraisal guides, evaluation tools, and appraisal worksheets for the respective state (35).

The NRCS Conservation Practice Effects - Network Diagram for Conservation Cover 327 (36), (Appendix C), summarizes the anticipated direct, indirect and cumulative effects on wildlife by following the guidelines of the 327 NRCS Conservation Practice. Direct effect of increased food and cover (D.8); indirect effects of increased wildlife habitat (I.11), increased upland wildlife populations (I.12) and decreased habitat fragmentation (I.13); with a cumulative effect of increased biodiversity (C.7).

The WRT Ordinance 58-2023, Conservation Cover 327 and the MSU Pollinator Habitat Scorecard formulated my review of the Vegetive Management Plan of the Special Use Permit. Additionally, eighteen resources from five states (Michigan, Minnesota, Northern Iowa, Illinois and Ohio) and two national invertebrate organizations (12,13) were consulted to substantiate the guiding principles of Best Management Practices (BMP's) as they pertain to native species plantings and wildlife habitat creation, development and sustainability on solar array sites.

Although not all of the designated land for this project is under PA 116, I reviewed the AES Vegetative Management Plan keeping the intention of PA 230 in mind.

To easily follow the review below, it is in the order as written in the AES VMP. Page numbers within the review indicate what page of the AES VMP to refer to and direct quotes from the AES MVP are italicized for easy reference.

REVIEW

VEGETATIVE MANAGEMENT PLAN (VMP) DEFINED

A Vegetative Management Plan (VMP) is a living document (7). It is intended to be useful for the duration of the project (1,7 and 21) and greatly increase the likelihood of successful native plant establishment; which is a process (7), not an event (1). As a process, monitoring and site assessment throughout the life of the site will be necessary for adaptive management strategies (1).

A VMP will state clear goals and objectives of vegetation management with details about site preparation, planting (including seed mix and seeding method), management methods during and after establishment, monitoring and reporting, and address adaptive management needed to successfully install and manage the installation sustainably (1). The VMP will pinpoint site characteristics, goals, management needs and potential pitfalls that will be necessary to reference as the planting develops (1) .

Page 1.

I Goals and Objectives:

"Lakeside Solar, LLC (Lakeside Solar), a subsidiary of National Grid Renewables Development, LLC (National Grid Renewables), is developing a solar energy facility (Project) which is planned to cover approximately 1,653 acres"

Acreage stated does not coincide with other areas of the Special Use Permit submitted.

"The goal of this Plan is to establish vegetative cover that complies with all permits and regulations"

No mention of MI PA 230 to guide the objective, intentions and goals of this document on land under PA 116.

The AES VMP is stated to be a *"working document"*; and *"new revisions will be made as new information is obtained with respect to vegetation management, site characteristics, and availability of management practices at the time of procurement of services".*

Therefore, this VMP in not inclusive nor a finished document. As it stands, at best it is adaptive; at worse, an open-ended VMP without clear goals, objectives, and intentions.

II Vegetative Installation

"After the solar panels and other infrastructure are constructed, native seed mixes developed for the Project will be installed on site as directed by Lakeside Solar (Owner)"

Two things stand out to me from this statement.

One, there is no mention of the length of time anticipated to erect solar panels and infrastructure for this project nor is there interim plans for soil stabilization. Further in the review I will note there is no interim annual cover crop seeding for erosion control prior to completion of solar panels and infrastructure. A temporary cover of 20 lbs./ acre of oats used as erosion control and site stabilization until construction is complete and the permanent seed mixes are planted is suggested (1,14,21).

Furthermore, since the VMP was not written in-house by the Lakeside Solar (owner). Therefore I ask; does said owner have the in-house talent, experience and education to direct native seed installation?

"A desktop review of the site revealed that Lakeside Solar is located on a historical glacial lake plain and is comprised of over 25% hydric soils. Accordingly, Applied Ecological Services (AES) staff recommended installing three native seed mixes on site: a mesic mix under and around the arrays in upland areas of the site, a wet-mesic mix under and around the arrays and in low areas of the site and in any areas that are known or predicted to hold surface water for part of the growing season (seasonally inundated), and a wet mix around constructed stormwater basins, existing ponds, and irrigation ditches"

There is no directive in the MPV to suggest that desk top review should be ground proofed and on-site soil and drainage examination conducted prior to seed mix finalization.

Furthermore it reads as though the entire site is to be judged by 25% of the soil and presumed have similar characteristics.

Hydric soils is a type of soil that has been saturated by water, seasonally or year-round like those in wetland habitats, resulting in anaerobic, or low-oxygen, conditions (26).

Living next to the site and familiar with the soils in the area and knowing that much of site location has been historically and currently farmed, artificially drained by Pierson drain and in some areas tiled, I utilized the USDA soil map and data app (27). I noted the land control boundaries of the map located on page18 of the AES VMP and reviewed the soil within that boundary.

I found 25 different soils, (see Appendix D a&b for soil map image and summary of soils type on the site location), and detected only 18.1% hydric soil within the land

control area with only 3.8% of hydric soils showing ponding. And that most of the soil types within the land control boundaries to be sand, sandy loam, loamy sand and loam within considerable A, Ba and C horizons. Most types are are well-drained except for 12.6% total soils. [.2% Granby loamy sand lake plain soil showing somewhat poorly drained and frequent ponding; 2.4% Sims loam showing poorly drained and frequent ponding; 10% Tonkey and Deford soils showing very poorly drained and frequent ponding]. The rest of the land, 84%, under the land control area is well drained to excessively well drained with no ponding. (4.1% Hettinger and Pickford soils were included in my delineation showing poorly drained and frequent ponding but is not within the land control area.)

Because of the sand to loam soil profiles with well-drained characteristics of the soils in the majority of the land within the land control area, I would suggest a seed mix should not be agreed upon without an on-site review of the soils, water tables and tile placement for possible revision of the mesic mix to include more upland species.

A seed mix should coincide to the characteristics of the site, including region, soil type, soil moisture, slope and drainage to determine the species that will be able to grow at that location. (1,7, 35). Planting species that are best adapted to the soil moisture(s) of the site will ensure their persistence in the planting (17).

The AEC VMP does not indicate anywhere that Lakeside Solar work with a local seed company or relevant experts to develop seed mixes. Local seed companies know the states hydro-geo-climatic preference of native species in plantings and also will indicate providence of their seed. Solar developers should work with a native seed company to develop the native seed mix(es) (1). Relevant experts such as planning staff, Department of Natural Resources wildlife biologists, farm bill biologists, USDA Natural Resource Conservation Service (NRCS) staff, and local seed companies to develop a planting and management plan specifically tailored to their site (21).

Additionally. a map was provided in the Map section of the Special Permit document indicating where the Wetland Mix was to be used. Most of the area which the Wetland Mix to be used indicates the center and banks of the Pierson Drain. That would remain to be the Water Resources Commission determination since they have an legal easement along the Pierson Drain.

Additionally, there are species included in the mix not native to our county, adjacent counties and MI mid-mitt region. Ideally, seeds should be sourced from areas with similar conditions within the county or adjacent counties (1,21) and sourced from sites with similar site conditions (1).

The AES VMP understands this to a degree by the written remark *“Genetic source origin of all native seed shall be local, and a reasonable effort shall be made to source seeds within the ecoregion”*

Using local seed protects existing native prairies from genetic contamination and helps prevent the spread of invasive or noxious species. Plants brought from different areas with significantly different climatic conditions may also not produce viable seed (21).

The preferred sequence according to USDA NRCS guidance is: within the ecological sub-section, ecological section and then within a 200 mile radius of the project site unless otherwise specified (21). The MSU Scorecard gives +5 pts for seeds sourced within 150 miles of the site (24).

Bouteloua curtipendula is a grass in the mesic mix which is highly uncommon and is represented in only 9 counties in Michigan with 1-3 specimens per county collected. However it was collected in Newago in 1996. With the uncommon nature of this species there may be a low probability local or Michigan seed for this species. If not of Michigan genotype then our native genotype could be genetically swamped. Seed gene swamping is the process where the genetic makeup of a local population is overwhelmed and potentially replaced by genes from another population with negative effects on the local genotype species.

Another grass of concern, *Festuca rubra (ssp. rubra),* is a cool season Eurasion species. Leaving a cool-season out is not an option. Leaving out cool-season grasses and sedges will expose the planting to weed invasion from plants like smooth brome (Bromus inermis) and Kentucky bluegrass (Poa pratensis) (17). And having cool-season grasses give sustainability and diversity (1,9,7,17,19). An alternative short (1-3'), cool-season grass is *Bromus kalmii* found in Muskegon and nearby counties. Another alternative short (2-3'), cool-season grass is *Sporobolus heterolepis* found in nearby counties or the more common *S. cryptandrus,* found in Muskegon and Oceana county. *Koeleria macrantha* (1-2') should be also considered.

Also found in the mesic mix is *Chamaecrista fasciculata,* a legume found only in the lower-mitt area with the nearest county occurrence in Kalamazoo. This species is found within the 150 mile radius. Including a legume is important to add to family diversity and flower shape diversity and important for wildlife (1,7, 17). This particular legume is recommended as it readily germinates and rapidly grows in the first growing season, covering more bare soil, thereby reducing potential soil erosion, and it's rapid growth may reduce weed abundance in early establishment (17).

A seed mix should reflect the historical pre-settlement vegetation for the county where the solar project is located (7). There are several short (1-3") forb species not on the AES MVP seed mix mesic list that seed is readily available, found in Muskegon/Oceana counties and are adaptable for solar array seeding such as *Coreopsis lanceolata, Liatris aspera, Lupinus perennis, Monarda punctata, and Penstemon hirsutus* which will give diversity of seasonal bloom and flower shape and are adapted to dry to mesic soils.

Again I would stress that a local native seed company be consulted.

Additionally, the seed mixes offered should be reviewed for height for some of the species that exceed recommended heights for solar array plantings. (See Appendix HG for Seed Species Evaluation for notes on species height and range.) Species in the prairie plantings should not exceed a growth height of 36 inches when planting under the arrays (assuming the lowest edge of the solar panels is 3 feet high) (7).

Species above 3 feet can be used around the perimeter or in between panel rows—these will not impact solar panels by creating shade because most of the plant matter in these taller species is in the lower portion of the plant, while the height is only in the flower stalk (7).

Also, spring blooms are lacking in the AES recommended seed mixes. The NRCS CC 327 advises, and the MSU Pollinator Habitat Scorecard gives points for, at least three flowering species for each of the three bloom periods (spring, summer, and fall) (24, 35).

See Appendix G a,b&c in this review for full species review.

1. Seed Mixes

"The three mixes prepared for the site have been designed to be used whether Lakeside Solar employs mowing or grazing with sheep for perpetual maintenance."

It is true that both mowing and grazing are a forms of acceptable maintenance disturbance. However, the scale of this project may make sheep a logistical problem: "*a scalable rotational grazing unit is 16 acres, divided into four 4-acre paddocks. Consequently, a grazing area of 160 acres would be divided into 10 grazing units (and 40 total paddocks)….each grazing unit will rotate between the four paddocks (Paddocks A-D) over the course of one month….each paddock need to be provided with drinking water."* (see page 8 of the AES VMP). Scale that up to 1,600 acres results in 100 grazing units, 400 paddocks, each needing water source. This seems logistically unstable.

"If planted in the spring, seeds shall have been properly stratified and/or scarified to break seed dormancy."

This is not a BMP for anything larger than 1 acre. It is a logistical nightmare, (I know from past experience and conversation with Jerod Foster, owner of Native Connections Native Seed Company confirms). Species have different stratification times (0-120 days); seed imbibed with water are larger so calibrating a drill is difficult; if radicles emerge before seeds reach ground can break off rendering the seed null and void; seed having imbibed water readily germinates and if site conditions of soil moisture and rain are not available for further development, the seed and emerging seedlings are vulnerable to desiccation.

Page 2

2. Timing of Seeding

"The protocol for installing the native seed mixes depends on the completion date of construction…..If a cover crop has been installed at any time during the calendar year, native seed mixes must be installed the same year with a fall dormant seeding, unless the Owner gives permission to the Contractor for a spring seeding."

As mentioned above, the Plan does not recognize that the installation of solar panels will take 2-3 years and that bare soil needs to be addressed during the phases of installation by way of a recommended cover crop to hold the soil and mitigate soil erosion. A temporary cover of 20 lbs./acre of oats can be used as erosion control and site stabilization until construction is complete and the permanent prairie seed mixes are planted (1,14, 21).

The comment of cover crop installation must be followed by native plant seeding in the above statement, locks the native seed installation prior to completion of construction.

References state seeding can only be conducted after all grading, construction activities and site preparation are completed (14,21).

Other references state that the majority of planting should occur after construction of the panels (1,7), except in soils that are resistant to compaction, such as those with sand as a major component (1), However, attempting to plant after grading and before post and panel installation can result in poor seed germination, due to compaction from equipment maneuvering (1,7, 21).

Therefore, this statement in the AES MVP does not recognize the scope nor the length of time of the project and can not be applied to this project.

3. Site Preparation

This section is rather scant and does not clearly establish site preparation BMP goals. There is no mention of familiarity of previous land use and herbicide applications, removing existing vegetation prior to seeding, nor ideal seed bed conditions prior to seeding.

Good site preparation is critical and perhaps the most important step to successful establishment of pollinator habitat (22). To have a successful planting, it is important to ensure the site is prepared for seeding (21).

There is a lack of addressing historical use in this section. Past land use history, current vegetation, seedbed preparation and, sometimes, reducing pesticide or nutrient carryover all need to be considered (1,7).

Site preparation should be based on site specific history. Such as if the site was previously an agricultural field or row crop production, as herbicides with residual control may have been used. Pesticide records and application dates will be necessary. If herbicide residue is expected then seeding will have to be delayed until the residual effects have expired (1). A temporary cover of oats, wheat or rye can be used to prevent erosion during this time (22).

Although the AES MVP does specify noxious and perennial weeds to be considered, it is in the section of management after native plant seeding; not in this site preparation section prior to native plant seeding. Proper and thorough preparation of the site to remove invasive species prior to planting will determine the success of the native planting (7) and in many cases, weeds may be present and need to be terminated before planting (22).

Additionally in this section there is no expectation stated in regard to the condition of the seed bed prior to seeding. Especially omitted is that bare ground is the ideal seedbed (22). Any eroded gullied or washes should be worked and smoothed (22) and detailed instruction of preparing the seed bed to ensure good seed to soil contact depending on seeding method - see comments in the next section - is necessary.

4. Seeding Method

"Seeding may be conducted with a seed drill and/or by broadcast seeding; the Contractor shall evaluate the site and determine which technique will produce the best results. Seed installed into a previous cover crop or other vegetation must be installed with a seed drill. …. If broadcast seeding is used, the Contractor is responsible for ensuring good seed-to-soil contact."

This section should include the type of seed drill or broadcast equipment to be used as it pertains to native seed, soil depth, and the use of a cultipacker or similar device to ensure a good seed bed preparation, or in the case of using broadcast equipment, to ensure good seed to soil contact.

If drilling is the planting method, seed drills designed specifically to plant prairie grasses and flowers should be used (1,21). Drill box specifications in table form for specific seeds can be viewed in the Tallgrass Prairie Center, University of Northern Iowa Cedar Falls, Seeding publication. (19).

If broadcasting is the planting method, native-seed broadcasters should be used, as they are adapted to spread mixes with different sized seeds (1).

Prairie seed can be planted by broadcast seeding, hydroseeding, and drill seeding. Regardless of the seeding method used, it is essential that seed be planted at the proper depth (19). Planting seed at the proper depth (1/8 to 1/4 inch) and ensuring good seed-to-soil contact are essential for seed to germinate and establish (17).

Regardless of planting method, it is vital to get good seed to soil contact during planting, for good establishment (1,7,19).

If a no-till seed drill is used, cultipack the site before seeding is recommended (18).

After broadcast seeding, seed should be incorporated into the soil to improve seed-to-soil contact. Incorporating seed into the soil can be done by dragging a piece of heavy chain, or a piece of chain link fencing, or using a drag harrow until the seed disappears. After the incorporating seed, pack the soil with a cultipacker (19).

There is no mention of using local reputable Michigan seed contractors. The importance of this is indicated by the following statement: Seeding contractors must have at least three years of experience installing native seed and installing or maintaining prairie restoration projects or other similar types of projects (14). Experienced local seeding contractors understand Michigan soils, the affects of construction. and how best to prepare the site for native species plantings.

Page 3

A. Establishment Phase

The establishment Phase is yr 1-3 in the AES MVP. This coincides with most resources.

“If possible, grazing should not occur in the establishment phase. If grazing must occur, stocking should be light so that native plants can develop root systems that will enable them to survive future grazing at higher stocking rates. Grazing during the establishment period may favor some invasive plant species, requiring more frequent monitoring and greater weed control efforts than if grazing did not occur”.

Two things stand out to me here

One, by their own admittance grazing may compromise the project and two, why would grazing be be necessary during the establishment phase?

Grazing is typically considered only as a potential disturbance regime for long-term maintenance. Typically sheep eat at considerably lower levels of plant height than recommended for establishment phase BMP's. Mowing height is recommended between 4"-8". The Nature Conservancy recommendation 4-6" the first year and 10" the second and (7).

Therefore, grazing should not be considered for the establishment phase of the native specie

Page 6.

B. Management Phase

1. Mowing for Management

The Management Phase for AES VMP starts year four, after the Establishment Phase of years 1-3 and continues for the life of the project.

"At the end of the Establishment Phase, annual management is required for the life of the Project"….."This management may take the form of mowing or haying"….

Mowing or haying on an annual basis is <u>not</u> a BMP of long-term management

The Management Phase is usually designed to mimic disturbance as in native prairie or grassland ecosystems.

The goal is to introduce disturbance to the planting in a way that approximates natural processes (1,15). As with many native prairies and prairie plantings, natural disturbances are an important part of native vegetation management to help keep the ecosystem healthy and allow it to thrive (7,15).

Disturbance allows prairies to renew themselves while also slowing natural succession and keeping the prairie from becoming a forest. This can be done by haying, mowing, burning, grazing or spot-spraying (1).

It is important to include a variety of disturbance types, timing, and frequency (15). Repeat types of disturbance maintenance will depend on tree/shrub encroachment, ratios of grasses to forbs, presence of noxious weeds, and overall planting health (1).

These disturbance BMP's are echoed in the NRCS CC 327 which recommends rotating management and maintenance activities (e.g. mow only one- fourth or one-third of the area each year) throughout the managed area to maximize spatial and temporal diversity (35).

Additionally; annual mowing does not respect the BMP of refugia. Refugia are undisturbed areas that are of similar quality and condition as the areas designated for disturbance. This allows populations of insects to be maintained within the site.

With any of the disturbance long-term management strategies, it is very important to establish refugia. These areas play an important role in pollinator conservation and allow for the completion of pollinator life cycles (1, 12, 13, 21).

For this reason it is recommended that no more than one-third of the site should be disturbed each year during the long-term maintenance phase—especially for large sites. The same one-third should not be disturbed in consecutive years, unless there is a specific short-term goal, e.g., reducing non-native exotics like brome grass (1, 13).

If possible, 10% of the site should be set aside as semi-permanent refugia, which receives limited disturbance on a longer return interval of 15 years or more (1, 21).

"Should Lakeside Solar enter into a haying partnership for some or all of the site prior to construction, seed mixes will be reviewed and potentially revised to meet the local agricultural needs".

This statement does not belong in the long-term management section. If it is meant to be considered during long-term management then is it erroneous.

The NRCS CC 327 does not apply to plantings for forage production. Haying as a way to remove biomass is quite acceptable as a disturbance for long-term maintenance of native species plantings and habitat and is cited in many of the resources, but not as an agricultural endeavor.

Especially worrisome is the statement that seed mixes will be potentially revised to meet local agricultural needs. Revising the seed mix may significantly diminish the plant species diversity needed to support and sustain pollinators and wildlife and would undermine the intention of PA 230 and WTR Ordinance NO. 58-2023.

Page 9

IV. Vegetation Quality Targets

A. Native Vegetation Targets

"Seven or more species of planted native graminoids and six or more species of planted native forbs shall be well-established across the site".

This target would suggest a dominance of graminoids (grasses, sedges and the like) thus scoring only 3 of 15 possible points for percent dominance of forb species and only 3 of 10 possible points for the number of forb species on the MSU scorecard.

For pollinators, the more flowers the better. A ratio of 25% Native Grass to 75% Native Forbs (wildflowers) is preferred (22).

To provide a gold standard of ecosystem services, long-term resiliency and sustainability; diversity of species is needed. A diversity of plants ensures that more species are able to adapt to climatic and environmental extremes and can, therefore, respond to changing environmental conditions. (1,7).

Native plantings with high diversity - meaning many different plant species co-existing together - are the most successful at resisting weed invasion, and also the most ecologically functional, supporting a wide variety of pollinators and other wildlife. In other words, diversity is key to a planting's success. This can help reduce management costs. Over the years, there will be variations in invasive species pressure, soil conditions, and climate, such as extreme drought or extreme moisture. Having a diversity of plants ensures that more species are able to adapt to the extremes and can therefore respond to changing environmental conditions (21).

B. Noxious Weeds and Problem Plants

The lists offered in the appendices 3 and 4 of the AEC MVP are the result of the the Natural Resources and Environmental Protection Act Part 413 (Act 451 of 1994, as amended) (44) and was published as such by the Michigan Department of Agriculture (MDARD). An updated 2018 MDARD Michigan Noxious Weed list with an additional 6 more species of concern as well as updated botanical names is available (45). The six species can be found in Appendix F of this report. Additionally, the Midwest Invasive Species Network should be consulted as it highlights 450 invasive woody, forb and graminoid plant species (47).

ADDIITONAL COMMENTS:

MSU Scorecard results:
The AES MVP lacks pertinent details of BMP's (as covered above in addressing particular areas of the plan and supplemented comments below) thus an assigned value of 0 for detailed plan. There was not specific mention of utilizing a Vegetative Management Company, only a reference of a Contractor in the regard to seeding therefore an assigned value of 0. No specific plan for weed removal prior to seeding therefore an assigned value of 0 was given. No mention of registering with local chemical applicators or registering with Drift Watch; assigned value of 0. All other values were assigned based on the information in the AES MVP.

Without mention of the effort of securing seed within 150 miles a total score of 14 results. Well below the 76 points stated in the PA 230.

See Appendix E of this report for MSU Scorecard results.

Documentation for Planning, Monitoring, Appraising and Assessment of Long-term Success
This aspect the AEC VMP is lacking. No indication of planning, or monitoring with the MSU Pollinator Habitat Planning Scorecard or the NRCS CC 327 to assess success of the native plant species establishment and to be used as feed back for potential adaptive management strategies.

Vegetation monitoring is a necessary part of ongoing maintenance, as it is the source of information used to make ongoing management decisions (1).

The MSU Pollinator Habitat Planning Scorecard (Appendix B) for planning purposes but was expressively developed to guide vegetation management and to be used to also monitor and access the success of the native plantings as they relate to pollinator habitat (24).

If the NRCS CC 327 practice is preferred over the MSU Pollinator Habitat Scorecard in order to keep in compliance with PA 230; NRCS CC 327 states that plan specifications, operation and maintenance "shall be recorded using approved Implementation Requirement document." "Where wildlife management is an objective, the food and cover value of the planting can be enhanced by using a habitat evaluation procedure to aid in selecting plant species and by providing or managing for other habitat requirements necessary to achieve the objective….approved habitat appraisal guides, evaluation tools, and appraisal worksheets for the respective state will be used." (35).

Pesticide Drift
There is no reference in the AES VMP about mitigating potential pesticide drift from adjacent agriculture lands and private residences.

The NRCS CC 327 states the practice of locating habitat plantings to reduce pesticide exposures that could harm wildlife, pollinators, and other beneficial organisms.

Pesticide drift from adjacent lands can be harmful to prairie plants and animals (16). Pesticide drift is a concern when plantings occur in agricultural, urban or other working landscapes. Using visual screening of non-flowering shrubs, trees or grasses can be a way to provide a buffer for planted areas to help minimize the impacts of drift to wildlife including pollinators and other beneficial insects (1,21).

To prevent inadvertent spraying of the pollinator planting, it is recommended solar array sites be placed on the local Do Not Spray list. This will help prevent damage to the pollinator planting (21). The MSU Pollinator Habitat Scorecard assigns +20 points if the site is registered on driftwatch.com website.

Additionally, perimeter set backs are suggested. Northern Indiana suggests the perimeter of the solar area may have woody species or be only grass. it may be desirable to provide a 40 - 125 foot non-flowering buffer to protect the planting from pesticide drift from adjacent agricultural practices (21).

The Minnesota Board of Water and Soil Resources and the Xerces Society suggest the following buffer widths recommended to help avoid drift: 40 feet wide for site adjacent or near ground-based spray applications; 60 feet wide for site adjacent or near the use of air-blast sprayers; and 125 feet wide for sites adjacent or near aerial spraying or crops treated with neonicotinoids (including application as a seed treatment) (1).

Conserving Existing Native Habitat and Historical Remnant Ecosystems
I note from the Land Control Area of the map inserted in the AES MVP that the remnant Glacial Lake Plain woods and spring is designated for revegetation during solar development. The remnant Glacial Lake Plain woods and spring is located just west of the Pierson Drain as serves as valuable habitat as well as woods also slated for revegetation. Nearby habitat, different from open habitat plantings are important source of co-habitation of wildlife, including bees, butterflies and birds. MSU scorecard gives a total of four points if all aspects are met for maintaining habitat within .25 miles (Appendix B), (24).

Solar developers should aim to protect any natural features in the area to prevent damage to any habitats that are most likely already inhabited by local wildlife (7,23). These areas include wetlands, floodplains, and forested areas (23). These areas provide natural ecosystem services and are most likely already inhabited by local wildlife (7). Potential sites of a solar facility should be evaluated for any potential environmental impacts, including those that could affect wildlife and their habitat (Gagnon et al., 2018) (7).

The Nature Conservancy of Michigan discourages removing or altering landscapes with well-established natural areas that are already providing habitat for native pollinators or wildlife in order to install a solar array. All necessary precautions, assessments, and research needs to be conducted by the landowner or solar developer before any solar arrays are installed to prevent installation on lands that provide valuable ecosystems services (I.e., wetlands or floodplains) (7).

Visual Screening
I will offer the recommendations below, although not part of the VMP.

Tall warm-season grasses (1,21) and wildflowers 21) can be used for perimeter plantings as a visual barrier (1,21) and supplement early-blooming species requirements (21).

Shrub selection should be based on site conditions and species native to the county or adjacent county where the project is being constructed (1).

Use of tree species should only be used when required by approving bodies or to address adjacent landowner concerns (1,21) or to provide non-flowering pesticide drift avoidance zones (1). Tree species selection, like shrubs, should be based on site conditions (1,21) and use of species native to the county or adjacent county (1) or region (21) where the project is being constructed (1). Do not plant invasive tree species (21).

Select native trees and shrubs with value for wildlife, such as food, cover, and nesting (21). However, both non-native and native trees and shrubs can be problems for prairie health (16). Companies should not plant potentially problematic tree species (1) such as woody plants that are left on (or near) the site that will spread by suckering and seed, further displacing prairie plants (18). Careful selection should be taken when selecting trees to ensure they don't compete and aggressively spread into the prairie portions of the site and surrounding landscapes (21).

If evergreens are required for the project, choose species that are local to the county whenever possible (1). Although arborvitae (white cedar) is native, it should be avoided (21). This is a concern as this native species and it's cultivars are particularly susceptible to deer browse.

Preventing Ecologically Undesirable Vegetation Introduction
Although in the mowing section it states *"Mowing equipment shall be cleaned prior to use on site to prevent the introduction and spread of invasive and non-native species"* there is no mention of further precautions of bringing in invasive species and noxious weeds on other heavy equipment, motorized vehicles and footwear.

Ecologically undesirable vegetation introduction can have a severely negative impact on native plantings through competition of resources, aggressive behavior, and in some cases toxicity to soil to native species. Therefore is is necessary to clean all equipment, vehicles and footwear before entering the site (1).

BWSR's Cleaning Heavy Equipment used on Land to Minimize the Introduction and Spread of Invasive Species (4) can be referred to.

Additionally, seed can come in on the hooves of sheep.

Prescribed Fire

Because seed mixes for solar are primarily prairie species native to our local area, prescribed fire is an long-term disturbance tool.

Historically, fires set by lightning and American Indians kept the prairies from becoming brushlands and forests. Fire kills the above-ground parts of shrubs and small trees (16).

Prescribed fire every 1-3 years is the ideal long-term maintenance method and can be used on perimeter and buffer areas to the solar panels (22).

After a prescribed burn, prairie plants grow more vigorously when built-up plant materials and shade are removed (16). Spring fire uncovers the soil so it warms sooner, thus extending the growing season (16).

Prescribed fire can benefit prairies in many ways: it can bring a flush of new green growth, stimulate flowering and seed production, and help with invasive species control. Effects of fire are dependent on the timing, conditions, and frequency of burning (16).

Proper use of prescribed fire will accelerate growth of most prairie plants and deter cool-season weeds and small woody plants (20).

A written fire prescription dictates the timing and conditions that will accomplish management goals, while at the same time ensuring safety for those conducting a burn and others nearby (16).

The Michigan Prescribed Fire Council at https://www.firecouncil.org/can aid solar companies by way of consultants, writing a burn plan and suggest license companies and individuals to perform prescribed burns (42).

REVIEW SUMMARY

There are parts of this VMP to praise such as the attention to detail on the seeding schedule; concerns and how to deal with compaction; the introduction to the Vegetation Management Tasks; the attention to detail in the General Tasks for Managing Vegetation, spring, summer and fall during the Establishment Phase; the Prescribed Treatment for Common Invasive Species section; and the Re-seeding Bare Soil section.

However the following is of concern and stated more thoroughly in the Review:

- The number of acres written is 1,653 and does not coincide with other parts of the Special Permit.
- The statement for Goals and Objectives to *"establish vegetative cover that complies with all permits and regulations"* seems hastily and superficially written - no mention of MI PA 320, MSU Scorecard nor the 327 NRCS Conservation Practice as guiding principals for their installation or maintenance.
- The open-ended statement that the VMP to be a *"working document"*; and *"new revisions will be made as new information is obtained with respect to vegetation management, site characteristics, and availability of management practices at the time of procurement of services".* This suggests a work in progress and uncertainty.
- The omission of the interim time between panel construction and the need for protecting bare soil.
- No mention of working with a local reputable seed company or seeding contractor nor relevant experts.
- The *"desk top"* review of soils showing 25% hydric (which is more than my desk top review) and presuming the rest of the site soil and hydro characteristics to be similar and no suggestion of an on-site investigation of geo-hydro soil conditions.
- Seed mixes based on the above presumption should be revisited and a local native seed company be consulted as to appropriateness to the two mixes under and around the display for soil type and wetness characteristics. Seed mixes should also be reviewed for local species and species height.
- Assumption of seeding the Pierson Drain needs to be discussed with the Water Resources Commission.
- Mention of sheep grazing seems to be a logistical ordeal. Grazing during Establishment Phase is detrimental and should be omitted from the AES MVP.
- The use of stratified seed is <u>not</u> a BMP of large scale projects and should be omitted from the AES MVP.
- No mention of duration of construction and need for cover crop during phases of construction.

- Native species seeded same year as cover crop requirement does not take into account of cover crop during phases of construction.
- The inadequate Site Planning Section which omits weed control, no mention of thorough description of desirable seedbed conditions and mention of herbicide regime prior to predict herbicide residue which impacts the germination and establishment of native seed.
- Lack of detail per specific seeding equipment necessary for native seed, seedbed preparation and no techniques after seeding for good seed to soil contact.
- Mention of grazing during Establishment Phase should not be considered as this is not a BMP for establishing native plant habitat.
- Recommended mowing or haying to occur on a annual basis needs to be omitted as it is not BMP for long-term maintenance and ignores BMP of disturbance regimes and refugia and is not consistent with PA 230 nor NRCS Conservation Cover 327.
- That if a haying contract is made then seed mixes may need to be altered to meet local agricultural needs.
- The modest native vegetation goal of at lease 7 grass and at least 6 forbs suggests a graminoid preference and implies that plant diversity to support wildlife and is not a goal per se and does not coincide with the intention of PA320, MSU Scorecard and NRCS Conservation Cover 327 nor the WRT Ordinance No. 58-2023.
- The weed and invasive lists offered in appendices 3 and 4 is outdated. The updated 2018 version should be used and the Midwest Invasive Species Network should be consulted.
- MSU Scorecard results of scoring the AES MVP plan as it stands is significantly below 76 as PA 320 states as a goal.
- No indication of planning, or monitoring with the MSU Pollinator Habitat Planning Scorecard or the NRCS CC 327 to assess success of the native plant species establishment and to be used as feed back for potential adaptive management strategies.
- No mention of potential pesticide drift from adjacent agricultural lands and private property nor suggestions to mitigate potential pesticide drift by way of perimeter screening, set backs or registering on local do not spray list.
- The map indicating land control area shows no thought to conserve remnant glacial lake plain wet land and wooded habitat which will have a positive supportive effect on wildlife.
- Only mowing equipment is mentioned to be clean before entering the site. All machinery and footwear should be considered.

Weighing the favorable aspects of the written AES VMP against statements of concern I have expressed, I find this VMP lacking in sensitivity of native plant ground cover diversity for wildlife and goals of a sustainable and resilient native species planting which is the intention to the Public Order 320 created and adopted by the governor and legislature for solar array projects on agricultural lands.

Because of erroneous information and suggestions, omissions of Best Management Practices, and lack of detail in some sections; I believe the AES MVP was written in a cursory fashion and does not seriously address all BMP's necessary to ensure the sustainability of the native seeding that would result in positive direct, indirect and cumulative effects as stated in the NRCS Conservation Cover 327 or the purpose of the MSU Pollinator Habitat Scorecard.

Furthermore, in the opening paragraph the statements *"working document"* and *"new revisions will be made"* along with the omission of important details usually found in a comprehensive VMP, I find this document lacking in clear objectives, intentions and specific actionable and measurable goals. Therefore, I conclude that this document is a not comprehensive nor a finished document.

Without embracing BMP's of native seed installation and maintenance, an opportunity will be lost to help mitigate declining pollinators, bees, butterflies and other wildlife; clearly a priority as written in the WRT Ordinance No. 58-2023

APPENDIX A. Michigan Public Act 230 and White River Township Ordinance No 58-2023

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Act No. 230
Public Acts of 2023
Approved by the Governor
November 28, 2023
Filed with the Secretary of State
November 29, 2023
EFFECTIVE DATE: February 13, 2024

The solar facility site is designed, planted, and maintained with groundcover that achieves a score of at least 76 on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites developed by the Michigan State University Department of Entomology or is designed, planted, and maintained in compliance with NRCS Cover Standard 327.

WHITE RIVER TOWNSHIP
MUSKEGON COUNTY, MICHIGAN
(ORDINANCE NO. 58-2023)

9. Ground Cover: Native pollenating plants shall be planted (and maintained) between solar panel rows as ground cover for bees, butterflies, birds, and other wildlife. A horticulturist or landscape architect shall be consulted and make recommendations for all plantings.

APPENDIX B. MSU Pollinator Habitat Planning Scorecard for Solar Sites

Michigan Pollinator Habitat Planning Scorecard for Solar Sites

This form was developed by the MSU Department of Entomology to guide vegetation management at solar installations to make them more supportive for native pollinators. Check the boxes and add up the points to determine whether the plans meet or exceed the minimum requirements. For more local information on pollinators and habitat: www.pollinators.msu.edu

PROJECT DETAILS

Solar developer:_____

Vegetation consultant: _____

Project location: _____

Project size (acres):_____

SITE SCORES

1. SITE PLANNING AND MANAGEMENT
   - ☐ Detailed plant establishment and vegetation management plan developed +10 pts
   - ☐ Site plan developed with a vegetation management company + 5 pts
   - ☐ Signage legible at forty or more feet stating pollinator friendly solar habitat +3 pts

2. HABITAT SITE PREPARATION PRIOR TO IMPLEMENTATION
   - ☐ Measures taken to control weeds during season prior to seeding +10 pts
   - ☐ No weed control -20 pts

3. INSECTICIDE RISK
   - ☐ Planned on-site use of insecticide or pre-planting seed/plant treatment (excluding buildings/electrical boxes, etc) -40 pts
   - ☐ Communication with local chemical applicators and site registered on https://mi.driftwatch.org/map +20 pts

4. AVAILABLE HABITAT COMPONENTS WITHIN 0.25 MILES (check/add all that apply)
   - ☐ Native bunch grass for bee nesting +1 pt
   - ☐ Open sandy soil areas for bee nesting +1 pt
   - ☐ Trees/shrubs for bee nesting +1 pt
   - ☐ Clean, perennial water sources +1 pt

FLOWERING PLANT SCORES

5. FLOWERING PLANT SPECIES SEEDED IN PERIMETER AREA (species with more than 1% cover)
   - ☐ 5-10 species +1 pts
   - ☐ 10-15 species +3 pts
   - ☐ 16-20 species +8 pts
   - ☐ >20 species +10 pts

   Exclude invasive plant species from total

6. PLANT DIVERSITY UNDER SOLAR ARRAY*
   - ☐ Grass only +2 pts
   - ☐ Clover/grass mix +8 pts
   - ☐ Low-growing wildflower mix +10 pts

7. PERCENT OF SITE PLANNED TO BE DOMINATED BY WILDFLOWERS**
   - ☐ 0 - 25% 0 pts
   - ☐ 26- 50 % +3 pts
   - ☐ 51-75 % +8 pts
   - ☐ More than 75% +15 pts

   Projects may have different species mixes under the solar array panels and in the perimeter. Flower cover should be averaged across the entire site.

8. SEEDS USED FOR WILDFLOWER AREAS
   - ☐ Mixes are seeded using at least 40 seeds/square foot +5 pts
   - ☐ All wildflower seeds are from a source within 150 miles of the site +5 pts

9. SEASONS WITH AT LEAST THREE BLOOMING FORB SPECIES PRESENT (check all that apply)
   - ☐ Spring (April-May) +5 pts
   - ☐ Summer (June-August) +5 pts
   - ☐ Fall (September-October) +5 pts

** For seeding in the panel array, these can be a short-stature wildflower mix or clovers and other non-native species beneficial to pollinators. If clovers are used, these should be seeded in locations separate from the native wildflowers in the perimeter locations.*

*** Wildflowers in Question 7 refer to forbs which are flowering plants that are not woody, and are not grasses, sedges, etc. Measurements of percent cover should be based on the percent of the ground surface covered by foliage as viewed from above.*

Refer to www.nativeplants.msu.edu or a local native wildflower supplier for advice on plants that are attractive to pollinators and will work in various Michigan settings.

For more on pollinator habitat: www.pollinators.msu.edu

Total points:	
Provides exceptional habitat	**90+ points**
Meets pollinator standards	**76 – 89 points**
Does not meet standards	**below 75 points**

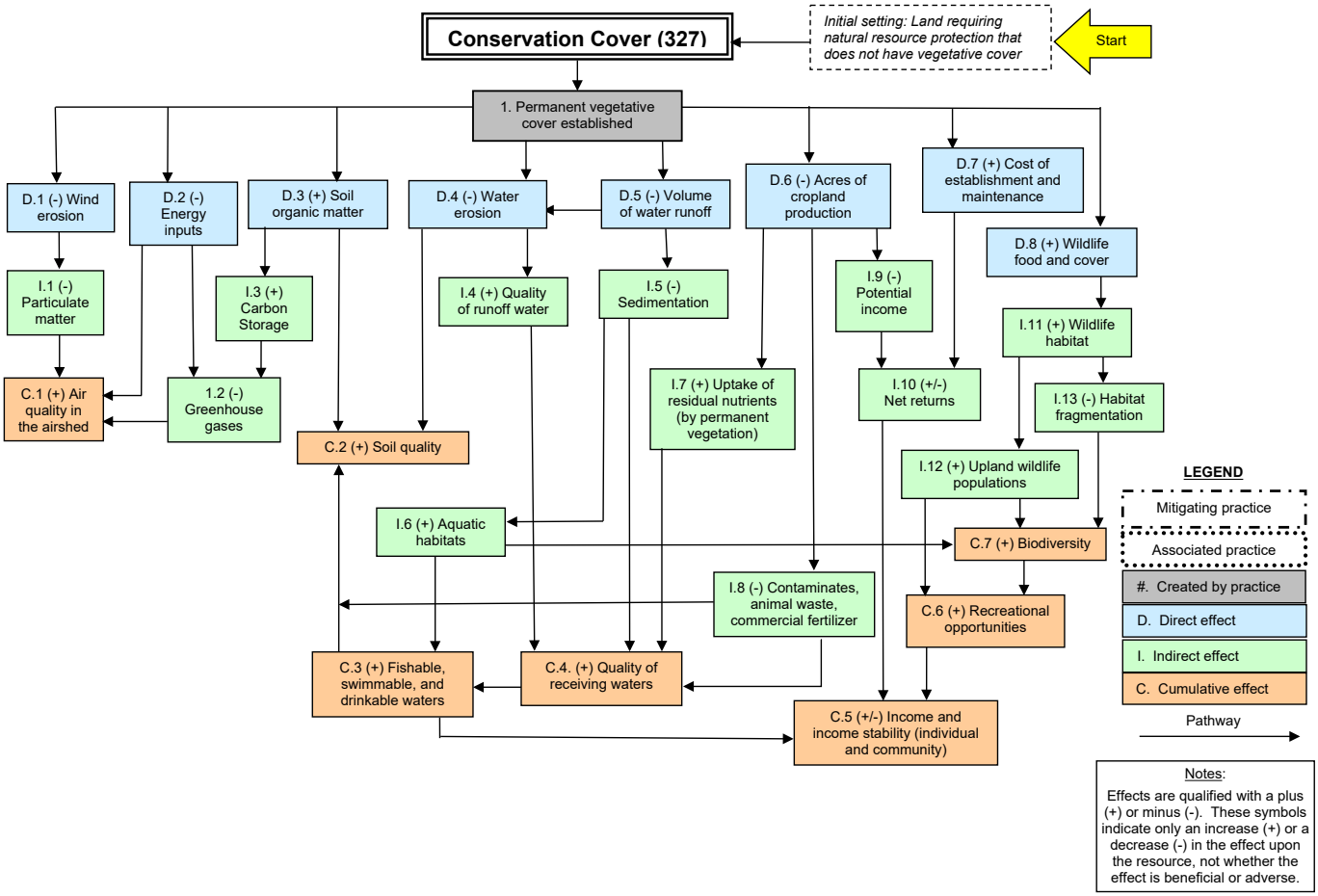
MICHIGAN POLLINATOR INITIATIVE

MICHIGAN STATE UNIVERSITY | Extension

APPENDIX C. NRCS Conservation Practice Effects - Network Diagram

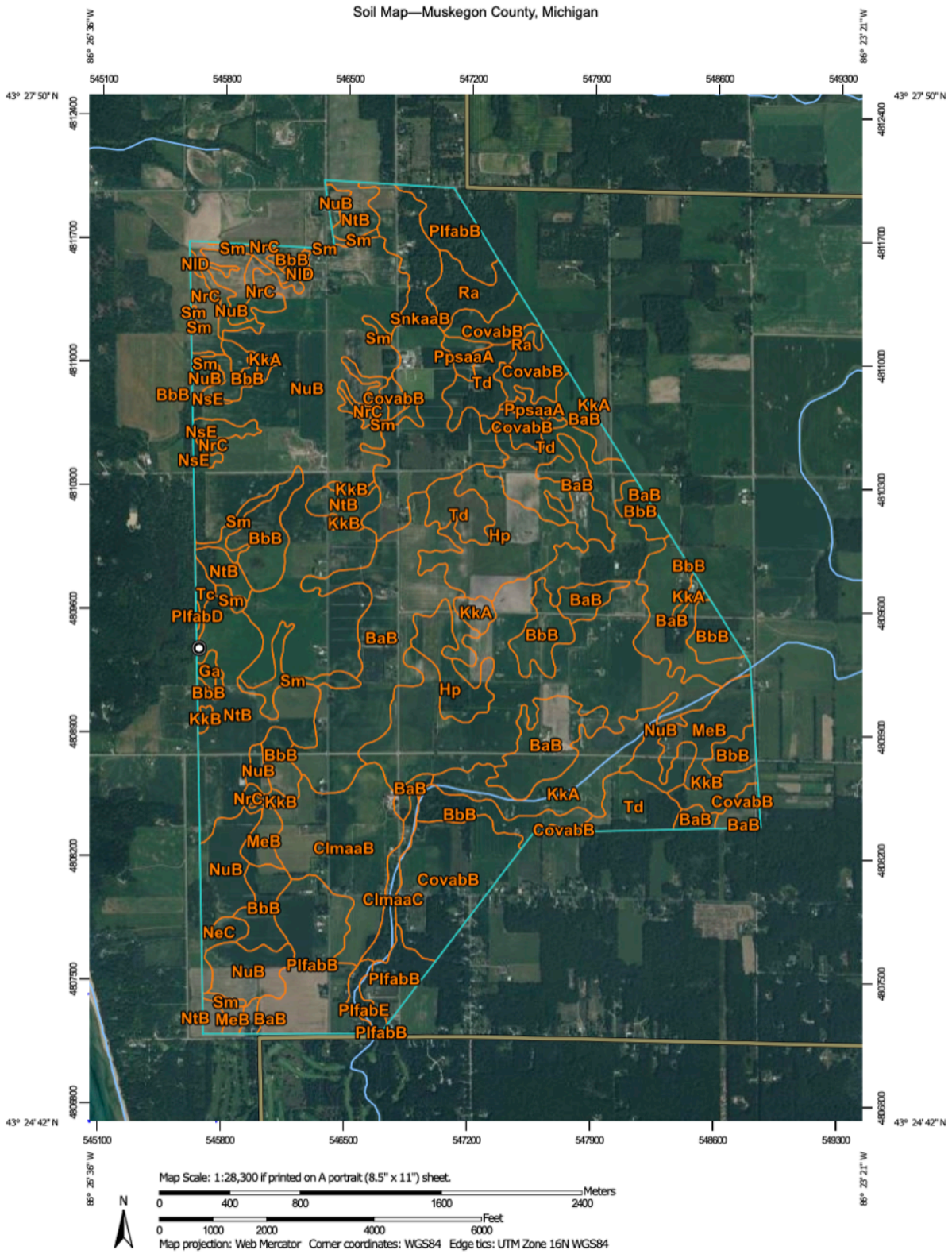
NRCS CONSERVATION PRACTICE EFFECTS - NETWORK DIAGRAM

May 2024



APPENDIX D. Soil Map of Purposed LLC Solar Array

a. Soil Map



b. Soil Map Unit Symbol

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI				hydric	land control area
BaB	Belding and Allendale soils, 0 to 6 percent slopes	331.3	12.5%	loamy sand	somewhat poorly drained	no ponding/ flooding	no	
BbB	Belding-Ubly sandy loams, 2 to 6 percent slopes	185.3	7.0%	sandy loam	somewhat poorly drained	no ponding/ flooding	no	
ClmaaB	Coloma-Brems-Fern complex, 0 to 6 percent slopes	113.4	4.3%	loamy sand	somewhat excessively drained	no ponding/ flooding	no	
ClmaaC	Coloma-Brems-Metea complex, 6 to 12 percent slopes	18.1	0.7%	loamy sand	somewhat excessively drained	no ponding/ flooding	no	
CovabB	Covert-Pipestone sands, 0 to 6 percent slopes	164.9	6.2%	sand	moderately well drained	no ponding/ flooding	no	
Ga	Granby loamy sand, lake plain, 0 to 2 percent slopes	4.7	0.2%	loamy sand	somewhat poorly drained	frequent ponding/ no flooding	yes	yes
Hp	Hettinger and Pickford soils	107.6	4.1%	loam	poorly drained	frequent ponding/ no flooding	yes	no
KkA	Kawkawlin loam, 0 to 2 percent slopes	86.2	3.2%	laom	somewhat poorly drained	no ponding/ flooding	no	
KkB	Kawkawlin loam, 2 to 6 percent slopes	24.7	0.9%	loam	somewhat poorly drained	no ponding/ flooding	no	
MeB	Menominee and Ubly soils, 2 to 6 percent slopes	55.9	2.1%	loamy sand	well drained	no ponding/ flooding	no	
NeC	Onekama loam, Lake Michigan Lobe, 6 to 12 percent slopes	10.7	0.4%	loam	well drained	no ponding/ flooding	no	
NlD	Nester soils, 12 to 25 percent slopes, lake moderated	4.6	0.2%	loam	well drained	no ponding/ flooding	no	
NrC	Nester sandy loam, 6 to 12 percent slopes	50.1	1.9%	sandy loam	well drained	no ponding/ flooding	no	
NsE	Nester soils, 25 to 45 percent slopes	2.0	0.1%	loam	well drained	no ponding/ flooding	no	
NtB	Nester-Kawkawlin loams, 2 to 6 percent slopes	150.8	5.7%	loam	well drained	no ponding/ flooding	no	
NuB	Nester-Ubly sandy loams, 2 to 6 percent slopes	521.8	19.7%	sandy loam	well drained	no ponding/ flooding	no	
PlfabB	Plainfield sand, lake plain, 0 to 6 percent slopes	147.0	5.5%	sand	excessively drained	no ponding/ flooding	no	
PlfabD	Plainfield sand, lake plain, 6 to 18 percent slopes	0.7	0.0%	sand	excessively drained	no ponding/ flooding	no	
PlfabE	Plainfield sand, high ecological site, 18 to 30 percent slopes	10.4	0.4%	sand	excessively drained	no ponding/ flooding	no	
PpsaaA	Pipestone-Covert-Saugatuck sands, 0 to 3 percent slopes	15.8	0.6%	sand	moderately well drained	no ponding/ flooding	no	
Ra	Roscommon and Au Gres sands	32.0	1.2%	loamy sand	poorly drained	frequent ponding/ no flooding	yes	no
Sm	Sims loam	62.7	2.4%	loam	poorly drained	frequent ponding/ no flooding	yes	yes
SnkaaB	Spinks loamy sand, 0 to 6 percent slopes	147.4	5.6%	loamy sand	well drained	no ponding/ flooding	no	
Tc	Tawas and Carlisle mucks	6.6	0.2%	muck/sand	very poorly drained	frequent ponding/ no flooding	yes	no
Td	Tonkey and Deford soils	399.0	15.0%	sandy loam	very poorly drained	frequent ponding/ no flooding	yes	0.75
	wss_aoi_2025-11-23_13-14-57.zip							

APPENDIX E. MSU Scorecard Results

SITE PLANNING AND MANAGEMENT
Detailed Plan 0
VM company not stated, 0
Signage - not stated, 0

HABITAT PREPARATION PRIOR TO IMPLEMENTATION
Measure to control weeds season prior to seeding - not stated
No Weed control -20

INSECT RISK
Planned insecticide use on site - 0
Communication with Local Chemical Applicators and Site Registered - not stated, 0

AVAILABLE HABITAT COMPONENTS WITHIN 0.25 MILES
Bunch grass = 0
Open Sand = +1
Trees/shrubs +1
Clean, perennial water sources +1

FLOWERING PLANT SPECIES SEED IN PERIMETER AREA
10-15 species +3

PLANT DIVERSITY UNDER SOLAR ARRAY
Low-growing wildflower mix +10

PERCENT OF SITE PLANNED TO BE DOMINATED BY WILDFLOWERS
26-50%. +3

SEEDS USED FOR WILDLFOWER AREAS
At least 40 seed/square ft, +5
Seed source within 150 miles, ?

THREE FORBS BLOOMING EACH SEASON (Sp, Su, Fall)
sp 0
summer +5
fall +5

Total Score:
WO SEED SOURCED <=150 MILES = 14
SCORE WITH PLAN AND W SEED SOURCE <=150 MILES = 19

APPENDIX F. Noxious weeds not on lists 3 and 4 Appendix 3 of AES MVP

Weed spp not on AES lists

botanical name	common name
Calystegia sepium (L.) R. Br	hedge bindweed
Datura stramonium L.	jimson weed
Lepidium draba (L.) Desv	hoary cress
Rhaponticum repens (L.) Hidalgo	Russian knapweed
Sorghum x almum Parodi	sorghum-almum
Thlaspi arvense L.	field pennycress

Appendix G. AES Seed Mixes Evaluations

AES Mesic Mix

	C	W	W	RANGE	NOTES	BLOOM SEASON	MOISTURE PREFERENCE	HT
Bouteloua curtipendula	**10**	5	UPL	9 counties, 1-3 specimens per county collected. Was collected in Newago 1996/Bev	now very rare as a native plant in Michigan	**NA**	Dry-Mesic	
Carex annectens	1	-3	**FACW**	lower mi, s of tension line - not all counties	Moist to dry meadows and prairies, relatively uncommon	**NA**	Not Avail	
Carex brevior	3	0	FAC	throughout MI but uncommonly	Dry open prairie-like ground, bluffs, usually in sandy soils,	**NA**	Dry-Mesic	
Elymus canadensis	5	3	FACU	throughout MI - less so inner counties	Most often on sandy (or even somewhat marshy) shores and on sand dunes	**NA**	Dry-Mesic	**2-5'**
Elymus trachycaulus	8	3	FACU	throughout MI	Widespread, but perhaps most often in dry or rocky forests and savannas (oak, jack pine, hickory), sand barrens, shores, and dunes; also recorded from fens and tamarack swamps; sometimes along roadsides and in other disturbed places.	**NA**	Not Avail	
Festuca rubra (ssp. rubra)	*	3	FACU	scattered throughout MI	**EURASIAN**	**NA**		
Festuca subverticillata	5	3	FACU	pretty much throughout MI - less so in UP	**Rich, often moist forests,** usually beech-maple but also oak-hickory; occasionally in wet coniferous forests.	**NA**	Not Avail	
Juncus tenuis	1	0	FAC	throughout MI	Widespread in dry to moist ground, especially along roadsides, trails, ditches, gravel pits, etc.	**NA**	Dry-Wet Mesic	
Schizachyrium scoparium	5	3	FACU	through out lower mitt except central counties	A characteristic prairie species, but more often seen in Michigan on jack pine plains, sand dunes, and shores	**NA**	Dry-Mesic	**2-4'**
9								
9/21=43%								
Achillea millefolium	1	3	FACU	common throughout MI	Almost everywhere, especially dry roadsides, railroads, fields, and disturbed places; rock shores and cliffs, dry savannas, grasslands	Summer July/ Aug	Dry-Mesic	
Chamaecrista fasciculata	2	3	FACU	**only in lower MI; 7 counties; closest is Kalamazoo co.**	Sandy, disturbed ground, as along roads and railroads. Apparently not collected in Michigan before 1906 (Berrien Co.); it may be a relatively recent invader of our area from the immediate south or west, or (recent records) even spread from prairie plantings, of which it is a common annual component.			
Geum canadense	1	0	FAC	throughout MI	Rich deciduous forests (and northern hardwoods), especially in moist places,			
Monarda fistulosa	2	3	FACU	throughout MI	Usually in dry, open, sandy, gravelly, or rocky ground such as oak or jack pine savanna, prairies, fields, and roadsides; occasionally in sedge meadows or other moist places; often at edges of forests and thickets, on open stream and lake banks and stabilized dunes; spreading into disturbed places.	Summer July/ Aug/Sept	Dry-Wet	**2-4'**
Solidago rigida (Oligoneuron rigidum)	5	3	FACU	mostly lower mitt, south of tension line	Prairies, dry fields and hillsides; may spread along roadsides and railroads, and from plantings beyond its native range	Summer/Fall Aug-Oct	Dry-Mesic	**2-5'**
Penstemon digitalis	2	0	FAC	mostly lower mitt, south of tension line with some in upper mitt and UP	Fields, meadows, and prairie remnants; openings in dry savannas (oak, aspen); along roadsides and railroad beds. Perhaps only adventive north of the middle of the Lower Peninsula	Summer June/ July	Dry Mesic - Wet Mesic	
Pycnanthemum tenuifolium	6	0	FAC	lower mi, mostly outer counties and not all	Quite local, in sandy fields, moist meadows, grassy areas, and wet prairies. Northern Michigan records are all recent and the species is perhaps increasing and spreading northwards. The earliest record, from 1894, notes: "Introduced, near Mich. Agr'l College in grass seed" so perhaps not native to Michgan at all.			
Rudbeckia hirta	1	3	FACU	common throughout MI	Fields, roadsides, railroads, clearings, fencerows; savanna (with jack pine, aspen, oak), especially in sandy or rocky openings; prairies, fens, sedge meadows, shores; gravel and borrow pits, other disturbed sites	Summer/Fall June-Sept/Oct	Dry-Wet Mesic	
Solidago nemoralis	2	5	UPL	common throughout MI	Dry fields, prairies, and open barren ground; open forests of aspen and oak, jack pine plains, sand dunes	Fall August-Oct	Dry - Dry Mesic	
Symphyotrichum ericoides	3	3	FACU	uncommon lower mitt, s of tension line	FACU	Fall August-Oct	Dry-Wet Mesic	
Verbena stricta	*	5	UPL	common throughout lower mitt except middle and thumb counties	Although Michigan is within the native range of this species as usually described, its status here is doubtful.	Fall Aug/Sept	Dry-Mesic	**2-4'**
Zizia aurea	6	0	FAC	common lower mitt s of tension line, uncommon north	Forests, especially swampy ones; more often in fens and sedge meadows, with tamarack and poison sumac, in openings and thickets on river banks; and fencerows.	Spring Apr/May-June	Dry-Wet	**2-4'**
12/21=57%						spring = 1		
12						summer = 5		
						fall = 4		

B. AES Wet Mesic Mix

AES Wet Mesic Mix

	C	W	W	RANGE	NOTES	BLOOM SEASON	DRY-EMERGENT MOISTURE PREFERENCE	HT
Carex hystericina	2	-5	OBL	throughout MI	One of our commonest species, in wet ground everywhere (except sphagnum bogs, as it prefers calcareous sites), especially on shores, along ditches and edges of streams and lakes, and sedge meadows and edges of marshes.	NA	Wet Mesic - Wet	
Carex scoparia	4	-3	FACW		Moist open ground: sandy shores, stream borders, meadows and wet fields, borders of swamps, thickets, ditches, marshes, temporary ponds in forests; rarely in dry sand or peaty ground. A common species, but mostly in sandy, and often acidic soils.	NA	Wet Mesic - Wet	
Carex vulpinoidea	1	-5	OBL		Wet, usually open ground of all sorts, especially shores, river and stream margins, ditches, meadows and clearings, and depressions in or bordering forests.	NA	Mesic - Emergent	
Elymus canadensis	5	3	FACU		Most often on sandy (or even somewhat marshy) shores and on sand dunes and in associated thickets; also in forests, especially along trails, river banks, and streams;	NA	Dry-Mesic	**2-5'**
Elymus villosus	5	3	FACW	Lower mitt below tension line. **Not in Musk, Oceana nor Newaygo counties.** Closest county=Kent	Forests and forest edges, often swampy ones, as along rivers, but also in drier sites.	NA	Dry Mesic - Wet Mesic	
Elymus virginicus	4	-3	FACW	throughout MI	Moist deciduous or sometimes coniferous forests and thickets, especially along stream banks and floodplains; open marshy shores and meadows	NA	Mesic - Wet	**2-4'**
Glyceria striata	4	-5	OBL	throughout MI	In almost all wet situations:	NA	Mesic - Wet	
Leersia oryzoides	3	-5	OBL	throughout MI	Wet places: ponds, shores, ditches, floodplains, stream and river banks, bogs, pools and wet depressions,	NA	Wet Mesic - Emergent	
Muhlenbergia mexicana	3	-3	FACW	throughout MI	Common in marshy, swampy, and boggy habitats, stream border thickets, edges of moist hardwoods; also on shores and beaches and in disturbed ground along roads and trails.	NA	not available but FACW	
Poa palustris	3	-3	FACW	throughout MI	Shores, meadows, and moist to wet ground generally; pond and stream banks; openings in deciduous or coniferous forests and swamps; bogs and marshes; sometimes, especially northwards, on drier sandy or rocky ground,	NA	not available but FACW	
Schizachyrium scoparium	5	3	FACU	through out lower mitt except central counties	A characteristic prairie species, but more often seen in Michigan on jack pine plains, sand dunes, and shores	NA	Dry-Mesic	**2-4'**
10								
10/25= 40%								
Anemone canadensis	4	-3	FACW	throughout MI	Open moist ground:	Summer June-Aug	Dry-Mesic	
Bidens cernua	3	-5	OBL	throughout MI	Moist to wet ground on shores (sandy or mucky), mudflats, mucky bottomland, depressions in forests	Summer/Fall July-Oct	Wet Mesic - Wet	
Euthamia graminifolia	3	0	FAC	throughout MI	Although seldom considered a truly aquatic species, typical of moist sandy or gravelly (rarely clay) shores, ditches, fields, interdunal flats and beach pools, exposed lakebeds,	Summer July, Aug, Sept	Dry Mesic - Emergent	**1-5'**
Geum canadense	1	0	FAC	throughout MI. Frequent, especially in southern Michigan	Rich deciduous forests (and northern hardwoods), especially in moist places, but occasionally in drier oak-hickory forests; swamps and stream sides, even fields;	Spring/ Summer May, June, July	not available but FAC	
Lobelia siphilitica	4	-3	FACW	throughout MI	Swamps (hardwood, cedar, tamarack), floodplains, river banks; fens, wet meadows and thickets, shores, ditches.	Summer July, Aug, Sept	Wet Mesic - Emergent	
Lycopus americanus	2	-5	OBL	throughout MI	Very common throughout Michigan, nearly always in moist to wet places	Summer July, Aug, Sept	Wet Mesic - Emergent	
Mimulus ringens	5	-5	OBL	throughout MI	Wet, usually ± open places: marshes, swales and ditches, swamps, shores, fens; borders of lakes, ponds, rivers, and streams; does well in disturbed wetlands.	Summer June-Sept	Wet Mesic - Emergent	
Monarda fistulosa	2	3	FACU	throughout MI	Usually in dry, open, sandy, gravelly, or rocky ground such as oak or jack pine savanna, prairies, fields, and roadsides; occasionally in sedge meadows or other moist places; often at edges of forests and thickets, on open stream and lake banks and stabilized dunes; spreading into disturbed places.	Summer July, Aug, Sept	Dry - Wet	**2-4'**
Pycnanthemum tenuifolium	6	0	FAC	lower mi, mostly outer counties and not all	**Quite local,** in sandy fields, moist meadows, grassy areas, and wet prairies. Northern Michigan records are all recent and the species is perhaps increasing and spreading northwards. The earliest record, from 1894, notes: "Introduced, near Mich. Agr'l College in grass seed" so perhaps not native to Michgan at all.	Summer June-Sept	not available but FAC	
Rudbeckia hirta	1	3	FACU	common throughout MI	Fields, roadsides, railroads, clearings, fencerows; savanna (with jack pine, aspen, oak), especially in sandy or rocky openings; prairies, fens, sedge meadows, shores; gravel and borrow pits, other disturbed sites	Summer/Fall June-Oct	Dry-Wet Mesic	
Solidago riddellii	6	-5	OBL	Lower mitt below tension line. **Not in Musk, Oceana nor Newaygo counties.** Closet county=Kent/ Ottawa	Fens, wet prairies, shore meadows, moist ground around lakes and along rivers.	Summer/Fall Aug-Oct	Wet Mesic - Wet	
Symphyotrichum lateriflorum	2	0	FAC	throughout MI	Usually in **± shaded ground**,....floodplains, river banks, ravines, rocky banks and openings; also meadows, shores	not avail	not available but FAC	not availabl e
Tradescantia ohiensis	5	3	FACU	mostly lower mitt s or tension line except middle counties	Both tetraploid and diploid plants occur in the state, the former chiefly along roadsides and railroads, in open oak forests or borders of forests, on sandy ridges, and similar dry sites; diploids are more frequent in meadows and wet ground although they grow also in dry places	Spring/ Summer May, June, July	Dry-Mesic	
Verbena hastata	4	-3	FACW	throughout MI	Marshes, ditches, wet shores and stream banks; thickets and openings in swamps.	Summer July-Sept	Mesic - Emergent	**3-5'**
Zizia aurea	6	0	FAC	common lower mitt s of tension line, uncommon north	Forests, especially swampy ones; more often in fens and sedge meadows, with tamarack and poison sumac, in openings and thickets on river banks; and fencerows.	Spring/ Summer April-June	Dry - Wet	
15						spring = 3		
15/25=60%						summer = 15		
						fall = 3		

C. AES Wet Stormwater Mix

AES Wet Stormwater Mix

	C	W	W	RANGE	NOTES	BLOOM SEASON	DRY-EMERGENT MOISTURE PREFERENCE
perfoliatum					banks.		
Euthamia graminifolia	3	0	**FAC**	throughout MI	Although seldom considered a truly aquatic species, typical of moist sandy or gravelly (rarely clay) shores, ditches, fields, interdunal flats and beach pools, exposed lakebeds, clearings, borrow pits and other excavations, usually at or near the water table;	Summer July, Aug, Sept	Dry Mesic - Emergent
Lobelia siphilitica	4	-3	FACW	throughout MI	Swamps (hardwood, cedar, tamarack), floodplains, river banks; fens, wet meadows and thickets, shores, ditches.	Summer July, Aug, Sept	Wet Mesic - Emergent
Lycopus americanus	2	-5	OBL	throughout MI	Very common throughout Michigan, nearly always in moist to wet places	Summer July-Sept	Wet Mesic - Emergent
Mimulus ringens	5	-5	OBL	throughout MI	Wet, usually ± open places: marshes, swales and ditches, swamps, shores, fens; borders of lakes, ponds, rivers, and streams; does well in disturbed wetlands.	Summer June-Sept	Wet Mesic - Emergent
Pycnanthemum virginianum	5	-3	FACW	s of tension line except inner counties	Fens, prairies, marshes, sedge meadows, tamarack swamps, swales, depressions such as old lakebeds; fields, sandy banks;	Summer June-Sept	Mesic - Wet
Saxifraga pensylvanica	**10**	-5	OBL	s of tension line	Swampy and marshy places, often calcareous, especially moist deciduous forests and grassy borders, tamarack swamps, and springy rocky ground.	Spring May, June	not available but OBL
Solidago riddellii	6	-5	OBL	Lower mitt below tension line. **Not in Musk, Oceana nor Newaygo counties.** Closet county=Kent/Ottawa	Fens, wet prairies, shore meadows, moist ground around lakes and along rivers.	Summer/Fall Aug-Oct	Wet Mesic - Wet
Symphyotrichum puniceum	5	-5	OBL	throughout MI. Not in Musk but in Ocean and Newago counties.		Summer/Fall Aug-Oct	Wet Mesic - Emergent
Verbena hastata	4	-3	FACW	throughout MI	Marshes, ditches, wet shores and stream banks; thickets and openings in swamps.	Summer July-Sept	Mesic - Emergent
Zizia aurea	6	0	FAC	common lower mitt s of tension line, uncommon north	Forests, especially swampy ones; more often in fens and sedge meadows, with tamarack and poison sumac, in openings and thickets on river banks; and fencerows.	Spring/ Summer April-June	Dry - Wet
14						spring = 2	
14/25 = 56%						summer = 13	
						fall = 2	

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Author Biography

Connie Crancer
MS 2011 Terrestrial Ecology, University of Michigan
BS 1981 Horticulture, Michigan State University
Horticulturist 198-2014, University of Michigan
Michigan Project Wingspan State Coordinator 2019-2021, Pollinator Partnership
NRCS Pollinator Liaison 2021-2023, Pollinator Partnership
Acting President Wild Ones West Michigan Shore-to-Prairie Seedling Chapter

Connie is a White Lake area resident who attained a BS Horticulture at Michigan State University (1981) and a MS in Terrestrial Ecology (2011). She worked for the U of M Botanical Gardens and Arboretum for 26 years (1988-2014). Her later years at UM allowed her to meld her horticultural training and experience with her MS in ecology and experiences with native plants. She was a member of the Natural Areas Team as Native Plant Specialist gathering seed and propagating native plants, creating species lists for various projects, gardens and plantings, and assisted and oversaw restoration activities including invasive plant species removal and control and native plant establishment into disturbed areas. Her Master's Practicum was restoring a prairie fen on site at the Botanical Gardens and reporting on-site vegetation response and proposing future management and monitoring protocols to measure success.

After retirement she contracted with Pollinator Partnership (P2) (2019-2022) as their Michigan Project Wingspan State Coordinator managing a state-wide, grass roots native seed collection project, and as their Michigan NRCS Pollinator Liaison doing outreach on the benefits of native plants on farms by way of various Conservation Practices. She now gives presentations on native plants to garden clubs, environmental organizations and Conservation Districts, is acting president of the Wild Ones West Michigan Shore-to-Prairie Chapter, and establishes native plantings on a sustainable organic farm.

After hearing audience concerns I would like to offer the following:

Per erosion:
Cover crops verbiage is in my written review. How ever, I'm not sure if I stressed nurse crops which are companion cover crops added to the native seed mix to control erosion and to protect (or nurse) native species seedlings.

Nurse crops are usually cereal grain crops that are planted with the natives. The readily germinating seed and quickly maturing plants make nurse crops good competitors against weeds and are effective at holding the soil in place on erodible sites while native seedlings are getting established. Due to their life history characteristics, nurse crops tend to diminish from the prairie planting by the second or third year (17).

Always use a nurse crop on erodible sites (17). An oat companion crop should be used if slopes are >5% and in areas with erosion potential (22).

If a companion cover crop is not included with specified seed mixes for the project include a cover crop of oats at a rate of 20lb. per acre (14).

Also I would like to stress that although we tend to concentrate on the above ground benefits of a <u>well established</u> (BMP's are followed) native species habitat, there is the benefit of soil regeneration and water way health.

Creating a pollinator-friendly prairie planting at solar sites can (1,21):

Provide food and habitat for butterflies, bees, and other insects that provide important ecological and agricultural services, such as crop pollination and natural pest control;

Provide food, cover, and nesting habitat for some species of mammals, birds, reptiles, and amphibians;

Significantly reduce wind and surface water erosion;

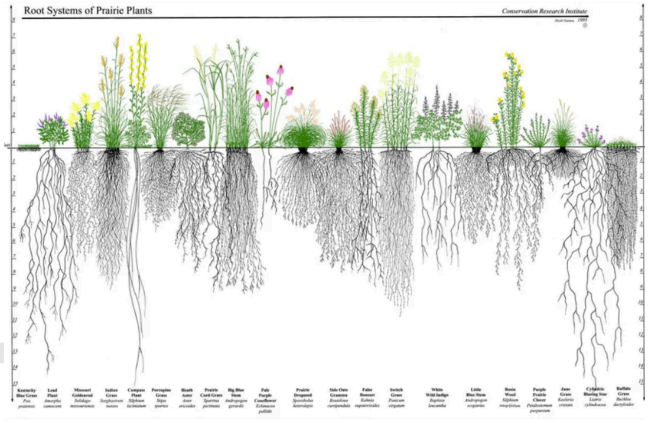
Significantly reduce fertilizer, herbicide, and pesticide applications, resulting in improved water quality;

Increase organic matter and water holding capacity of soils. The result is higher quality soils for farming when the site is decommissioned; and

Improve the aesthetics of the solar facility.

I offer a snap shots from my NRCS Liaison outreach days to help explain the increase of organic matter and water holding capacity of soil:

- Increasing soils organic matter increases available water-holding capacity - Hudson 1994
- Healthy soil can increase water infiltration and can hold up to 20 times its weight in water - CDFA 2018
- Native vegetation can dramatically reduce stormwater runoff



POLLINATOR PARTNERSHIP

This slide shows the length of prairie plants, both graminoids (grasses the the like) and forbs (flower plants) compared to turf grass represented at the far left. Organic matter is increased by way of root slough decomposition and litter decomposition from above ground parts. Additional MSU has conducted a number of studies on the benefits on beneficial soil organisms from prairie plantings.

Contour Prairie Strips Study

A Conservation Practice - CP-$_{43}$
Iowa State University
Grudens-Schuck et al. (2017)

- 44% reduction in water runoff
- 95% reduction in soil loss
- 90% reduction in phosphorus runoff
- 84% reduction in nitrate-nitrogen runoff
- No increase in weed abundance



POLLINATOR PARTNERSHIP

This slide shows the benefit from Contour Prairie Strips in Iowa and adopted in Michigan through the MI Strips Program run through the MSU Kellogg Biological Station. I offer this to show that the down stream effects are mitigated not only in active agricultural fields but as a long-term buffer.

Soil and Water Health

Native habitats support:

- Bank stabilization
- Water retention
- Water quality
- Soil health

Native habitats reduce:

- Erosion and soil loss
- Water usage



POLLINATOR PARTNERSHIP

I offer this slide to echo the benefit to water-ways (Pierson Drain).

I offer all of this to stress that a fully structured (diversity of native plants, both graminoids and forbs through BMP's) will create a fully functional habitat that will benefit a site during and after decommission. Emphasis on fully structured to be fully functional that can only happen if all BMP's are followed.

Additionally if I will added not only is there ecological benefits from a fully structured, diverse native species planting there is monetary benefits to the solar company:

Native Plantings also reduces long-term maintenance costs although there is higher costs first 3 years of establishment (7). Additional costs of native planting can be recovered in the first five to ten years of operation and maintenance (7).

It may be inexpensive on the front end of the project to plant only a few grass and forb species, but eliminating weeds that have invaded a native planting can be difficult and costly down the road (1,17,21).

Having a diversity of seeds is an important factor in a planting's success. By having a diverse planting there is more likelihood for long-term health and self-sustainability, which means lower management costs (Minnesota Department of Natural Resources, 2016) (7).

Native seed mixes in general cost more than non-native seed mixes. However the higher seed cost can be offset by the following (21).

Diverse seed mixes may bring the cost of the planting up, initially, but this will pay off in the long run by creating a more resilient planting that is less-prone to weed invasion because more ecological niches are filled. (21).

To reap the most benefits, both ecologically and monetarily, it is imperative to have Best Management Practices represented in a Vegetation Management Plan that create and maintain the highest diversity of native species (21).

Native Plantings also reduces long-term maintenance costs although there is higher costs first 3 years of establishment (7). Additional costs of native planting can be recovered in the first five to ten years of operation and maintenance (7).

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To reap the most benefits, both ecologically and monetarily, it is imperative to have Best Management Practices represented in a Vegetation Management Plan that create and maintain the highest diversity of native species.(21)

EXHIBIT O

REVIEW OF THE VEGETATIVE SCREENING PLANT MATERIALS AND PLANTING DETAILS

As proposed by Lakeside Solar for White River Township, Muskegon County, MI

Written by Dave Francis and Montague Tree Farms

December 2, 2025

After reviewing the planting details submitted by Lakeside Solar for Vegetative Screening, I offer the following observations and suggestions.

1.Choice of Planting Materials:

Lakeside Solar is proposing a limited variety of trees and plants for the screening project. Offering two types of evergreen trees and two types of deciduous trees amount to a monoculture. This project needs a diverse group of plants. The ability to choose from a large group of plants ensures survivability and improved aesthetics as flowering trees and shrubs have different flowering times and structure.

For the evergreen tree choices Lakeside offers Black Hills spruce and Concolor fir.

Black Hills spruce is a logical choice as it's hardy and grows well in this area. Concolor fir, however, is very site specific. It is subject to late spring frosts, cannot tolerate heavy clay or waterlogged sites and prefers a soil pH above 6.0. It is a beautiful tree when sited correctly.

The following trees should also be considered as they are hardy and will grow about anywhere:

White Pine (Pinus strobus).

Norway spruce (Picea glauca).

Upright Juniper-Easter Red Cedar (Juniperus virginiana).

The deciduous trees and shrubs offered by Lakeside Solar are a good choice but are rather limited. The only tree that is questionable on this list is Redbud, (Cercis Canadensis). White River Township is at the very northern edge of its natural range. Redbud also prefers a sheltered site, and it will struggle if planted on an exposed windy site. Here's a list of other trees and shrubs that should be considered:

For deciduous trees the list should include:

Honeylocust (Gleditsia triacanthos)

Hawthorn (Crataegus-various species)

Flowering dogwood, especially alternate leaf dogwood (Cornus alternifolia)

Crabapples (Malus- various species)

The following small trees and shrubs should also be included in the vegetative plan:

Serviceberry (Amelanchier-various species)

Witch-hazel (Hamamelis-various species)

Viburnum (Viburnum-various species)

Michigan holly (Ilex verticillate)

2. Planting and Planting Notes

The plan calls for 3 stakes to be used for the upright single stem evergreen and deciduous trees. Evergreen trees, when planted correctly, do not need to be staked. I feel this requirement is excessive. They also give the option of an 8' stained wooden stake that needs to be driven into ground 3'. I think the Township should specify the metal stake. The staking material (poly tied to the tree) should be removed at the end of the 2nd year to avoid girdling.

The plan calls for a 3'radius of mulch around the plant. This may work for shrubs, but this is not adequate for evergreens. Instead, I think the much line should extend 1' beyond the drip line and combined with the required 3" drop basin will ensure water that falls in this mulched area will reach the tree.

Also required is for plant material to be planted upon arrival at the site. I assume this volume of plants will be delivered by semi-truck. Will the semi come to each site? More than likely, they will need a staging area or temporary nursery where plant material will be staged until dispersed to individual planting areas. The notes state that any plant not immediately planted shall be heeled-in. Lakeside should indicate where their temporary nursery will be, and it should be inspected to be sure the plants are properly heeled-in and watered.

The planting notes require that each planting site be evaluated to determine if soil amendments are required. The only way I know of determining this is by a soil sample. Does this mean that a soil sample will be taken at each site?

The planting notes require a minimum of 12" of topsoil for each shrub and tree planted. Would this be topsoil removed from the site excavation or screened topsoil brought in from an outside source?

4. Berms

White River Townships offers the possibility of constructing a berm. Building a berm per your recommendation will require 2 yards of topsoil per lineal foot.

5. Guarantee

Lakeside Solar offering a one-year guarantee on plant survivability sends up a red flag. The vegetative buffer should be an integral part of the Conditional Use Permit, and as such should be maintained for the life of the project. Lakeside Solar trying to pick and choose what part of the

ordinance they are going to honor is absurd. It's like saying they are going to honor the setbacks or noise portion of the ordinance and then after 1 year ignore it.

I'd recommend the township should insist on 100% tree/shrub survival for the first 3 years. However, some flexibility in the enforcement of the vegetative barrier is necessary. If a plant dies and other parts of the barrier have grown in so that the visual impact if not affected, then the plant does not need to be replaced. If a plant dies and it is integral to the visual screening, then it should be replaced at the earliest opportunity.

Respectfully submitted,

Dave Francis

Montague Tree Farms

EXHIBIT P

STATION 1
1300 Delaney Drive
Whitehall, MI 49461
231-893-6503

STATION 2
4206 Duck Lake Road
Whitehall, MI 49461
231-766-3311

12/15/2025

White River Township
7386 Post Road
Montague, MI 49437

To whom it may concern:

My name is Keith Heidelberg. I am the Fire Marshal and Deputy Chief of White Lake Fire Authority. I am a certified NFPA Fire Inspector II and Fire Plans Examiner. In the State of Michigan, I am a certified Fire Inspector, Fire Systems Inspector and Fire Systems Plan Reviewer.
I have reviewed the documents submitted with the special use application for the Lakeside Solar project in White River Township. During the review I focused on fire and life safety components of the plan. The plans are not construction plans so my notes will be generalized statements. The authority having jurisdiction (AHJ) should review these items when the plans are submitted. The AHJ is the fire chief of the fire department that responds to the facility or their designee. There designee can be someone within the department or the code allows the fire chief to have an outside agency or inspector complete the plan review with its cost being billed to the facility being reviewed.

I have broken down the items into the following sections: Code Review, Site Hazards, Site Access and Facility Code Compliance.

Code Review:

The township needs to adopt the most current addition of the International Fire Code and NFPA 855. These cover the bulk of the safety and access requirements for this type of facility. The solar and battery industries are evolving extremely fast. It is imperative that the facility is built and maintained the most current edition of both documents. I would suggest ordinance language that automatically adopts these documents as soon as they are published.

Site Hazards:

This site has many of the typical hazards we associate with any site. Medical emergencies, small fires etcetera. In my opinion the only increased risk is the BESS systems that are proposed. A BESS system is a large bank of Lithium Ion batteries. The specifics of the type of system they are installing was not submitted. In general, they represent the biggest risk of fire and explosion on the site. NFPA 855 addresses the hazards of battery banks. When systems are installed per code it reduces the amount of risk.

Site Access:

The overall access plan to the facility is sufficient. However, plans show fire access road width of 16 feet, the fire code states that all fire access roads shall be no less than 20 feet in width. There is an exception with in the code to be able to decrease the road width in this type of facility but only with AHJ approval. The same is true for the turn arounds at the end of each fire access road. In my opinion all access roads should be at least 20 feet in width with appropriate turn arounds based on the responding emergency vehicles.
Plan does note the use of the Knox access system for the site. This does give the ability for fire department to access the facility at all times. In my opinion all access gates should have either a Knox Key Override or Knox Padlock. All buildings shall have a Knox Box with the building key inside.

The company should provide the snow removal plan for approval. In my opinion no more than 6 inches of snow should be allowed to accumulate on fire department access roads.
A foliage control plan for the site should be submitted. Field fires are a risk in any open area. The length of plants should be limited to decrease the risk of field fires.
Access roads and panel rows shall be labeled in approved manner.

Facility Code Compliance:

It is imperative that a third-party inspector that is acting on behalf of local government emergency services should be involved in the construction and continued maintenance of the facility. After conduction, on-site facility inspections and system document reviews should be completed by this inspector at least on an annual basis. This inspector should be proficient in codes and standards and not a person with an ordinance enforcement background.

If am available if you have any questions or concerns.

Sincerely,

Keith Heidelberg

Keith Heidelberg
Fire Marshal
White Lake Fire Authority

EXHIBIT Q

williams&works
engineers | surveyors | planners

MEMORANDUM

To:	White River Township Planning Commission
Date:	December 9, 2025
From:	Nathan Mehmed, AICP Toby Hayes, AICP
RE:	**Geronimo (Lakeside) Solar Public Hearing Summary**

The purpose of this memorandum is to provide a detailed summary of the public hearing held on October 21st, 2025 regarding the special land use application for a utility-scale solar installation in White River Township by Geronimo Power. We have provided a synopsis of each individual who spoke during the public hearing, as well as a breakdown of support versus opposition associated with the residency status of each speaker. Finally, we provided a list of common concerns and opinions expressed by the 40 speakers.

Public Hearing Comment Synopsis.
Chair Wackernagel opened the public hearing and explained the process for Planning Commission review of the proposed facility. Hearing rules were explained, and speakers were asked to state their name, address, and whether or not they were a resident of White River Township.

1. Rose Rowan, 7239 Post Road, White River **Township resident: Not in favor**. Not opposed to solar, but believes this is too much.
2. Tyrell Kline, 9287 Chase Road, White River **Township resident: Not in favor**. His home will be surrounded by the arrays.
3. Gary Ingersoll, 6533 Indian Point Road, White River **Township resident: Hesitant to support**. He is concerned about the end life of the panels and the future burden of decommissioning.
4. Kurt Guter, 4045 Cygnet Court (Williamston, MI), **not a Township resident: In support** of the project. Asked the Planning Commission to recommend approval to the Board.
5. Peter Sinclair, no address stated (Midland, MI), **not a Township resident: In support** of the project. Discussed electric demand and costs, and options for renewables.
6. Mike Vargo, 10304 Lost Valley Road, White River **Township resident: Not in favor**. Discussed impacts to farmland and farmers.
7. Paul Schroeder, 10261 Chase Road, **Township resident: In support** of the project. Believes this will be good for the community, and will help meet Michigan's energy demands.

8. Susan Stephenson, 7851 Indian Bay Road, White River **Township resident: Not in favor**. Voiced her concerns for the aesthetics of the project, stated that the Township can beat Geronimo.
9. Jeff Nulf, 10945 Williams Road, White River **Township resident: Not in favor.** States that he wants peace and quiet, and mentioned farmland concerns.
10. Melissa Lorenz, (no address given), White River **Township resident: Not in favor.** Her main objection is the large size of the project by comparison to the size of the Township.
11. Bill Ditty, 7540 Old Channel Trail, White River **Township resident: Not in favor.** He cited the Master Plan and the rural nature of the Township.
12. Marjory Erdman, 6718 Post Road, White River **Township resident: Not in favor.** She believes the proposed project will disrupt the rural nature of the Township.
13. Celeste [sic], Walsh Road (no address given), **not a Township resident** (Montague Township resident): **Not in favor.** Expressed distrust in Geronimo, and her desire to preserve farmlands.
14. Deborah Hopkinson, 8713 Lehman Road, White River **Township resident: Not in favor.** She stated that the Township welcomes renewables in the Township, but this project contains too much land. Encouraged the Planning Commission to vote no.
15. Matt Hedges, 10076 Old Hwy 99, White River **Township resident: Not in favor.** Shared his concerns regarding the disruption of the rural character and agricultural processes in the Township.
16. Liz Hedges, 10076 Old Hwy 99, White River **Township resident: Not in favor.** Shared her concerns about the duration of construction and worries about screening. Cited incompatibility with Master Plan.
17. Jason Rice, 7029 West Clay, **not a Township resident** (Claybanks Township resident): Shared his observations about the real estate market in the Township, including buyer hesitation as a result of the project.
18. Bob [sic], 0735 Williams Road, White River **Township resident: Not in favor.** Spoke about the large size of the project.
19. Dave Borgeson, 6198 Mich Chi Won Road, **not a Township resident** (Claybanks Township resident): **Not in favor.** Shared his concerns about the size of the solar development on prime farmland. Stated the Township has a renewable energy ordinance that is not being used. Also stated that there is value to the scenic beauty of the Township.
20. Craig Cudney, 7925 Old Channel Trail, White River **Township resident: Not in favor.** Does not necessarily dislike solar, but does not like the size of the proposed project.

21. Karen Houghton, 7329 Old Channel Trail, White River **Township resident: Not in favor.** Mentioned her concerns with Act 233, and questioned whether the size of the array may continue to grow over time. Questioned effects to residents and wildlife.
22. Kim Cyr, 8487 Staple Road, **not a Township resident** (Blue Lake Township resident): **Not in favor.** He is not opposed to solar, but shared his concerns that the Township is too small. Cited Master Plan, and support for local control over these types of projects.
23. Gary Fonsdale, no address given, **not a Township resident**: **Not in favor.** Stated he is a PhD environmental ecologist. Told the Commission there is no basis behind statements that this project would cause atmospheric emissions. Discussed the increase in demand for electricity, and the changing climate. He does not believe this is the right site for large-scale solar. There are many other places in Muskegon County that are better suited for a project of this scale.
24. Micael Sikkenga, 1050 Crystal Lake, **not a Township resident**: **Not in favor.** Owns land in the Township. Cited University of Michigan sources regarding planning and zoning for renewables. Asked the Township to inquire about the electric substation on the DuPont property.
25. MaryJo Ernst, 7044 West Channel Trail, White River **Township resident: Not in favor.** Stated 90 homes would be directly affected. Believes this application would be a burden on the community, and cited the array near the Muskegon County wastewater facility as an example of proper solar siting. Does not think there is enough screening for this proposal.
26. Phil Pesch, 6392 Indian Bay Road, White River **Township resident: Not in favor.** Stated this project is not in the best interest of the community. The Township will be devastated by this project. Also expressed his concerns about Act 233.
27. Roy Bergholder, 9120 Trails End Drive, White River **Township resident: Not in favor.** Urged the Planning Commission to vote no. He is proud that the Township had planned a solar overlay for the brownfields in the Township. Disappointed that the applicant did not work with DuPont sooner.
28. Liz Vargo, 10304 Lost Valley Road, White River **Township resident: Not in favor.** Discussed her concerns for wildlife in the Township. Agreed the Township's brownfields are a better site for this project.
29. Chris Rogers, 9515 Lamos Road, White River **Township resident: Not in favor.** Stated she is a lifelong resident and believes this project is too big for the Township. Encouraged the Planning Commission to vote no.
30. Ellie Goodrow, 8990 Beech Ridge Drive, White River **Township resident: Not in favor.** Stated she supports solar, but not at this magnitude. Encouraged the Planning Commission to vote no.

31. Tim Balk, 10521 Old Hwy 99, White River **Township resident: Not in favor.** Stated he has spent 33 years in the power business. Does not believe this project will generate as much energy as the applicant states.
32. Joel Smith, 11440 Old Hwy 99, White River **Township resident: Not in favor.** He understands that in a zoned community you have to follow zoning rules. He believes the application for special land use does not meet the review standards of the Ordinance.
33. Scott Roodvoets, 6710 Lakefront Drive, **not a Township resident** (City of Muskegon resident): **Not in favor**. Has a home in Montague and spoke about the history of industry harming the Township. He also states there are few job benefits to the community. Lastly, using greenfield for solar is unethical.
34. Stu Scholl, 5955 Eilers Road, **not a Township resident** (Montague Township resident): **Not in favor.** Discussed his concerns with the Pierson Drain and wetlands, and how the panels might affect migratory birds. Stated his support for farmers.
35. John Morris, 7680 North Old Channel Trail, White River **Township resident: Not in favor.** Stated he is not against solar, but not on this scale for the Township. Also mentioned Master Plan compatibility.
36. John Wilkinson, 11038 Old Hwy 99, White River **Township resident: Not in favor.** He would not have purchased his property if he knew this project was coming. He is in favor of solar, but believes it needs to be appropriately placed.
37. Amy Wilkinson, 11038 Old Hwy 99, White River **Township resident: Not in favor.** She is worried about what this project might do to the people and wildlife of the Township. Also discussed the need for zoning to allow regulation when needed.
38. Irene Skokna, 7044 West Old Channel Trail, White River **Township resident: Not in favor.** She stated that Lakeside Solar has not been transparent with the residents and have been hard to reach. Also stated her preference for the project to be sited on a brownfield.
39. Mario Tenado, 7511 Forest Glen Road, **not a Township resident** (grew up nearby): **Not in favor.** Expressed concerns for the rural nature of the Township and for future generations over this project.
40. Chelsea Bender, 9633 Old Hwy 99, White River **Township resident: Not in favor.** Also believes this proposed project is too big for the Township. Believes this project could go on the brownfields as well.

Summary and Analysis of Comments.

Of the 40 speakers who provided comments during the public hearing, the vast majority were residents who spoke out against the special land use application. Below is a breakdown of speakers based on their position and residency.

Position	Township Residents	Non-Residents
In Favor	1	2
Not in Favor	27	8
Hesitant/No Outright Answer	1	1

Overall, nearly 88% of commenters were not in favor of the special land use application. We note that many common concerns were shared among speakers, with recurring comments listed below:

- The project is too large, or out-of-scale with the Township (with many noting that they aren't against solar entirely).
- Concerns about impacts to the Township's rural character and scenic beauty.
- Impacts to farmland, environment, nature, and wildlife.
- Alternative sites, such as the Chemours-DuPont property, or brownfields, being more appropriate.
- Master Plan or zoning compatibility issues.

As always, feel free to contact us any time if there are questions.

SUMMARY OF EXPERT'S REPORTS

UNIV OF WISCONSIN ECONOMIC IMPACT STUDY (EIS)

- **UT Austin** (2018) does not analyze property sale prices
- **University of Rhode Island (2020).** EIS does not mention significant decline in home values within one mile with much smaller solar installations
- **Abashidze & Taylor (2022).** Study is limited to vacant agricultural land
- **EIS has missing data** that shows negative impacts on residential property values.

VIRGINIA TECH KEY FINDINGS

- Compared 27 projects and 4000 properties within 1 mile and 86,000 within 5 miles
- Property values show declines of:
  - 7.9% within 2.5 miles
  - 11.7% for high value homes (over $400,000) within 2.5 miles
  - 13.4% within the first ½ mile
- Estimates are **conservative** due to smaller projects, fewer homes, lower home values and many lacked lakefront proximity.

UNIVERSITY OF VIRGINIA TECH KEY FINDINGS

- Loss impact lasts about 10 years
- Annualized Loss within 2.5 miles is $2.72 million per year.
- Net Present Value of Losses is over $20 million

PUBLIC HEARING SUMMARY

Position	Township Residents	Non-Residents
In Favor	1	2
Not in Favor	27	8
No Outright Answer	1	1

PUBLIC HEARING ANALYSIS

- Most common reasons comments were not in favor:
  - Too large and out-of-scale
  - Rural character and scenic beauty.
  - Impacts to farmland, environment, nature, and wildlife.
  - Brownfield siting is more appropriate
  - Master Plan or zoning compatibility issues

KEITH HEIDELBERG: FIRE MARSHAL
WL FIRE AUTHORITY
FIRE AND LIFE SAFETY

- **Code Review:** Township must adopt the current version of the International Fire Code and NFPA 855 automatically
- **Site Hazards**: Increased risk at BESS systems of fire and explosion
- **Site Access:**
  - Fire Access roads should be 20 feet wide with proper turn around space
  - Plan should use Knox access system for local fire dept access
  - Snow Removal and Foliage Removal Plans should be provided
  - Access roads and panel rows should be labeled in approved manner

KEITH HEIDELBERG: FIRE MARSHAL
WL FIRE AUTHORITY
FIRE AND LIFE SAFETY

- **Facility Code Compliance**
  - A third-party inspector acting on behalf of local government emergency services
  - Inspector should be involved in construction and continued maintenance
  - On-site inspections and system document reviews be completed at least annually
  - Must be proficient in codes and standards

JENNIFER JONES, CLP, CLM
SCIENTIFIC APPROACH TO EVALUATE MASTER PLAN

- Master Plan Requirements:
  - Preservation of the community's character,
  - Protection of natural resources
  - Zoning for different types of land use and development.

JENNIFER JONES, CLP, CLM
SCIENTIFIC APPROACH TO EVALUATE MASTER PLAN

- SLU permit application
  - Project covers a third of the total land
  - Disruption and displacement of the wildlife
  - Destruction of valuable farmland and green space
  - A large number of access roads

JENNIFER JONES, CLP, CLM
SCIENTIFIC APPROACH TO EVALUATE MASTER PLAN

- Farms harbor vegetation and associated wildlife.
  - Less farmland = less natural capital
  - Migratory corridors will be limited = less natural capital
- Measurable destruction of natural capital with replacement by built and technical capital
- Loss of Natural Capital does not align with Master Plan

Section 7 Comments for Rare Species Review #5596
Lakeside Solar, Muskegon County, MI

Adam Holven
Tetra Tech
2001 Killebrew Drive
Suite 141
Bloomington, MN 55425

October 7, 2025

For projects involving Federal funding or a federal agency authorization

The following information is provided to assist you with Section 7 compliance of the Federal Endangered Species Act (ESA). The ESA directs all Federal agencies "to work to conserve endangered and threatened species. Section 7 of the ESA, called "Interagency Cooperation," is the means by which Federal agencies ensure their actions, including those they authorize or fund, do not jeopardize the existence of any listed species."

The project falls within the range of the following federally listed/proposed/candidate species which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Muskegon County, Michigan:

Federally Endangered

Indiana bat – there does appear to be suitable habitat within 1.5 miles of the project. Indiana bats (*Myotis sodalis*) are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. This species forms colonies and forages in riparian and mature floodplain habitats. Nursery roost sites are usually located under loose bark or in hollows of trees near riparian habitat. Indiana bats typically avoid houses or other artificial structures and typically roost underneath loose bark of dead elm, maple and ash trees. Other dead trees used include oak, hickory and cottonwood. Foraging typically occurs over slow-moving, wooded streams and rivers as well as in the canopy of mature trees. Movements may also extend into the outer edge of the floodplain and to nearby solitary trees. A summer colony's foraging area usually encompasses a stretch of stream over a half-mile in length. Upland areas isolated from floodplains and non-wooded streams are generally avoided.

Management and Conservation: Every March, the USFWS publishes survey guidelines to assist project proponents (both Federal and non-Federal) with conservation planning for Federally listed bats in Michigan. We strongly encourage project managers and their designated representatives to use the U.S. Fish and Wildlife Service (USFWS) online planning tool Information for Planning and Consultation (IPaC) to evaluate potential effects of proposed activities on listed bats and other Federally listed species in Michigan. Projects that complete consultation or coordination through IPaC automatically adhere to the recommendations provided in these guidelines and are not required to implement any additional conservation measures for listed bats.

Karner blue butterfly – there does appear to be suitable habitat within 1.5 miles of the project site. The federally endangered and state threatened Karner blue butterfly *(Lycaeides melissa samuelis)* was historically found in open-canopied barrens communities, including oak and oak-pine savanna or barrens found prior to European settlement. Since their historical habitat suffers from fire suppression efforts, the butterfly often occurs in openings, old fields, and rights-of-way. Karner blue larvae feed exclusively on wild lupine (*Lupinus perennis*), an early successional species that can become abundant after appropriate disturbances. Adults visit a wide variety of flowering plants for nectar.

The Karner blue has two generations per year, with the later, or summer, generation typically having three to four times the number of adults as the earlier, or spring, brood. Adults are active most of the day, decreasing activity during midday and during cool, rainy weather. Females can live up to two weeks in the field, but typically live an average of five days. Peak flight dates are mid-May through early June and mid-July through early August, with stragglers found between.

Management and Conservation: recommendations for management of Karner blue butterfly habitat will be pertinent only if the host plant, wild lupine (*Lupinus perennis*) is present. If lupine is present the following guidelines should be followed: (1) mower blades should be set no lower than 6 inches; (2) mowing should not occur before August 15th (i.e. no spring mowing at all!); (3) no burning of habitat where lupine exists, and (4) contact us if planting or logging will occur in lupine areas.

Piping plover – there does appear to be suitable habitat within 1.5 miles of the project site. In the Great Lakes region, the federal and state endangered piping plover *(Charadrius melodus)* prefers to nest and forage on sparse or non-vegetated sand-pebble beaches with less than 5% vegetative cover. Nests are simple depressions in the sand are generally placed in level areas between the water's edge and the first dune. Associated bodies of water and interdunal wetlands enhance these areas by increasing food availability. Optimal foraging areas are especially crucial along Lake Superior, where shoreline and benthic invertebrate communities are known to be naturally sparse. While feeding, open shoreline is preferred to vegetated beach areas. Piping plovers begin arriving in mid- to late-April. The nesting season is under way by mid-May and lasts until mid-August.

Management and Conservation - this species is declining throughout the Midwest due to habitat destruction and disturbance. The nests are simple depressions in the sand and are difficult to see. People walking on the beach may inadvertently destroy nests. Dogs on the beach can be especially dangerous for chicks and adults. Piping plovers are protected under the Federal Endangered Species Act and are very sensitive to human disturbance. Please avoid activity along the shoreline in this compartment between May and September.

Northern long-eared bat – Northern long-eared bat (*M. septentrionalis*) numbers in the northeast US have declined up to 99 percent. Loss or degradation of summer habitat, wind turbines, disturbance to hibernacula, predation, and pesticides have contributed to declines in Northern long-eared bat populations. However, no other threat has been as severe to the decline as White-nose Syndrome (WNS). WNS is a fungus that thrives in the cold, damp conditions in caves and mines where bats hibernate. The disease is believed to disrupt the hibernation cycle by causing bats to repeatedly awake thereby depleting vital energy reserves. This species was federally listed in May 2015 primarily due to the threat from WNS.

Although no known hibernacula or roost trees have been documented within 1.5 miles of the project site, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS. Also, there does appear to be suitable habitat within 1.5 miles of the project.

Also called northern bat or northern myotis, this bat is distinguished from other *Myotis* species by its long ears. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula; they also commonly hibernate in the Tippy Dam spillway in Manistee County. This species is a regional migrant with migratory distance largely determined by locations of suitable hibernacula sites.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and dead trees. Roost trees are selected based on the suitability to retain bark or provide cavities or crevices. Common roost trees in southern Lower Michigan include species of ash, elm and maple. Foraging occurs primarily in areas along woodland edges, woodland clearings and over small woodland ponds. Moths, beetles, and small flies are common food items. Like all temperate bats this species typically produces only 1-2 young per year.

Management and Conservation: Every March, the USFWS publishes survey guidelines to assist project proponents (both Federal and non-Federal) with conservation planning for Federally listed bats in Michigan. We strongly encourage project managers and their designated representatives to use the U.S. Fish and Wildlife Service (USFWS) online planning tool Information for Planning and Consultation (IPaC) to evaluate potential effects of proposed activities on listed bats and other Federally listed species in Michigan. Projects that complete consultation or coordination through IPaC automatically adhere to the recommendations provided in these guidelines and are not required to implement any additional conservation measures for listed bats.

Federally Threatened

Rufa red knot – there does appear to be suitable habitat within 1.5 miles of the project site. The federally threatened rufa red knot (*Calidris canutus rufa*) is one of the longest-distance migrants in the animal kingdom, flying some 18,000 miles annually between its breeding grounds in the Canadian Arctic to the wintering grounds at the southern-most tip of South America. Primarily occurring along the Atlantic and Gulf coasts, small groups of this shorebird regularly use the interior of the United States such as the Great Lakes during the annual migration. The Great Lakes shorelines provide vital stopover habitat for resting and refueling during their long annual journey.

The largest concentration of rufa red knots is found in May in Delaware Bay, where the birds stop to gorge on the eggs of spawning horseshoe crabs; a spectacle attracting thousands of birdwatchers to the area. In just a few days, the birds nearly double their weight to prepare for the final leg of their long journey to the Arctic. This species may be especially vulnerable to climate change which affects coastal habitats due to rising sea levels.

Management and Conservation: applies to actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30.

Pitcher's thistle – there does appear to be suitable habitat within 1.5 miles of the project site **and there is an extant EO that falls within 1 mile of the project site**. The federal and state threatened Pitcher's thistle *(Cirsium pitcheri)* grows on open sand dunes and occasionally on lag gravel associated with dunes. All of its habitats are along the Great Lakes shores, or in very close proximity. This monocarpic (once-flowering) plant produces a rosette that will mature to flowering in 2-8 years, after which the plant dies. Seeds germinate in June, and most seedlings (rosettes) appear within 1-3 meters of parent plants. The taproot of this thistle, which can reach 2 m in length, enhances its ability to survive the often-desiccating conditions of its dune habitat. Pitcher's thistle blooms from approximately late-June to early September.

Management and Conservation - Pitcher's thistle can be locally extirpated by destruction or major disturbance of its habitat (e.g. by shoreline development, vehicular or ORV traffic, heavy foot traffic and/or intensive recreation).

Eastern massasauga rattlesnake (EMR) – there does not appear to be suitable habitat within 1.5 miles of the project. The project falls outside Tier 1/Tier 2 EMR habitat as designated by the U.S. Fish & Wildlife Service (USFWS). The federally threatened and state special concern Eastern massasauga rattlesnake *(Sistrurus catenatus)* is Michigan's only venomous snake and is found in a variety of wetland habitats including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasaugas occur throughout the Lower Peninsula but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

Often described as "shy and sluggish", these snakes avoid human confrontation and are not prone to strike, preferring to leave the area when they are threatened. However, like any wild animal, they will protect themselves from anything they see as a potential predator. Their short fangs can easily puncture skin and they do possess potent venom. Like many snakes, the first human reaction may be to kill the snake, but it is important to remember that all snakes play vital roles in the ecosystem. Some may eat harmful insects. Others like the massasauga consider rodents a delicacy and help control their population. Snakes are also a part of a larger food web and can provide food to eagles, herons, and several mammals.

Management and Conservation: protection of extant populations and suitable wetland and adjacent upland habitats is crucial for successful conservation of the Eastern Massasauga. Maintaining or restoring open habitat conditions is critical for this species. Fragmentation of suitable wetland-upland habitat complexes by roads or other barriers should be avoided or minimized. Land management practices such as timber harvesting, mowing, disking or prescribed burning

should be conducted in such a manner so as to minimize the potential for adverse impacts to massasaugas (e.g., conducting management activities during the snakes' inactive season (November through early March) or on days when snakes are less likely to be active on the surface during the active season). Protecting suitable hibernation sites also is critical.

USFWS Section 7 Consultation Technical Assistance can be found at:

https://www.fws.gov/service/esa-section-7-consultation

The website offers step-by-step instructions to guide you through the Section 7 consultation process with prepared templates for documenting "no effect" as well as requesting concurrence on "may affect, but not likely to adversely affect" determinations.

Please let us know if you have questions.

Nicolette Sexton
Environmental Review Assistant
Michigan Natural Features Inventory

MICHIGAN STATE UNIVERSITY | Extension

Adam Holven
Tetra Tech
2001 Killebrew Drive
Suite 141
Bloomington, MN 55425

October 7, 2025

Re: Rare Species Review #5596 – Lakeside Solar, Muskegon County, MI

Hello:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a particular site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

At-risk species and/or natural communities have been documented within 1.5 miles of the project location and it is possible that adverse impacts will occur. This response reflects a desktop review of the database and MNFI cannot fully evaluate this project without visiting the area. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Nicolette Sexton

Nicolette Sexton
Environmental Review Assistant
Michigan Natural Features Inventory

Comments for Rare Species Review #5596

It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit, please contact Amy Bleisch at DNR-Wildlife Division, DNR-StateTEPermit@michigan.gov and review details on the MDNR's Threatened/Endangered Species resource page. If a federally listed species is involved and, you think a permit is needed, please contact Jessica Pruden, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8316, or Jessica_Pruden@fws.gov.

NOTE: Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Please consult MNFI's Rare Species pages for additional information on Michigan's rare plants and animals.

Table 1: Occurrences of Threatened & Endangered Species within 1.5 miles of Project Site

Element Category	Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank	EO Rank	First Observed Date	Last Observed Date
Animal	*Acris blanchardi*	Blanchard's cricket frog		T	G5	S2S3	H	1996-06	1996-06
Animal	*Terrapene carolina carolina*	Eastern box turtle		T	G5T5	S2S3	H	1978	1978-07
Animal	*Terrapene carolina carolina*	Eastern box turtle		T	G5T5	S2S3	E	2021-08-03	2021-08-03
Plant	*Cirsium pitcheri*	Pitcher's thistle	LT	T	G3	S3	C	1963	2012-06-21
Plant	*Triphora trianthophora*	Nodding pogonia or three birds orchid		T	G4?	S1	H	1899	1899

Comments for Table 1

Most of the above EO's are historical and/or far removed from the project area and are not of concern. However, impacts are possible for the eastern box turtle EO. See species comments below:

Species Comments for Table 1

Eastern box turtle (*Terrapene carolina carolina*)

Habitat

The Eastern Box Turtle is Michigan's only truly terrestrial turtle. It typically occurs in forested habitats with sandy soils near a source of water such as a stream, pond, lake, marsh or swamp. They also may be found in adjacent thickets, old fields, pastures, or vegetated dunes. Access to unshaded nesting sites in sandy, open areas, is critical for successful reproduction. This species is known to occur in the area and suitable habitat appears to occur within the project area.

Management Recommendations

Conservation efforts should concentrate on protecting large tracts of habitat especially on public land to provide the box turtle additional protection from the effects of development. Wetland hydrology and quality should be maintained by preventing improper off-road vehicle use, implementing minimum development set-back distances, leaving buffer zones during timber harvest, grazing and agricultural operations, minimizing use of herbicides and pesticides in or near wetlands, and/or controlling invasive plants. Upland nesting areas should be identified, protected and in some cases created. Construction of new roads should be minimized or routed to avoid separating foraging and/or overwintering habitat from nesting areas. Finally, the public should be educated about the laws protecting reptiles and amphibians and encouraged to leave wild turtles in their natural habitats rather than collecting them for pets.

For more information, see the *Terrapene carolina carolina* species page on the MNFI website.

No occurrences of special concern species within 1.5 miles of project site

Natural Communities

Be aware that Great Lakes marsh and mesic northern forest natural communities are located near the project site. While not legally protected, natural communities harbor rare species that may not be documented in the database. For more information see:

Mesic Northern Forest (msu.edu)

Great Lakes Marsh (msu.edu)

Codes to accompany table

State Protection Status Code Definitions
E = Endangered
T = Threatened
SC = Special concern

Federal Protection Status Code Definitions
LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (G RANK)
The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
Q = Taxonomy uncertain

State Heritage Status Rank Definitions (S RANK)
The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1 = Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences). S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
SX = apparently extirpated from state.

EO Rank Codes

Element Occurrence (EO) ranks refer to the viability or ecological integrity of the occurrence; they provide an assessment of the likelihood that if current conditions prevail the EO will persist for a defined period of time, typically 20-100 years.

A - Excellent estimated viability/ecological integrity
A? - Possibly excellent estimated viability/ecological integrity
AB - Excellent or good estimated viability/ecological integrity
AC - Excellent, good, or fair estimated viability/ecological integrity
B - Good estimated viability/ecological integrity
B? - Possibly good estimated viability/ecological integrity
BC - Good or fair estimated viability/ecological integrity
BD - Good, fair, or poor estimated viability/ecological integrity
C - Fair estimated viability/ecological integrity
C? - Possibly fair estimated viability/ecological integrity
CD - Fair or poor estimated viability/ecological integrity
D - Poor estimated viability/ecological integrity
D? - Possibly poor estimated viability/ecological integrity
E - Verified extant (viability/ecological integrity not assessed)
F - Failed to find
F? - Possibly failed to find
H - Historical
H? - Possibly historical
X - Extirpated
X? - Possibly extirpated
U - Unrankable
NR - Not ranked

Privacy Act Statement (5 U.S.C. § 552a(e)(3)): Authority: Information solicited by the Federal Aviation Administration (FAA) Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) is authorized by 49 U.S.C. § 44718 and 47101 Purpose: The FAA OE/AAA is an application used to evaluate all structures that may affect the national airspace system and defend against potential hazards to the safety and efficient use of the navigable airspace. The information collected is used to allow a user access to the OE/AAA and to administer the Aeronautical Study Process. Routine Uses: In accordance with the Privacy Act system of records notice, DOT/ALL 16 Mailing Management System and DOT/FAA 826 Petitions for Exemptions, Other than Medical Exemptions this information may be disclosed to officials within the federal government and the public in general. DOT/ALL 13 - Internet/Intranet Activity and Access Records, this information is routinely used; • To provide information to any person(s) authorized to assist in an approved investigation of improper access or usage of DOT computer systems; • To an actual or potential party or his or her authorized representative for the purpose of negotiation or discussion of such matters as settlement of the case or matter, or informal discovery proceedings; • To contractors, grantees, experts, consultants, detailees, and other non-DOT employees performing or working on a contract, service, grant cooperative agreement, or other assignment from the Federal government, when necessary to accomplish an agency function related to this system of records; and • To other government agencies where required by law.

Disclosure: Submission of the information is voluntary, however, failure to submit requested information will result in FAA's inability to grant you access to the system and may result in an inability of the FAA to process the notice or administer the aeronautical study process for the construction, alteration, activation, or deactivation proposed.

Failure to Provide All Requested Information May Delay Processing of your Notice

U.S. Department of Transportation
Federal Aviation Administration

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY

Aeronautical Study Number
2026-AGL-5954-OE

Status: Studying

1.Sponsor

Name:	Lakeside Solar, LLC
Attn of:	DEREK ROSSEAU
Address:	8400 Normandale Lake Blvd Ste 1200
City:	Bloomington
State:	MN
Zip:	55437
Country:	US
Phone:	+1-1-952-988-9000
Fax:	

2.Sponsor's Representative

Name:	Lakeside Solar, LLC
Attn of:	Lakeside Solar, LLC
Address:	8400 Normandale Lake Blvd Ste 1200
City:	Bloomington
State:	MN
Zip:	55437
Country:	US
Phone:	+1-1-952-988-9000
Fax:	

3.Notice of: New Construction

4.Duration:

Permanent (Months:0 Days:0)

5.Work Schedule:

6.Type: Solar Panel

7.Marking/Lighting: None

8.FCC Antenna Registration Number:
(if applicable)

9.Latitude: 43°27' 40.14" N

10.Longitude: 86°23' 44.60" W

12.Nearest

State:	MI
County:	Muskegon

13.Nearest Public Use Airport: C04
(or Military Airport/Heliport)

14.Distance from Airport to Structure: 68121 ft

15.Direction from Airport to Structure: 195°

16.Site Elevation *(SE)*: 685 ft

17.Structure Height *(AGL)*: 18 ft

18.Overall Height *(AMSL)*: 703 ft

19.Prior ASN *(if applicable)*:

20.Description of Location:
~2 miles west of Montague, Michigan

21.Description of Proposal:
Construction of large solar array mounted on single-axis trackers

Frequencies:

Low Freq	High Freq	Unit	ERP

Letters:

Processed 7460-2 Forms:

Supplemental Form 7460-2:
Please login to add a Supplemental Form 7460-2

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-6.4
Stormwater Mitigation Plan



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-6.4: STORMWATER MITIGATION PLAN..... 1

LIST OF ATTACHMENTS

Attachment A-6.4 A Stormwater Mitigation Plan

EXHIBIT A-6.4: STORMWATER MITIGATION PLAN

Lakeside Solar, LLC (Lakeside), a wholly owned subsidiary of Geronimo Power, LLC (Geronimo Power) proposes to develop the Lakeside Solar Facility (Solar Facility) and Battery Energy Storage System (BESS), collectively the Project, in White River Township, Muskegon County, Michigan.. Lakeside retained Merjent, Inc. (Merjent) to prepare a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the requirements of the Application Filing Instructions and Procedures (AFIP). Merjent completed the SWPPP to incorporate design features and measures to minimize and mitigate stormwater runoff and protect the surrounding environment and downgradient aquatic resources.

i. Conduct a stormwater assessment and prepare a plan that describes measures to minimize, mitigate, and repair any drainage impacts. The assessment and plan may be preliminary.

Refer to Attachment A-6.4 A for the SWPPP, which includes a site assessment and maps of existing and proposed conditions.

ii. The Plan shall address any guidance from consultation with the county drain commissioner and shall include the date and time the consultation took place, who participated in the consultation, and copies of correspondence listing necessary permits, next steps, and associated timeline for each consultation.

Merjent developed the SWPPP based upon guidance and information received from the Muskegon County Water Resources Commission (MCWRC). Consultations with the Muskegon County Water Resources Commissioner and Deputy Water Resources Commissioner are documented in detail with respect to the meeting date and time, who participated, permits needed, next steps and associated timeline, in Exhibit A-4.4 and Attachment A-4.4 F. This comprehensive description of coordination efforts with the MCWRC includes comments that were later incorporated into the Civil Permitting Plans (refer to Exhibit A-1.1, Attachment A-1.1 M). Note that the email exchanges also reference Land and Resource Engineering (LRE), which refers to the Water Resources Commission consultant. See also Table 5.0-1 in Attachment A-6.4 for a concise summary of MCWRC consultations.

Attachment A-6.4 A

Stormwater Mitigation Plan

Stormwater Mitigation Plan for the Lakeside Solar Facility and Battery Energy Storage System

Lakeside Solar Project
White River Township, Muskegon County, Michigan

8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

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ACRONYM LIST

BESS	battery energy storage site
BMP	best management practice
cfs	cubic feet per second
DEM	digital elevation model
ECD	erosion control device
Lakeside	Lakeside Solar, LLC
Land Control Area	Area owned by Lakeside Solar for the Project (1,576 acres)
MCWRC	Muskegon County Water Resources Commission
Merjent	Merjent, Inc.
Model Area	Area included in HydroCAD model (2,829 acres)
MPSC	Michigan Public Service Commission
MW	megawatt
NOAA	National Oceanic and Atmospheric Association
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
Plan	Stormwater assessment and mitigation plan, this document
Preliminary Development Area	Area containing actual construction and land disturbance within the fenceline of the Project (982 acres)
Project	150 MW solar energy facility and BESS in White River Township, Muskegon County, Michigan
PV-SMaRT	Photovoltaic Stormwater Management Research and Testing
SWPPP	Stormwater Pollution Prevention Plan
ToC	Time of Concentration
TSS	total suspended solids

1 INTRODUCTION

Lakeside Solar, LLC (Lakeside) is proposing an estimated 200 megawatt (MW) solar energy facility and battery energy storage site (BESS) in White River Township, Muskegon County, Michigan (the "Project"). This report includes the preliminary stormwater assessment, mitigation concepts and regulations, and consultation documentation.

Lakeside consulted with the Muskegon County Water Resources Commission (MCWRC) in preparation of this stormwater assessment and mitigation plan (Plan). This Plan was prepared in accordance with the Michigan Public Service Commission (MPSC) Exhibit A-6.4 application requirements.

The Land Control Area of the Project spans 1,575 acres (Location Map in Appendix A). The Project is within the Pierson Swamp Drain District managed by the MCWRC. The Project footprint within the Pierson Swamp Drain District is 1,085 acres. The site is currently used for agricultural row crops.

The Project has a Preliminary Development Area (PDA) of 982 acres where work is proposed. The PDA will consist of 733 acres of solar panel arrays, 8.7 acres of BESS, and substations on 6.7 acres, with the remaining area not having infrastructure installed. In total, 36 acres of impervious surfaces, including gravel access roads, will be created. Prairie vegetation will be planted under the panels, so this area is typically not considered an impervious surface. The stormwater assessment presented in this report served as a basis for proposing best management practices (BMPs) to manage stormwater on and off the site.

2 STORMWATER ASSESSMENT

2.1 Introduction

Merjent, Inc. (Merjent) conducted a preliminary stormwater assessment for the Project based on the site plan designed by Westwood dated June 13, 2025[1]. This assessment was consistent with the requirements of MPSC Exhibit A-6.4. Merjent evaluated existing pre-project conditions and proposed post-project conditions to describe anticipated changes in runoff behavior associated with the Project.

2.2 Stormwater Regulatory Requirements

Stormwater management for the Project is under the jurisdiction of the State of Michigan and the MCWRC. According to Table 1 – Minimum Required Stormwater Standards of the MCWRC Rules and Procedures[2], the Project is required to treat runoff generated during the "first flush" event, defined as 1 inch of rainfall; store runoff from the 25-year storm event with a maximum allowable release rate of 0.13 cubic feet per second (cfs) per acre; and identify overflow conveyance routes and extents for the 100-year flood event. Runoff from the 1-inch water quality event must be treated using BMPs designed to reduce total suspended solids (TSS) loadings by at least 80 percent or to achieve a discharge concentration of 80 mg/L or less. Where the post-development runoff discharge rate is less than 0.13 cfs per acre, detention or retention facilities may not be required.

As discussed in the Great Plains Institute's PV-SMaRT Potential Stormwater Barriers and Opportunities document[3], utility-scale solar facilities differ fundamentally from traditional impervious development in the way runoff is generated and conveyed. Solar panels are elevated above grade and arranged in rows with gaps between panels and arrays, resulting in rainfall being shed in a distributed and disconnected manner rather than concentrated into curb-and-gutter or pipe networks. Runoff from the panel surfaces typically falls directly onto vegetated soils beneath the arrays or into grassed inter-row areas, where it can infiltrate, slow, and disperse before leaving the site. This diffuse runoff pattern reduces effective flow path connectivity, lowers erosive velocities, and enhances opportunities for infiltration and filtration through vegetated cover.

The PV-SMaRT guidance further notes that solar development is frequently constructed on previously cultivated agricultural land, where existing hydrologic conditions may include compacted soils, limited vegetative diversity, and relatively high runoff potential. Conversion from row crop agriculture to solar land use typically includes the establishment of perennial grasses or pollinator-friendly vegetation beneath and between arrays, reduced soil disturbance after construction, and elimination of annual tillage. From a hydrologic modeling perspective, these changes often result in a reduction in the modeled Natural Resources Conservation Service (NRCS) Curve Number relative to pre-development agricultural conditions. Lower Curve

1 Lakeside Solar Project Civil Permitting Plans. Westwood. June 13, 2025.

2 Fishbeck, Inc. 2016. Muskegon County Site Development Rules with Procedures and Design Standards for Stormwater Management. Revised January 2017 and February 2021. Prepared for the Muskegon County Office of the Drain Commissioner.

3 Photovoltaic Stormwater Management Research and Testing (PV-SMaRT) Potential Stormwater Barriers and Opportunities. Great Plains Institute. September 2021.

Numbers correspond to increased infiltration capacity and storage, which in turn reduce both peak runoff rates and total runoff volumes for a given storm event. As a result, post-development conditions for solar facilities can be hydrologically similar to—or in some cases improved over—existing agricultural conditions.

In the fully vegetated final site condition, the anticipated reduction in Curve Numbers associated with conversion from agricultural land use to permanent vegetative cover demonstrate that the Project is expected to meet applicable MCWRC stormwater performance standards while minimizing peak discharge rates and runoff volumes and providing adequate water quality treatment for the first flush and 80 percent TSS removals. Concentrated impervious areas (e.g., the Substation and BESS gravel pads) will be served by traditional stormwater management features (e.g., wet sedimentation basin / Nationwide Urban Runoff Program pond) to provide rate control and water quality treatment.

2.3 Methods

Merjent used publicly available data such as elevation, soil, and floodplain data to assess existing site conditions. The Model Area included the Land Control Area as well as adjacent off-site drainage areas, for a total area of approximately 2,830 acres. An existing conditions model was prepared as a baseline for the proposed conditions model. Merjent used HydroCAD, which utilizes TR-55 methodology, to complete the existing and proposed conditions models and determine comparative results for the Project.

To determine the runoff rates and required stormwater storage, the hydrologic disturbance was quantified and modeled. The drainage areas were determined using a combination of on-site topographical survey and a Digital Elevation Model (DEM) derived from LiDAR data for the region. Precipitation frequency / design storm events were determined utilizing the National Oceanic and Atmospheric Association's (NOAA's) Atlas 14 Point Precipitation Frequency Estimates for Muskegon County, Michigan for a 24-hour period (Table 2.3-1). Merjent evaluated on-site runoff in the existing and proposed conditions. Additionally, upstream run-on sources were modeled to identify potential erosional forces during construction and to design temporary and permanent stormwater conveyances to prevent soil erosion and inundation of the site.

Table 2.3-1 NOAA Atlas 14 24-Hr Precipitation Values for Muskegon County, MI

Design Event	Rainfall (inches)
1-Year	2.27
2-Year	2.60
10-Year	3.94
25-Year	5.05
50-Year	6.05
100-Year	7.17

Time of Concentration (ToC) for each drainage area was calculated using the NRCS methodology. This approach subdivides each flow path into distinct segments representing sheet flow, shallow concentrated flow, and channelized flow, as appropriate based on land cover and conveyance characteristics. Flow lengths for each segment were measured using GIS-based tools, and slopes

were derived from the DEM and supplemented with land survey elevation data where available. Manning's roughness coefficients and flow regime assumptions were selected in accordance with NRCS guidance and reflect existing land cover conditions.

Soil types were determined utilizing the United States Department of Agriculture Web Soil Survey. A summary of soil types and their corresponding Hydrologic Soil Group within the Project's proposed fenceline (PDA) is shown in Table 2.3-2 and the Soils Map in Appendix A. In reality there is a variety of drained and undrained soils, but in the model the soils were assumed to be in an undrained condition to be conservative and estimate higher runoff totals.

Table 2.3-2 Soil Types within Project Boundary

Soil Unit ID	Soil Unit Name	Hydrologic Soil Group	Acres in PDA	Percent of PDA
NuB	Nester-Ubly sandy loams, 2 to 6 percent slopes	C	286.6	29
Td	Tonkey and Deford soils	B/D	172.7	18
BaB	Belding and Allendale soils, 0 to 6 percent slopes	C/D	98.1	10
BbB	Belding-Ubly sandy loams, 2 to 6 percent slopes	C/D	71.9	7
NtB	Nester-Kawkawlin loams, 2 to 6 percent slopes	C/D	48.7	5
CovabB	Covert-Pipestone sands, 0 to 6 percent slopes	A/D	47.8	5
NrC	Nester sandy loam, 6 to 12 percent slopes	C	45.6	5
ClmaaB	Coloma-Brems-Fern complex, 0 to 6 percent slopes	A	43	4
KkA	Kawkawlin loam, 0 to 2 percent slopes	C/D	35.9	4
Sm	Sims loam	C/D	33	3
MeB	Menominee and Ubly soils, 2 to 6 percent slopes	B	21.4	2
PlfabB	Plainfield sand, lake plain, 0 to 6 percent slopes	A	19.5	2
Hp	Hettinger and Pickford soils	C/D	15.8	2
SnkaaB	Spinks loamy sand, 0 to 6 percent slopes	A	14.4	2
KkB	Kawkawlin loam, 2 to 6 percent slopes	C/D	11.1	1
NlD	Nester soils, 12 to 25 percent slopes, lake moderated	C	3.6	0.4
PpsaaA	Pipestone-Covert-Saugatuck sands, 0 to 3 percent slopes	A/D	3.9	0.4
NeC	Onekama loam, Lake Michigan Lobe, 6 to 12 percent slopes	D	3	0.3
NsE	Nester soils, 25 to 45 percent slopes	C	1.5	0.1
Ra	Roscommon and Au Gres sands	A/D	0.6	0.1
		Total	**978.1**	**100**

2.3.1 Existing Conditions

The Model Area was subdivided into a total of 67 discrete drainage areas based on existing and proposed discharge locations, watershed divides defined by site boundaries, and local topographic

controls identified from DEM and available land survey data (see Watershed Map in Appendix A). Each drainage area was delineated to represent a hydraulically independent subcatchment with a defined outlet to accurately characterize runoff generation and conveyance under both existing and proposed conditions. A total of 21 off-site discharge locations were identified and incorporated into the HydroCAD model as downstream links to represent points where runoff exits the Project boundary or enters jurisdictional drainage features.

Runoff routing between drainage areas was configured in accordance with the flow paths shown in the Drainage Routing Map in Appendix A. Hydraulic connectivity between subcatchments was modeled using a series of conveyance elements, including open channels, swales, and roadway crossings. The existing HydroCAD model includes 12 culvert crossings at roadway and access crossings where concentrated flow intersects public or private roads. Existing culvert locations and alignments were inferred using ArcGIS ArcHydro geoprocessing tools in conjunction with high-resolution aerial imagery and available roadway datasets. Where detailed as-built information was not available, culvert diameters and materials were conservatively assumed based on typical rural roadway construction standards to ensure that modeled conveyance capacities did not underestimate potential hydraulic constraints.

The Pierson Swamp Drain is the primary regional drainage feature within and downstream of the PDA and generally conveys flow from north to south through the site. A comprehensive hydrologic and hydraulic analysis of the Pierson Swamp Drain and its contributing watershed was previously completed by Westwood using a two-dimensional FLO-2D model. This model explicitly accounted for overbank flow, floodplain storage, and flow distribution during larger storm events. Results from the Westwood analysis were used to identify potential flood hazard areas, flow concentration zones, and areas susceptible to erosion or inundation. These findings, along with setback and buffer requirements established by the MCWRC, were incorporated into the Project's site layout and grading design to minimize encroachment into flood-prone areas and to reduce the potential for adverse hydraulic impacts to the Pierson Swamp Drain and adjacent properties.

As summarized in Table 2.3-3, existing conditions within the Model Area are predominantly agricultural, consisting primarily of cultivated cropland and pasture, with limited impervious surfaces associated with rural residential structures, farmsteads, and roadway infrastructure (see Existing Landcover Map in Appendix A). These land use characteristics informed the selection of Curve Numbers, roughness coefficients, and ToC parameters used in the existing-condition model. The resulting hydrologic framework provides a conservative and defensible baseline against which proposed-condition runoff rates, volumes, and routing characteristics were evaluated.

Table 2.3-3 Pre-Development Drainage Area Summary		
Ground Cover	**Curve Number**	**Area (acres)**
Row crops, straight row, good, HSG D	89	1,161.16
Row crops, straight row, good, HSG C	85	344.3
Pasture / grassland / range, good, HSG D	80	274.38
Woods, good, HSG D	77	237.14
Row crops, straight row, good, HSG A	67	150.29
Pasture / grassland / range, good, HSG C	74	144.89
Farmsteads, HSG D	86	92.18
Farmsteads, HSG C	82	77.35
Pasture / grassland / range, good, HSG A	39	61.58
Woods, good, HSG A	30	55.84
Farmsteads, Hydrologic Soil Group (HSG) A	59	47.59
Paved roads with open ditches, 50% impervious, HSG C	92	42.45
Paved roads with open ditches, 50% impervious, HSG D	93	39.68
Row crops, straight row, good, HSG B	78	32.85
Woods, good, HSG C	70	32.78
Pasture / grassland / range, good, HSG B	61	14.8
Paved roads with open ditches, 50% impervious, HSG A	83	11.14
Farmsteads, HSG B	74	4.4
Paved, open ditches, 50% impervious, HSG D	0	1.63
Paved, open ditches, 50% impervious, HSG C	0	1.17
Paved, open ditches, 50% impervious, HSG B	0	0.8
Paved roads with open ditches, 50% impervious, HSG B	89	0.23
	Total	**2,828.63**

2.3.2 Proposed Conditions

The proposed conditions model was developed by altering the land use and adding stormwater drainage features from the preliminary site layout to the existing conditions model. Post-development conditions were evaluated based on the preliminary solar and BESS layout, including tracker rows, gravel access roads, equipment pads, and vegetated areas. The predominant land use in the proposed model is pasture / grassland / range, whereas in the existing conditions model the two largest land uses were row crops (see Proposed Landcover Map in Appendix A). The proposed conditions model also includes the existing 12 culvert crossings; the culvert crossings proposed in this Plan were not included in the model.

Table 2.3-4 Post-Development Drainage Area Summary		
Ground Cover	**Curve Number**	**Area (acres)**
Pasture / grassland / range, good, HSG D	80	739.39
Row crops, straight row, good, HSG D	89	690.28
Pasture / grassland / range, good, HSG C	74	410.54

Table 2.3-4 Post-Development Drainage Area Summary		
Ground Cover	**Curve Number**	**Area (acres)**
Woods, good, HSG D	77	234.36
Row crops, straight row, good, HSG C	85	144.61
Pasture / grassland / range, good, HSG A	39	121.08
Farmsteads, HSG D	86	91.95
Row crops, straight row, good, HSG A	67	88.95
Woods, good, HSG A	30	55.88
Farmsteads, HSG A	59	47.59
Farmsteads, HSG C	82	45.82
Pasture / grassland / range, good, HSG B	61	32.09
Paved, open ditches, 50% impervious, HSG D	0	30.78
Gravel surface, HSG D	96	20.16
Woods, good, HSG C	70	16.19
Paved, open ditches, 50% impervious, HSG C	0	14.44
Row crops, straight row, good, HSG B	78	13.69
Paved, open ditches, 50% impervious, HSG A	0	11.14
Gravel surface, HSG C	96	10.6
Farmsteads, HSG B	74	4.4
Gravel surface, HSG B	96	1.87
Gravel surface, HSG A	96	1.79
Paved, open ditches, 50% impervious, HSG B	0	1.03
	Total	**2,828.63**

2.4 Results

2.4.1 Water Quantity (Rate Control) Analysis

A comparison of existing and proposed conditions during the 100-year rain event are presented in Appendix B. Table 2.4-1 below includes the results for the off-site discharge locations in the 100-year event. The full HydroCAD reports for the existing and proposed conditions are included in Appendix C and D, respectively.

Table 2.4-1 Off-site Runoff Summary (100-Year Storm Event)			
ID	**Existing Runoff (cfs)**	**Proposed Runoff (cfs)**	**Difference (cfs)**
1L	333.64	251.42	-82.22
2L	507.64	447.23	-60.41
3L	182.11	142.03	-40.08
4L	123.42	118.18	-5.24
5L	553.92	503.91	-50.01
6L	163.04	154.05	-8.99

Table 2.4-1 Off-site Runoff Summary (100-Year Storm Event)			
ID	**Existing Runoff (cfs)**	**Proposed Runoff (cfs)**	**Difference (cfs)**
7L	60.98	54.14	-6.84
8L	149.73	137.93	-11.8
9L	722.62	665.34	-57.28
10L	148.7	132.61	-16.09
11L	809.98	749.3	-60.68
12L	330.07	288.69	-41.38
13L	835.39	797.12	-38.27
14L	603.33	573.09	-30.24
15L	681.07	662.92	-18.15
16L	334.09	280.74	-53.35
17L	139.81	124.84	-14.97
18L	123.46	109.16	-14.3
19L	216.16	167.76	-48.4
20L	483.07	359.69	-123.38
21L	237.86	202.58	-35.28

Existing land uses in the Model Area are primarily row crops or fallow crops. The proposed land use conditions for the Project converts row crops to perennial pasture / prairie vegetation, which results in an overall reduction in peak runoff conditions across all modeled storm events.

Although most of the Project results in a reduction of flowrate due to the land use conversion, localized areas like the substation and BESS will have increased impervious area and thus increased runoff. Permanent stormwater management infrastructure is proposed to attenuate peak flow rates and provide settling of total suspended solids.

Stormwater conveyance swales are proposed to route runoff through the PDA to minimize flooding risk and to route water to proposed basins. The swales were designed to pass the 10-year 24-hour rainfall event based on the HydroCAD model. Table 2.4-2 below summarizes the swale characteristics in the 10-year event.

Table 2.4-2 Proposed 10-Year Design Event Stormwater Conveyance Swale Summary					
ID	**Inflow Area (acres)**	**Maximum Velocity (ft/s)**	**Average Water Depth (ft)**	**Capacity (cfs)**	**Length (ft)**
1R	11.66	2.40	0.65	393.51	2,500
2R	25.84	2.90	0.87	393.43	2,679
3R	14.89	2.60	0.74	393.51	3,554
4R	83.21	4.63	1.76	393.58	2,665
5R	135.94	4.74	1.83	393.57	3,385
6R	208.27	3.91	1.36	393.62	1,685
7R	148.53	5.23	2.12	393.56	3,423

2.4.2 Water Quality Analysis

Water quality will be treated with vegetated filter strips under arrays and the proposed sediment basins located near the site boundary. Twenty-nine temporary sediment basins and two permanent stormwater basins are proposed for the Project. Temporary sedimentation basins shall be designed in accordance with the Michigan National Pollutant Discharge Elimination System (NPDES) permit for construction activity based on NRCS design standards and contributing drainage area. Post-construction stormwater management basins were sized to mitigate the increase in runoff volume at the substation and BESS locations based on the HydroCAD modeled flows for the 100-year storm. Tables 2.4-3 and 2.4-4 below provide a summary of the basin characteristics.

Table 2.4-3 100-Year Design Event – Pond Performance Summary

Basin Location	Proposed Impervious Area (acres)	Existing Flow Rate (cfs)	Proposed Flow Rate (cfs)
Substation (198P)	6.74	25.88	25.29
BESS (199P)	8.12	43.21	40.88

Table 2.4-4 Basin Elevation Summary

Basin Location	Bottom Elevation (ft)	Outlet Elevation (ft)	Emergency Overflow Elevation (ft)	Top Elevation (ft)	100-year High Water Elevation
Substation (198P)	653.0	653.00	655.00	656.0	655.23
BESS (199P)	654.0	654.00	656.00	657.0	656.28

2.5 Proposed Best Management Practices

The proposed BMPs were designed to mitigate stormwater risks and treat water quality. The Project includes both structural and non-structural BMPs. Structural BMPs include 43 temporary sediment basins located along the site boundary, 39 permanent culverts under access roads, 2 permanent stormwater basins located near the substation and BESS, and 19,891 linear feet of stormwater conveyance swales. Non-structural BMPs include planting native vegetation, dewatering, and implementing a Stormwater Pollution Prevention Plan (SWPPP).

Erosion control devices (ECDs) will be installed prior to ground disturbing activities as shown in the Stormwater Mitigation Map and Permanent Stormwater Management Map in Appendix A. ECDs may include silt fence, turbidity curtains, biologs, rock construction entrances, temporary seeding, mulching, erosion control blanket, and temporary sedimentation basins, and should be installed in accordance with local and state regulations. ECDs shall remain in place until the site achieves Final Stabilization. Temporary seed and/or mulch shall be used to provide temporary cover and control erosion while native vegetation grows.

The BMPs proposed in this Plan are not intended for construction. Prior to final design, the placement and sizing of various BMPs should be adjusted to avoid sensitive habitats, be consistent with any design changes, and meet permitting requirements.

3 EROSION & SEDIMENT CONTROLS AND CONSTRUCTION SEQUENCING

3.1 Erosion and Sediment Controls

Erosion and sediment control is a critical component of the Project design due to the scale of disturbance associated with utility-scale solar development and the proximity of sensitive downstream resources, including the Pierson Swamp Drain and associated aquatic habitats. While the long-term operational condition of the Project is expected to reduce runoff potential relative to existing agricultural conditions, the construction phase presents a heightened risk of soil erosion if not carefully managed through proactive planning, sequencing, and temporary BMPs.

Unlike traditional development, solar projects involve widespread but relatively shallow disturbance across large areas of land. Panel installation activities, trenching for electrical infrastructure, and grading for access roads can expose soils over broad extents for extended periods. As documented on other utility-scale solar projects, failure to establish vegetation early or to manage drainage pathways during construction can result in concentrated flows and sediment transport that exceed pre-construction conditions. Accordingly, erosion and sediment controls for the Project were developed with a site-specific understanding of drainage patterns, slopes, soil characteristics, and modeled hydrologic behavior.

Contributing drainage areas, flow paths, and discharge points identified in the HydroCAD model were used to inform erosion control planning across the site. Drainage areas with larger contributing acreages, steeper slopes, or direct hydraulic connectivity to the Pierson Swamp Drain were identified as higher-risk locations requiring enhanced temporary controls. Soil mapping indicates the presence of agricultural soils that, while historically farmed, may exhibit moderate to high erodibility once vegetative cover is removed. Agricultural practices such as annual tillage can obscure long-standing erosion features, making it difficult to visually identify problem areas under existing conditions. Therefore, field reconnaissance, in combination with review of soil erodibility factors (K-factors), slopes, and drainage area sizes, is considered essential in identifying localized areas where additional erosion protection may be warranted.

ECDs will be implemented throughout the site to protect each array area and downstream resources during construction. These measures include, but are not limited to, silt fence, compost filter socks, erosion control blankets, stabilized construction entrances, temporary diversion berms, and check dams within swales and ditches. While perimeter controls will be installed around individual array blocks, this approach does not preclude the need for additional internal controls where soils, slopes, or contributing drainage areas present elevated erosion risk.

Temporary sedimentation basins are particularly important at array-level outfall locations where runoff from multiple rows of panels converges prior to leaving a drainage area. These basins serve to attenuate peak flows, promote sediment settling, and protect downstream conveyances from sediment loading. The location and preliminary function of these basins are informed by the drainage area delineations and modeled flow paths; however, final sizing and configuration will be determined during final design based on detailed grading plans, construction phasing, and contributing drainage area characteristics.

Pre-seeding and rapid establishment of vegetative cover are among the most critical erosion control strategies for solar projects. Following initial grading and installation of civil infrastructure, array areas will be seeded as early as practicable to minimize the duration of exposed soils. Early vegetation establishment reduces erosion potential, enhances infiltration, and limits the need for prolonged reliance on structural ECDs. Native or low-maintenance seed mixes appropriate for solar facilities will be used to promote dense ground cover beneath and between panel rows.

Model results, site topography, and field observations will be used collectively to determine where enhanced temporary BMPs or permanent drainage features are necessary to prevent sedimentation to the Pierson Swamp Drain and other aquatic resources. This adaptive, site-specific approach recognizes that erosion potential is influenced not only by soil type and slope, but also by drainage connectivity and construction sequencing.

Steep slope areas and historically erosive agricultural fields will be evaluated during final design to determine whether permanent grading modifications, interceptor berms, or stabilized conveyance features are necessary to reduce erosion potential. In some cases, permanent swales, ditches, or berms may be incorporated to intercept and safely convey runoff away from highly erodible slopes or toward stabilized outlets. These features may function initially as temporary erosion controls during construction and transition into permanent drainage infrastructure for long-term site stability.

3.2 Construction Sequencing

Construction sequencing is a key factor in minimizing erosion and sediment transport on utility-scale solar projects. The Project will implement a phased construction approach designed to limit soil exposure, promote early vegetation establishment, and reduce the likelihood of erosion issues similar to those observed on other large solar developments.

Construction will begin with controlled disturbance of site areas necessary to complete proposed grading and installation of civil infrastructure, including access roads, driveways, drainage ditches, and culvert crossings. During this phase, all primary erosion control devices will be installed in accordance with the approved erosion and sediment control plan. Temporary diversion features and sediment controls will be placed at identified outfall locations and along key drainage pathways. Array areas will be seeded immediately following grading and installation of necessary underground infrastructure to stabilize soils and prevent further erosion.

Once vegetative cover has been established across array areas, construction activities will transition to installation of solar panels, racking systems, and electrical components. By delaying panel installation until after vegetation establishment, the Project reduces the risk of widespread erosion associated with repeated equipment traffic over bare soils. During this phase, site-specific localized erosion controls will be implemented as needed to address trenching, post installation, and equipment access.

As equipment installation is completed in individual areas, disturbed soils will be promptly reseeded to reestablish vegetation and maintain continuous ground cover. Temporary erosion control measures will be inspected and maintained throughout this phase to ensure continued effectiveness.

Following completion of construction, ECDs will be inspected and maintained until permanent vegetation is fully established and erosion potential is minimized. Once stabilization criteria are met, temporary ECDs may be removed. Certain features, such as drainage ditches, swales, and interceptor berms, may be left in place permanently where they provide ongoing drainage benefits and protection from off-site runoff or concentrated flow paths.

This phased construction sequencing approach is intended to minimize soil disturbance at any given time, reduce the duration of exposed soils, and provide multiple layers of erosion protection throughout the construction process. When combined with robust erosion and sediment controls and early vegetation establishment, this strategy significantly reduces the risk of sedimentation to the Pierson Swamp Drain and ensures long-term site stability following construction.

4 STORMWATER MITIGATION PLAN

4.1 Minimization

The Project is not anticipated to result in significant adverse impacts to stormwater runoff quantity, quality, or drainage patterns within the Model Area. As demonstrated by the hydrologic modeling results summarized in Section 2.4, conversion of the PDA from row crop agriculture to a solar land use dominated by perennial pasture and prairie vegetation results in an overall reduction in peak runoff rates at all modeled off-site discharge locations for the 100-year storm event. This outcome reflects the fundamental hydrologic differences between utility-scale solar facilities and conventional impervious development, as well as the specific design strategies incorporated into the Project.

Stormwater minimization for the Project is achieved primarily through avoidance and source control measures rather than reliance on extensive structural detention. The Project layout minimizes impervious cover to the extent practicable by limiting paved surfaces and utilizing gravel access roads and equipment pads only where operationally necessary. Of the 1,576-acre Land Control Area, approximately 36 acres will consist of impervious or near-impervious surfaces, primarily associated with the substation, BESS, and select access roads. The remaining PDA will maintain or improve pervious conditions through establishment of permanent vegetative cover beneath and between solar arrays.

Solar panels will be elevated above grade and arranged in rows that allow rainfall to be shed in a diffuse and disconnected manner. Runoff from panel surfaces will fall directly onto vegetated soils below or into inter-row grassed areas, where it can infiltrate, slow, and disperse before leaving the site. This runoff pattern contrasts with traditional development, where impervious surfaces concentrate flow into defined conveyance systems, increasing erosive velocities and peak discharges. With well-maintained vegetation beneath the panels, the panels themselves are not expected to significantly increase total runoff volumes or peak discharge rates.

Consistent with the PV-SMaRT guidance and the modeling assumptions described in Section 2.2, conversion from annual row crops to perennial vegetation reduces the modeled NRCS Curve Numbers across much of the PDA. Reduced Curve Numbers reflect increased infiltration capacity, surface roughness, and soil storage, which collectively contribute to lower peak runoff rates and volumes for a given storm event. In addition, elimination of annual tillage and reduced long-term soil disturbance following construction further enhance soil structure and infiltration over time.

Drainage patterns within the Project have been preserved to the extent practicable by maintaining existing flow paths, utilizing vegetated swales, and avoiding unnecessary regrading or flow diversion. Where feasible, runoff will continue to sheet flow across vegetated surfaces rather than being collected into pipes or lined channels. Concentrated impervious areas, such as the substation and BESS, have been intentionally located and designed to allow targeted stormwater management without altering broader watershed hydrology.

Through these combined measures—minimization of impervious surfaces, diffuse runoff distribution, preservation of existing drainage patterns, and conversion to permanent vegetative cover—the Project is designed to meet or exceed applicable MCWRC and State of Michigan stormwater performance standards while minimizing the need for extensive structural mitigation.

4.2 Mitigation

Where stormwater impacts cannot be fully avoided through minimization measures, Lakeside proposes a suite of structural and non-structural mitigation measures designed to manage runoff quantity, protect downstream resources, and meet applicable regulatory requirements. These mitigation measures are informed by the HydroCAD modeling results, drainage area delineations, and consultation with the Muskegon County Water Resources Commission (MCWRC).

Structural mitigation measures for the Project may include temporary sediment basins, permanent stormwater basins, permanent culverts at access road crossings, and vegetated drainage ditches or swales. Temporary sediment basins will be implemented during construction to provide settling of suspended sediments and attenuation of peak flows from disturbed areas, particularly at array-level outfalls and locations with direct hydraulic connectivity to the Pierson Swamp Drain. These basins will be designed in accordance with Michigan NPDES construction stormwater permit requirements and NRCS standards and will be maintained until Final Stabilization is achieved.

Permanent stormwater basins are proposed at the substation and BESS locations to address localized increases in impervious cover. These basins are designed to provide both water quality treatment for the first flush event and rate control for larger storms, including the 25-year and 100-year design events. As demonstrated in Section 2.4.2, the proposed basins attenuate post-development peak discharge rates to levels at or below existing conditions while providing adequate storage and emergency overflow capacity.

Permanent culverts and drainage swales will be used to safely convey runoff beneath access roads and across the site without impeding existing drainage patterns. Swales are designed to remain vegetated and to operate at non-erosive velocities for the 10-year storm event, providing conveyance while also promoting infiltration and sediment filtration. Where appropriate, these conveyance features may also function as water quality BMPs by increasing residence time and contact with vegetation.

Non-structural mitigation measures are a critical component of the Project's stormwater strategy. These include establishment of native or adapted perennial vegetation beneath and between arrays, maintenance of vegetated filter strips, minimization of soil disturbance outside of active construction areas, and implementation of a comprehensive Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will address construction sequencing, inspection and maintenance procedures, spill prevention, and adaptive management of erosion and sediment controls.

The combination of structural and non-structural BMPs is intended to provide multiple layers of protection, recognizing that stormwater mitigation is most effective when runoff is managed at its source and along its flow path rather than solely at downstream discharge points. A full description and depiction of the proposed mitigation methods are provided in the Stormwater Mitigation Map and Permanent Stormwater Management Map included in Appendix A. Final locations, sizes, and

configurations of mitigation features will be refined during final design to reflect detailed grading plans, permitting requirements, and field conditions.

4.3 Repair

Given the long-standing agricultural use of the PDA, the presence of subsurface agricultural drain tile systems within portions of the solar array footprint is likely. Agricultural drain tile systems are common throughout Muskegon County and the Pierson Swamp Drain District and have historically been installed to improve soil drainage and crop productivity. Many of these systems predate modern recordkeeping and may not be fully documented in available drainage maps or landowner records, resulting in limited surface indications prior to construction.

Lakeside will identify, protect, and accommodate existing drain tile systems to the extent practicable during final design and construction. Drain tile locations will be evaluated using a combination of available records, landowner input, field reconnaissance, and observations during initial ground disturbance. Where drain tile systems are encountered, efforts will be made to preserve their function by maintaining existing alignments and discharge points whenever feasible.

Where conflicts arise between existing drain tile and proposed Project infrastructure—such as access roads, pile foundations, underground electrical conduits, or stormwater features—Lakeside will reroute, repair, or replace the affected drain tile to maintain existing drainage patterns and hydraulic capacity. Repairs and reroutes will be designed to minimize disturbance to surrounding soils and avoid unnecessary regrading or alteration of adjacent drainage features.

While widespread damage to existing drainage systems is not anticipated, any public or private drainage infrastructure that is damaged during construction, operation, or decommissioning will be promptly repaired or replaced. Repairs will be completed in coordination with the Muskegon County and affected landowners to ensure that drainage performance is restored to pre-construction conditions or better.

This repair strategy is intended to preserve long-standing agricultural drainage functions, prevent unintended ponding or off-site impacts, and maintain consistency with the hydrologic assumptions used in the stormwater modeling. By proactively addressing drain tile systems and committing to timely repair of any damaged infrastructure, the Project ensures that existing drainage networks continue to function as intended throughout the life of the Project.

5 CONSULTATION

Lakeside has consulted with various stakeholders and agencies through all phases of the Project. Correspondence with the MCWRC began in 2022 and has continued to present day. Most of the correspondence has been sharing information regarding MCWRC projects in or near the Pierson Swamp Drain as well as the Lakeside Project. The table below summarizes correspondence between Lakeside and MCWRC.

Table 5.0-1 MCWRC Consultation Summary

Date	Type of Correspondence	Subject / Purpose of Correspondence
July 5-8, 2022	E-mail	Requesting CAD file information about the constructed Pierson Swamp Drain improvement project as well as design information for another proposed detention / wetland project along Pierson Swamp Drain to assist with the hydrology model
July 18-20, 2022	E-mail	Requested design files and schedule for the improvements along Pierson Swamp Drain
August 2, 2022	E-mail	Received permit drawings for the additional detention / wetland project along Pierson Swamp Drain
September 15-30, 2022	E-mail	Received CAD drawings for Degan Guter wetland and Pierson Swamp Drain projects
June 2-25, 2023	E-mail	Requested as-built CAD files for the detention / wetland project at Pierson Swamp Drain; this also included follow up clarifications re: appropriate files
August 12, 2024	E-mail	Requesting updated shapefiles for the Pierson Swamp Drain completed project
February 26, 2025	E-mail	Introduction to Project and invitation to public open house and requested meeting
April 24, 2025	E-mail	Notified of public meeting and open house postponement until July 17 and offered to meet and provide project update. scheduled May 1
May 1, 2025 3:00 pm Eastern Time	Virtual Meeting	MCWRC provided feedback on Project – Detailed discussion of SESC permit, drain easements, pre-seeding, vegetation management. Refer to Exhibit A-4.4 narrative for a more detailed summary of meeting.
May 5, 2025	E-mail	Follow-up from May 1 and offered to answer any additional questions
May 8, 2025	E-mail	Requested drawings of two wetland areas along Pierson Swamp Drain
May 9, 2025	E-mail	Provided KMZ of the two wetland areas along Pierson Swamp Drain.
July 1, 2025	E-mail	Shared Project permit plans (received); initially sent June 26 but not received due to electronic transmission issue.

Table 5.0-1 MCWRC Consultation Summary

Date	Type of Correspondence	Subject / Purpose of Correspondence
August 7-14, 2025	E-mail	Lakeside requested a future meeting to discuss the proposed Project. On August 14, the meeting was scheduled for August 22, 2025.
August 22, 2025 3:00 pm Eastern Time	Virtual Meeting	MCWRC provided detailed feedback on fencing, drain access, cabling, SESC, and mobilization. Refer to Exhibit A-4.4 for a more detailed summary of meeting.
September 29, 2025	E-mail	Shared Special Use Permit application filed with White River Township and requested their review and comment
December 3, 2025	E-mail	Requested if there were any comments on the site design layout and provided a map of surface and subsurface water resources, included data from Muskegon County Public Drain System Viewer, locally sourced drain tile data, floodplains, wetland survey data and Degen-Guter wetland boundaries
April 7, 2026	Email	Lakeside informed the Water Resources Commission of the Lakeside Solar project's anticipated MPSC submission date. Lakeside also shared the SWPPP, introduced the environmental compliance lead, and offered to share geospatial data files.

Lakeside met with the MCWRC in August 2025 to discuss the preliminary site design. No specific stormwater management concerns were brought up at that time; however, the MCWRC did raise concerns about access to the Pierson Swamp drain. It is imperative that the site design does not restrict access for the MCWRC to perform maintenance activities in the drain right-of-way. The drain easement varies in width throughout the site, but Lakeside will ensure that access to every portion of the drain system from public rights-of-way will not be affected by proposed security fencing or other project components. MCWRC also requested that sections of security fence that cross county drains are relocated to avoid crossing the drains.

Project mobilization will commence with the installation of BMPs for stormwater and erosion control and then move to construct entrances / access roads and perform grading as needed. The Muskegon County Road Commission will approve right-of-way permits and dictate traffic control measures as needed. The Soil Erosion and Sedimentation Control plan must be filed with and approved by the Muskegon County Department of Public Works. MCWRC requires a member of their staff to be present when cabling is installed.

The Project layout has been designed to avoid crossing Muskegon County Drains and allows adequate space for the MCWRC to conduct routine inspections and maintenance of the drain including spoil spreading, snow removal, and mowing and vegetation management.

Appendix A

Maps and Figures



W Skeels Rd
Flower Creek Rd
Lehman Rd
Chase Rd
Old Highway 99
Indian Bay Rd
Williams Rd
Lamos Rd
Meinert Park
Meinert Park Rd
Butzer Rd
Lost Valley Rd
Fruitvale Rd
Bix Trl
Ramthun Rd
Eilers Rd
Pierson Drain
White River
Post Rd
Hancock Rd
Old Channel Trail Golf Course
Lake Michigan
N Old Channel Trl
Anderson Rd

0 1,000 2,000 Feet

1 inch = 2,000 feet

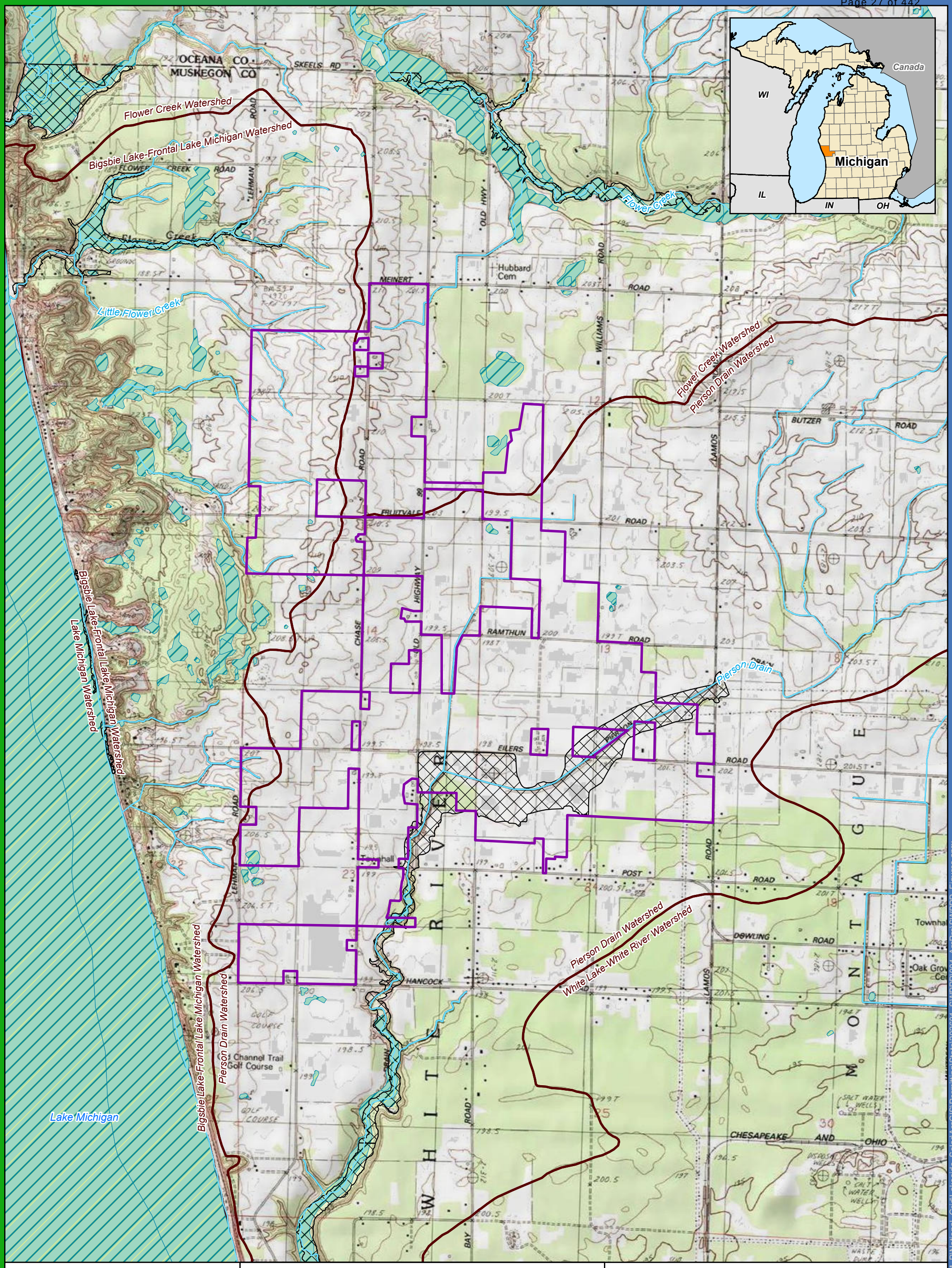
N

LAKESIDE SOLAR

Exhibit 1
Location Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

Project Boundary

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_ArcPro\SWPPP_Figures.aprx



0 1,000 2,000 Feet

1 inch = 2,000 feet

N

LAKESIDE SOLAR

Exhibit 2
Base Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

- Project Boundary
- NHD Flowline
- NWI Wetland
- HUC-12 Boundary
- FEMA Zone A
- FEMA Zone AE

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_ArcPro\SWPPP_Figures.aprx



Lake Michigan

0 750 1,500 Feet

1 inch = 1,500 feet

N

LAKESIDE SOLAR

Exhibit 3
Soils Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

Project Boundary

Hydrologic Soils Group

- A
- A/D
- B
- B/D
- C
- C/D
- D

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_ArcPro\SWPPP_Figures.aprx



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 116 184 186 187 188 189 190 195 198 199 1877 1878

Pierson Swamp Drain

Lake Michigan

0 625 1,250 Feet

1 inch = 1,250 feet

N

LAKESIDE SOLAR

Exhibit 4
Watershed Area Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

- Project Boundary
- Existing Watershed
- Pierson Swamp Drain

Time of Concentration

- Shallow Concentrated Flow
- Sheet Flow
- Channel Flow

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_SWPPP\001_ArcPro\SWPPP_Figures.aprx



Lake Michigan

0 750 1,500 Feet

1 inch = 1,500 feet

N

LAKESIDE SOLAR

Exhibit 5
Existing Landcover Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

Project Boundary

Landcover

- Farmstead
- Pasture/Grassland/Range
- Paved/ Open Ditch
- Row Crop
- Forested

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_ArcPro\SWPPP_Figures.aprx



Lake Michigan

0 750 1,500 Feet

1 inch = 1,500 feet

N

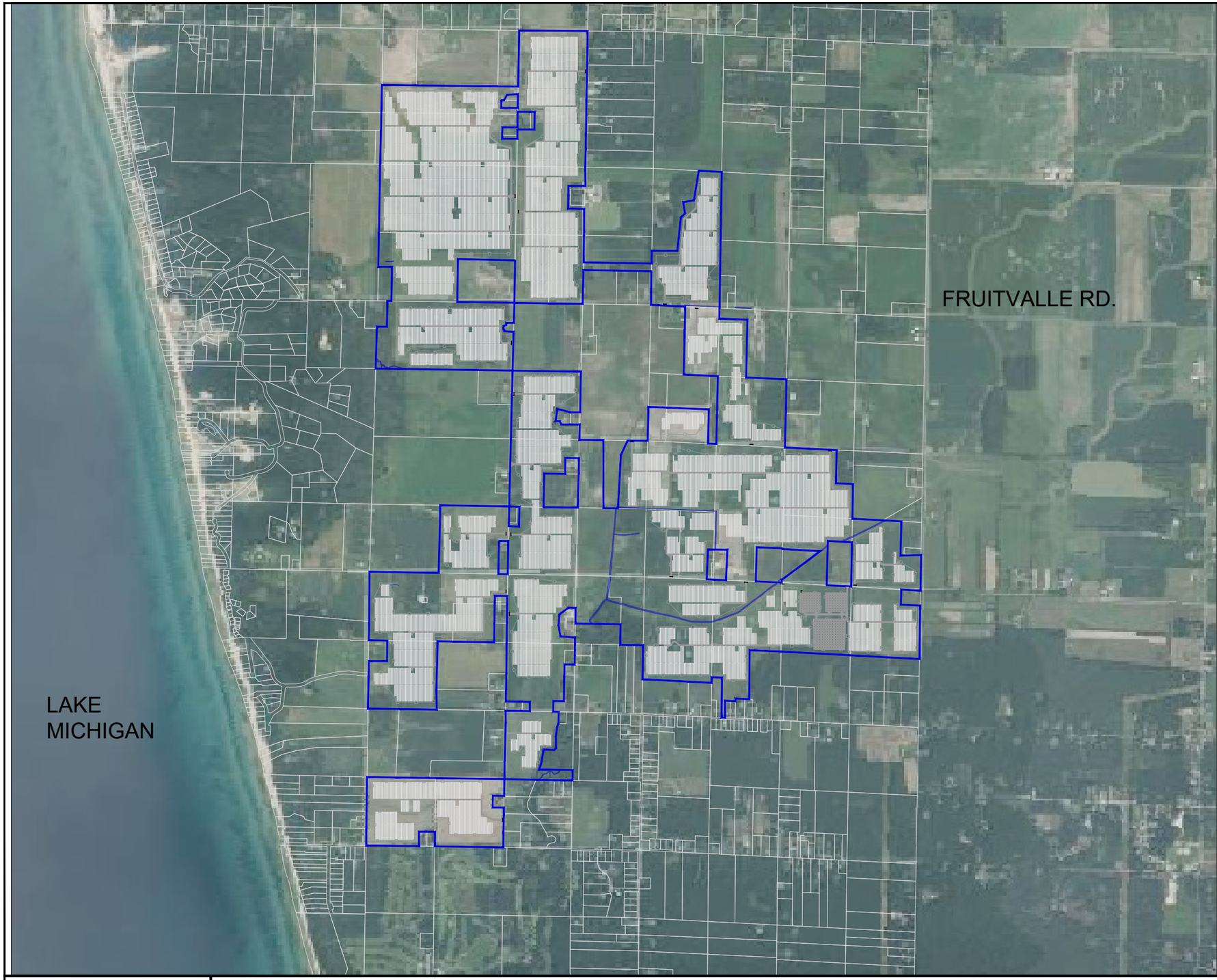
LAKESIDE SOLAR

Exhibit 6
Proposed Landcover Map
Lakeside Solar and BESS Project
Muskegon County, Michigan

- Project Boundary

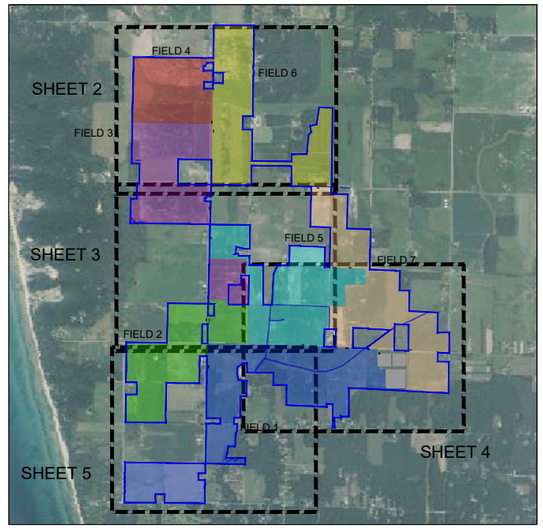
Landcover
- Farmstead
- Gravel Surface
- Pasture/Grassland/Range
- Paved/ Open Ditch
- Row Crop
- Forested

Date: (1/22/2026) Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\State\202601_SWPPP\001_ArcPro\SWPPP_Figures.aprx





STATE MAP
MUSKEGON COUNTY, MI
WHITE RIVER TOWNSHIP



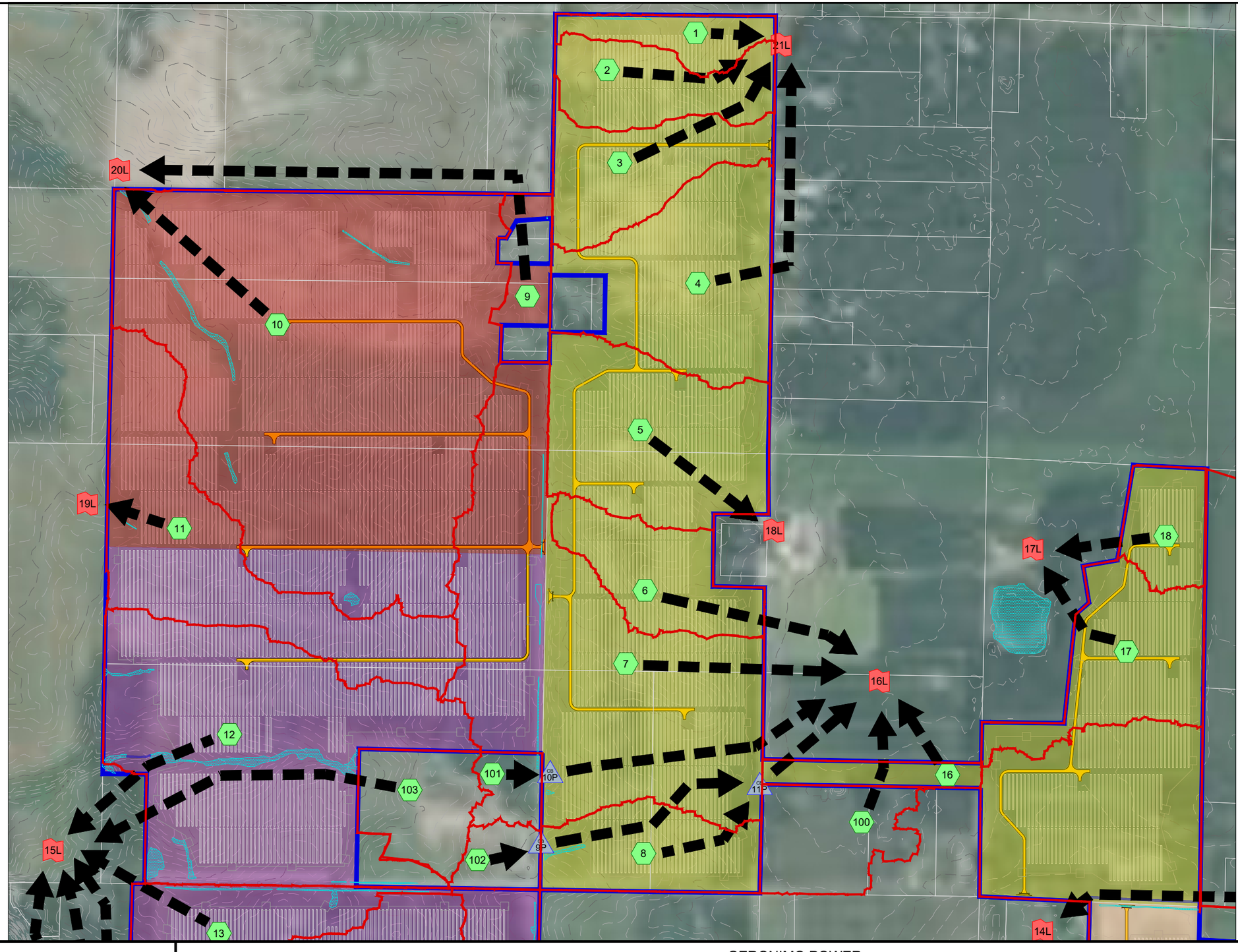
INDEX MAP

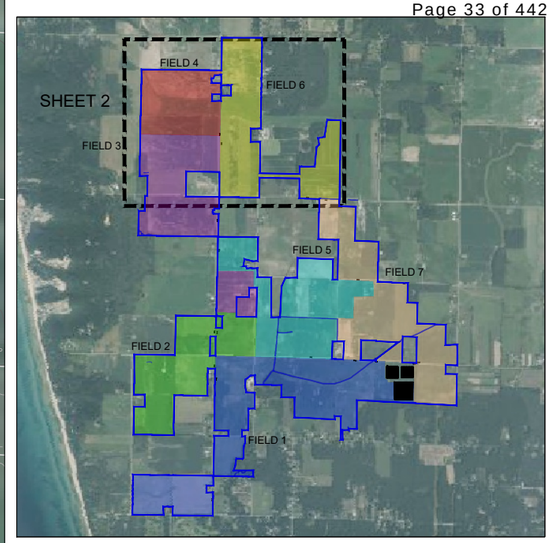


0 2000 4000

GERONIMO POWER
LAKESIDE SOLAR
PROJECT LOCATION MAP

SCALE: 1=3000	BY: JPC	DATE: 01/22/2026	PAGE 1 OF 5





INDEX MAP

LEGEND

- MODELLING CONNECTION
- DRAINAGE AREA
- PROJECT BOUNDARY
- EXISTING WETLANDS
- OUTFALL/LINK NODE
- SUBCATCHMENT/ WATERSHED AREA NODE
- POND/STORAGE NODE
- REACH/CHANNEL/PIPE NODE

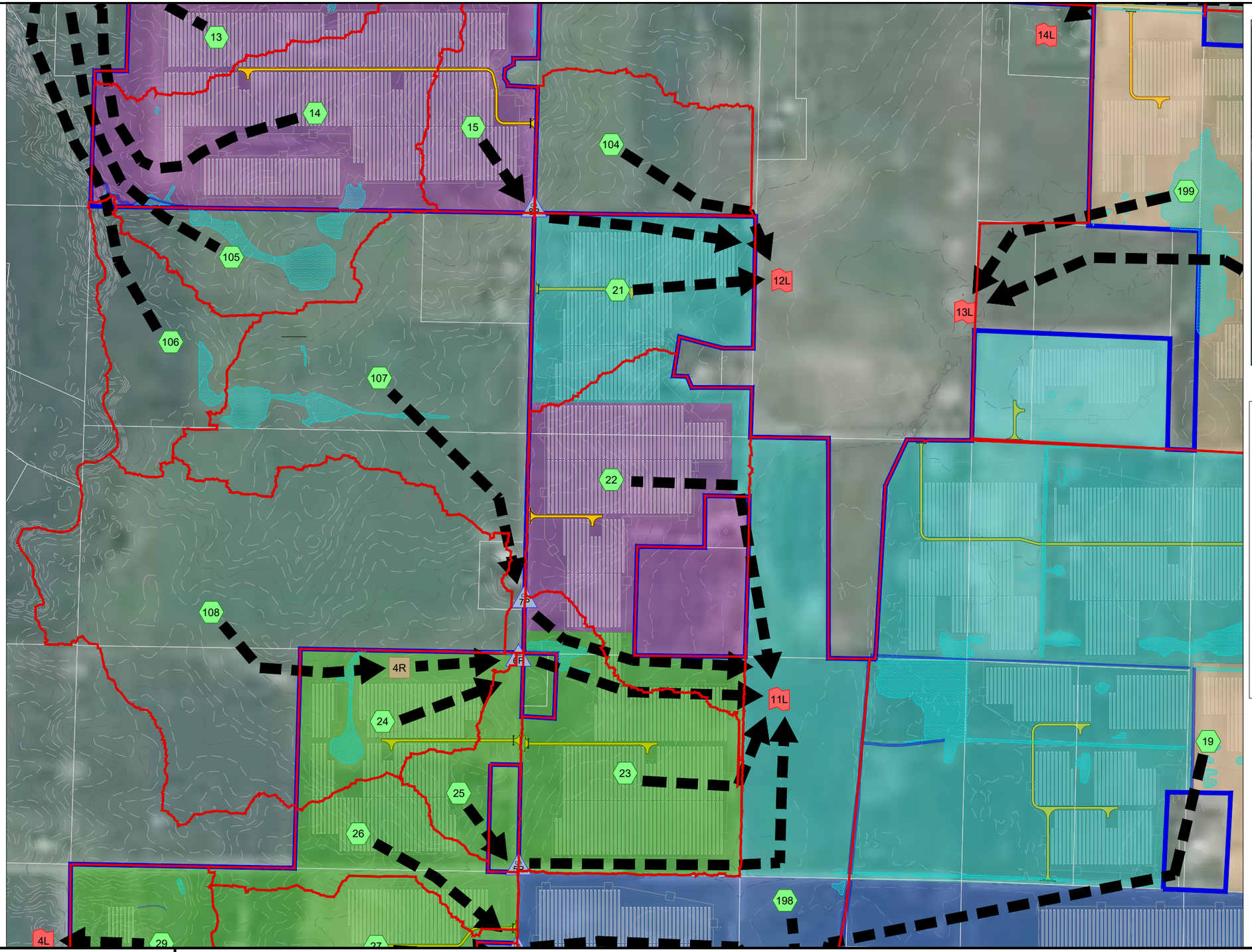
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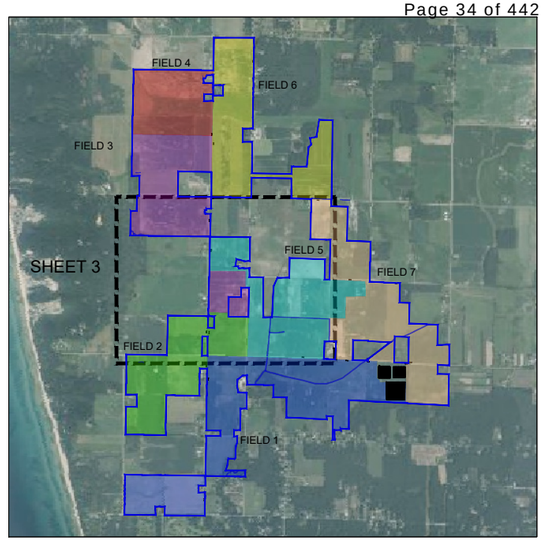
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GERONIMO POWER
LAKESIDE SOLAR

DRAINAGE ROUTING MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 2 OF 5





INDEX MAP

LEGEND

- MODELLING CONNECTION
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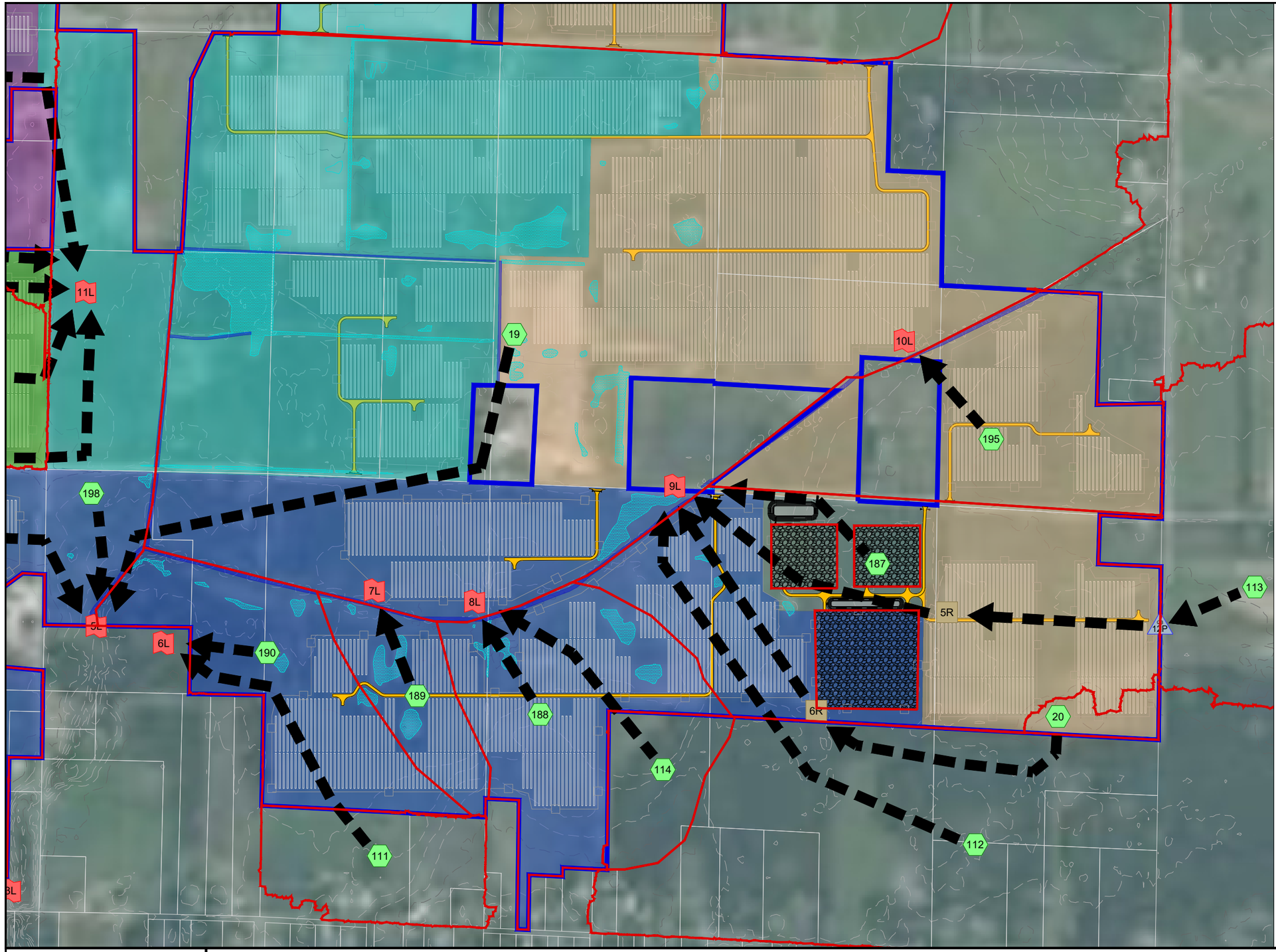
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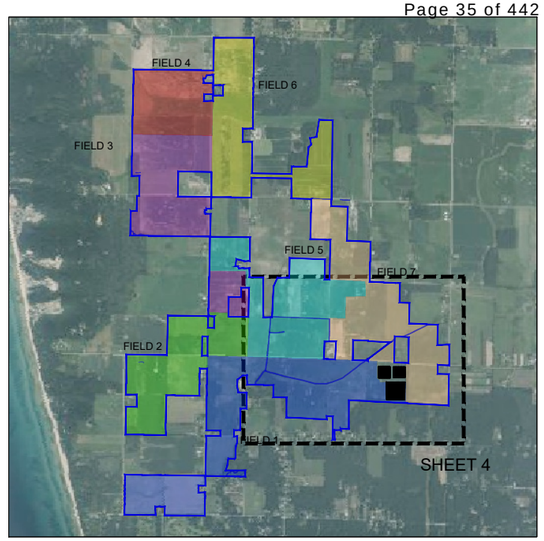
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GERONIMO POWER
LAKESIDE SOLAR

DRAINAGE ROUTING MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 3 OF 5





INDEX MAP

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- REACH/CHANNEL/PIPE NODE

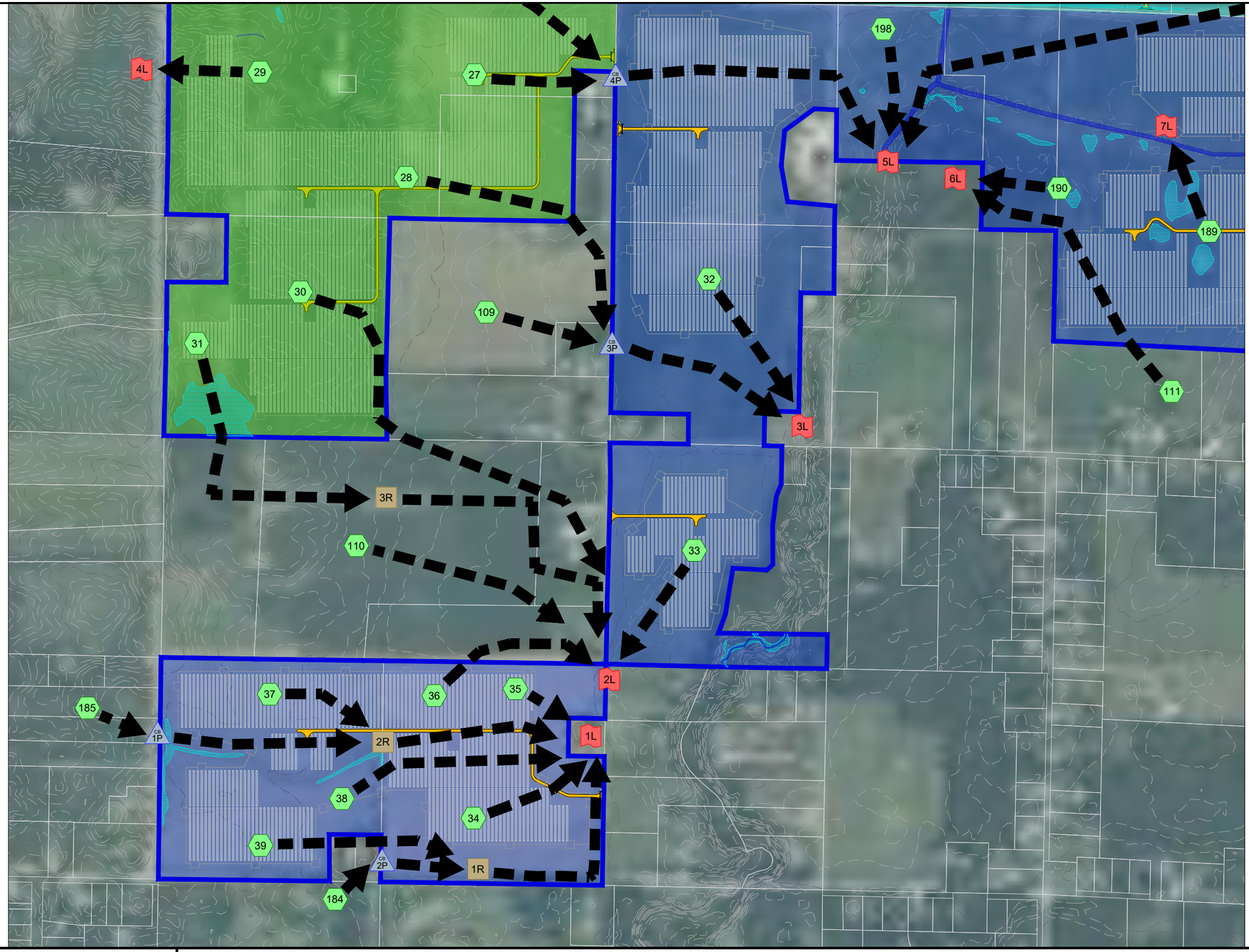
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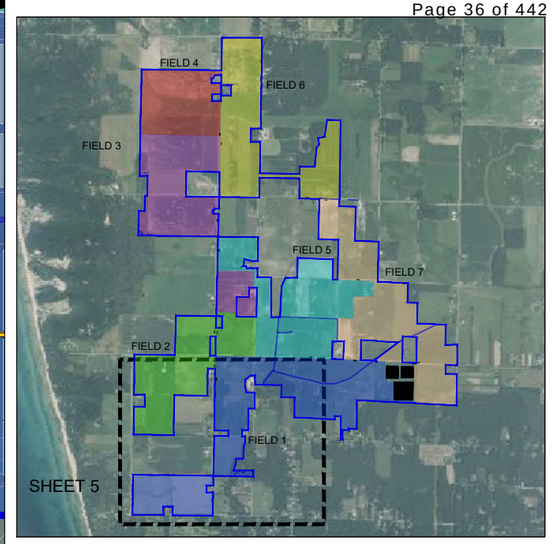
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GERONIMO POWER
LAKESIDE SOLAR

DRAINAGE ROUTING MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 4 OF 5





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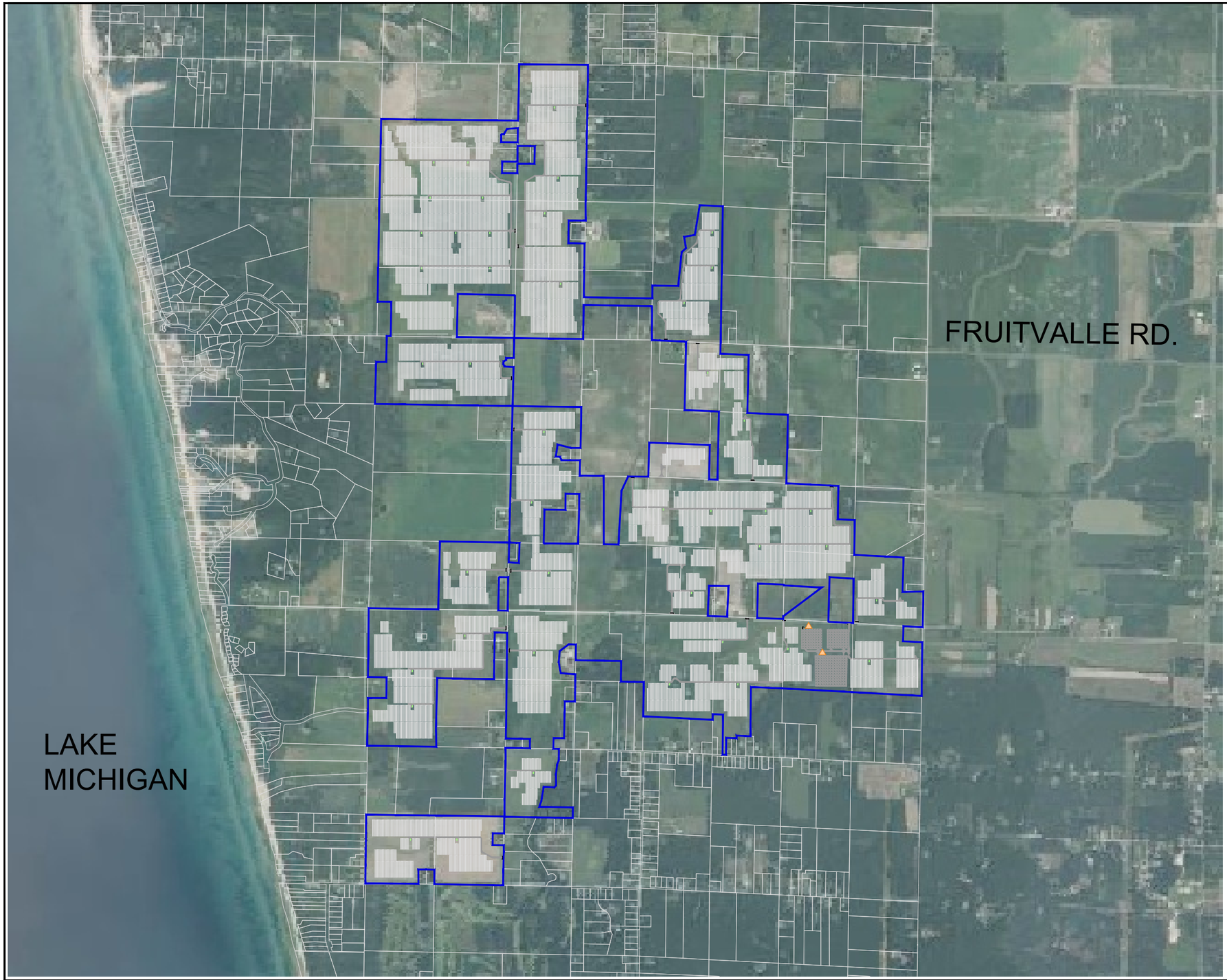
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GERONIMO POWER
LAKESIDE SOLAR

DRAINAGE ROUTING MAP

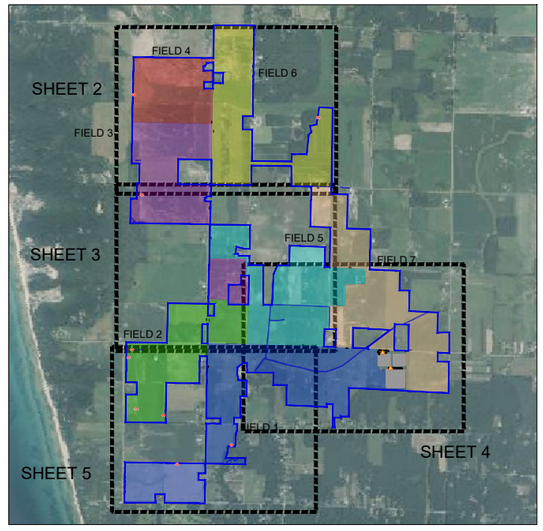
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FIG. 1





STATE MAP
MUSKEGON COUNTY, MI
WHITE RIVER TOWNSHIP



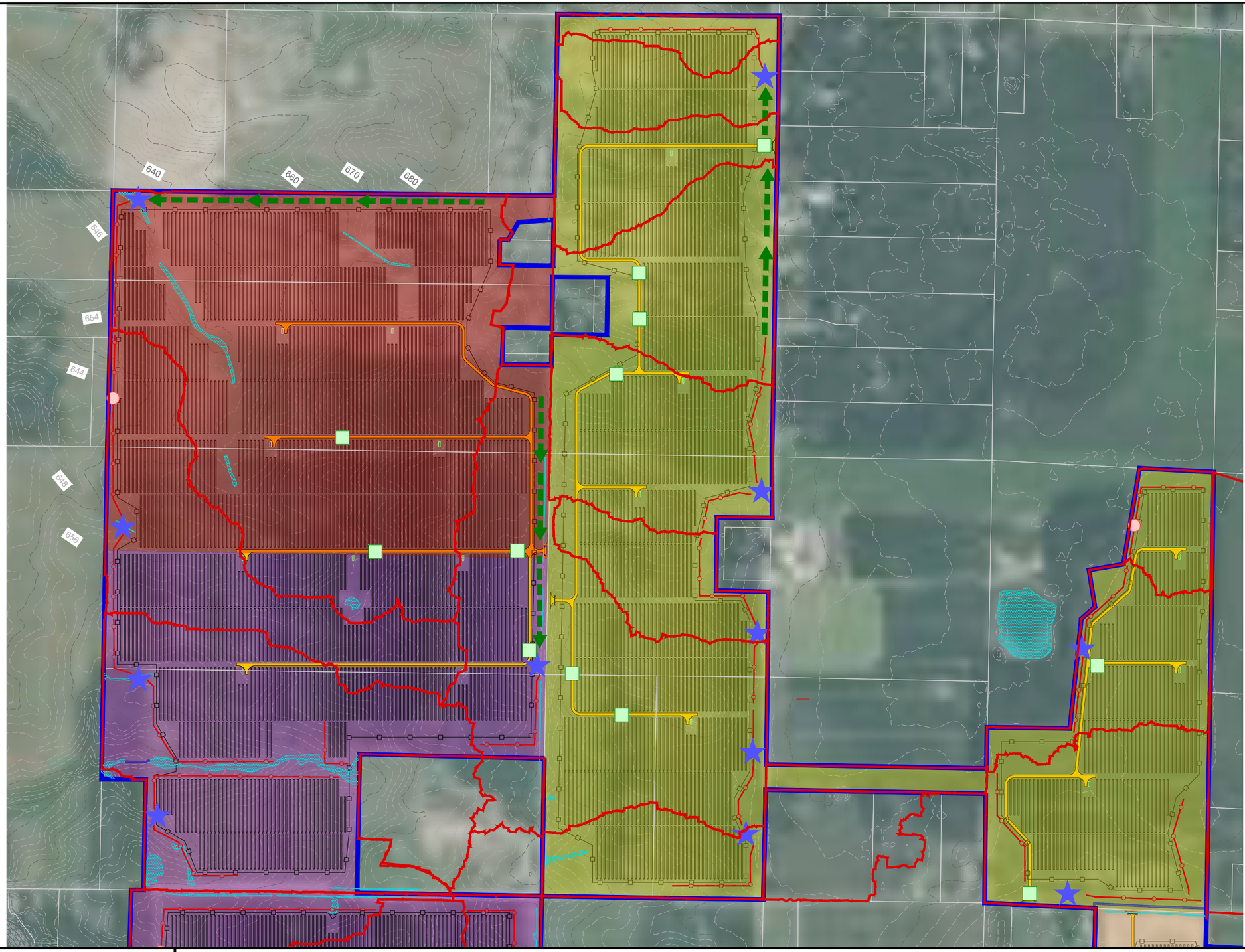
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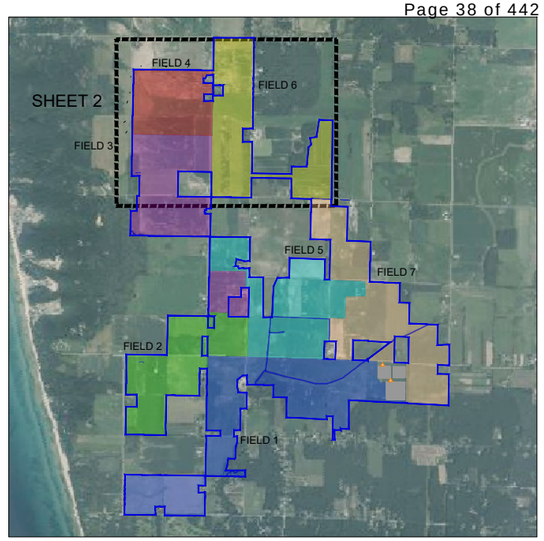


0 2000 4000

GERONIMO POWER
LAKESIDE SOLAR
STORMWATER MITIGATION MAP

SCALE: 1"=3000'	BY: JPC	DATE: 01/22/2026	PAGE 1 OF 5





INDEX MAP

LEGEND

- TEMPORARY SEDIMENT BASIN
- PERMANENT CULVERTS
- EROSION CONTROL OUTLET POINT
- PERMANENT STORMWATER BASIN
- PIERSON DRAIN
- DRAINAGE AREA
- EXISTING WETLANDS
- PROPOSED SOLAR FENCE
- EROSION CONTROL DEVICES
- PERMANENT PROPOSED DITCH/CHANNEL

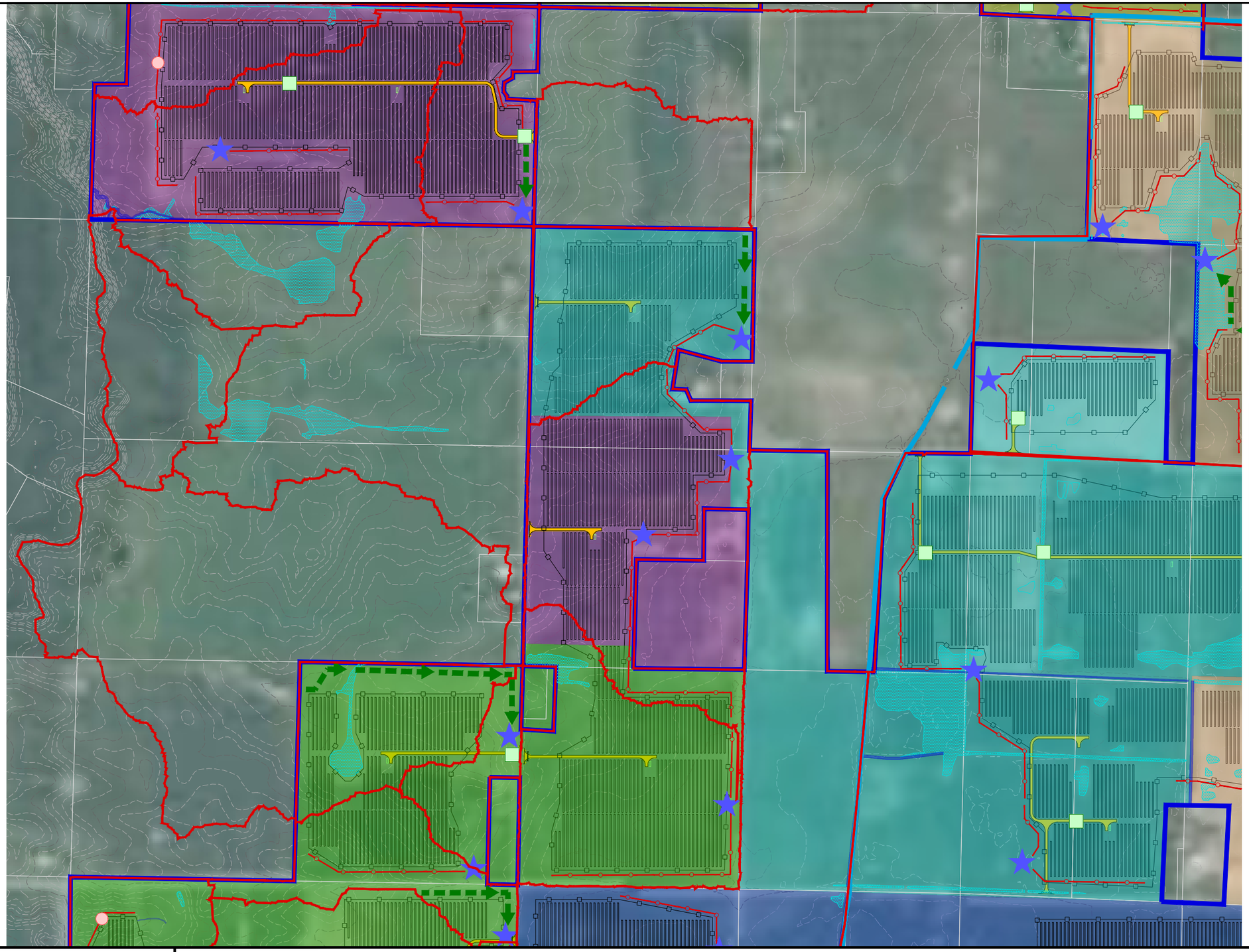
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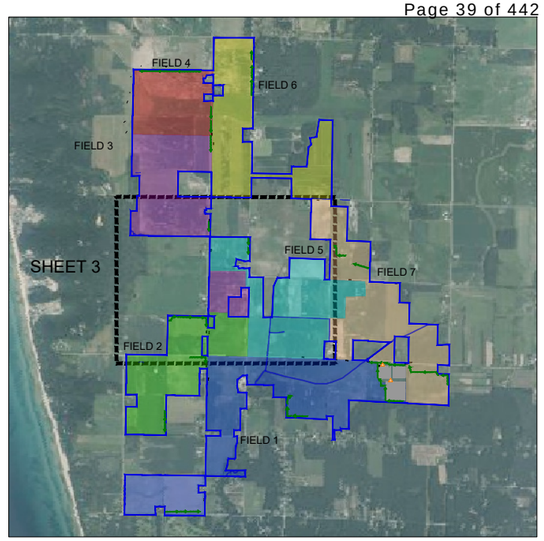
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GERONIMO POWER
LAKESIDE SOLAR

STORMWATER MITIGATION MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 2 OF 5





INDEX MAP

LEGEND

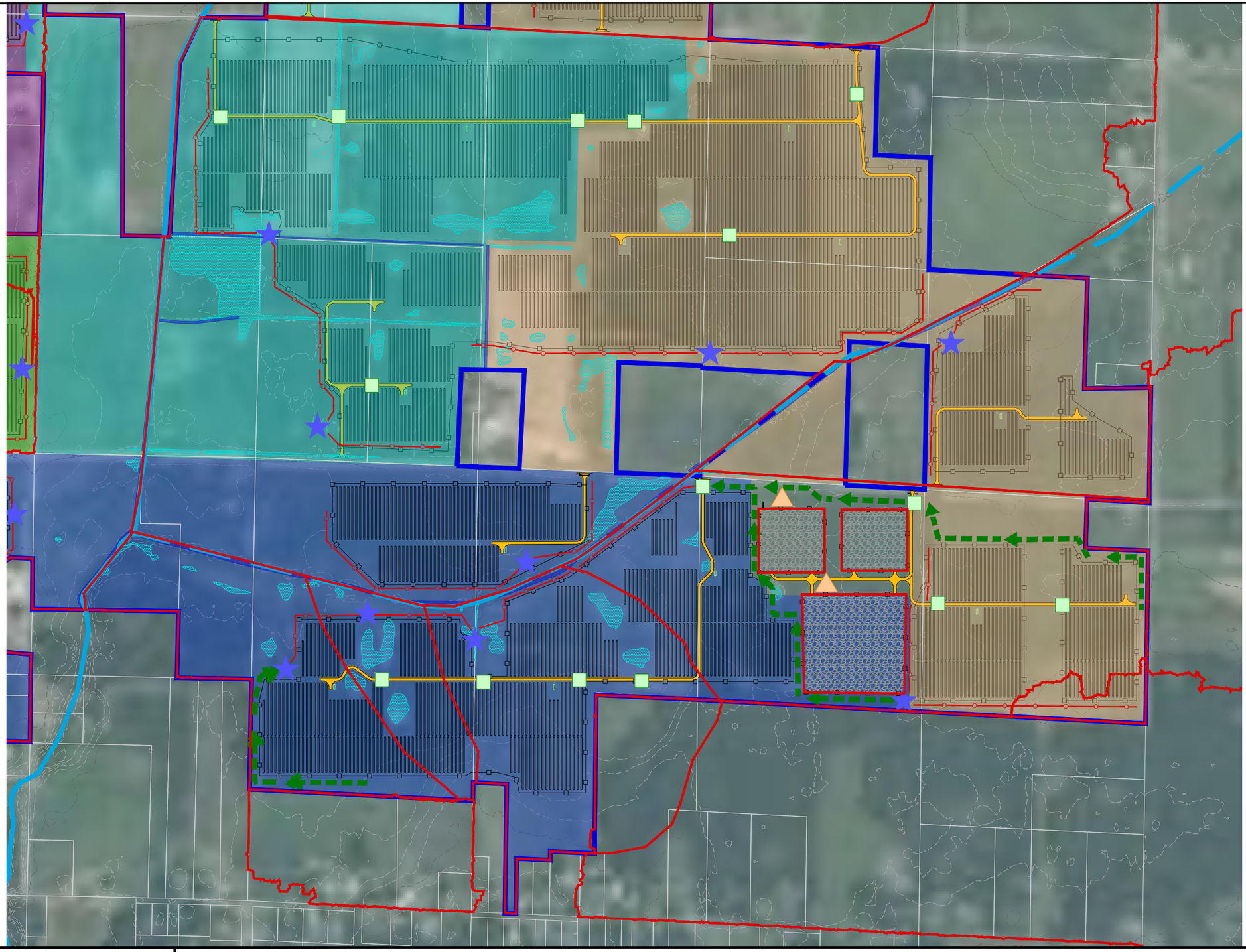
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- PERMANENT CULVERTS
- EROSION CONTROL OUTLET POINT
- PERMANENT STORMWATER BASIN
- PIERSON DRAIN
- DRAINAGE AREA
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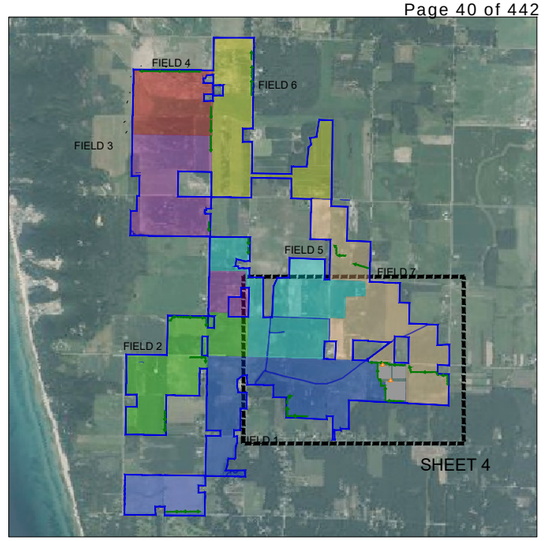
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0 600 1200

GERONIMO POWER
LAKESIDE SOLAR
STORMWATER MITIGATION MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 3 OF 5





INDEX MAP

LEGEND

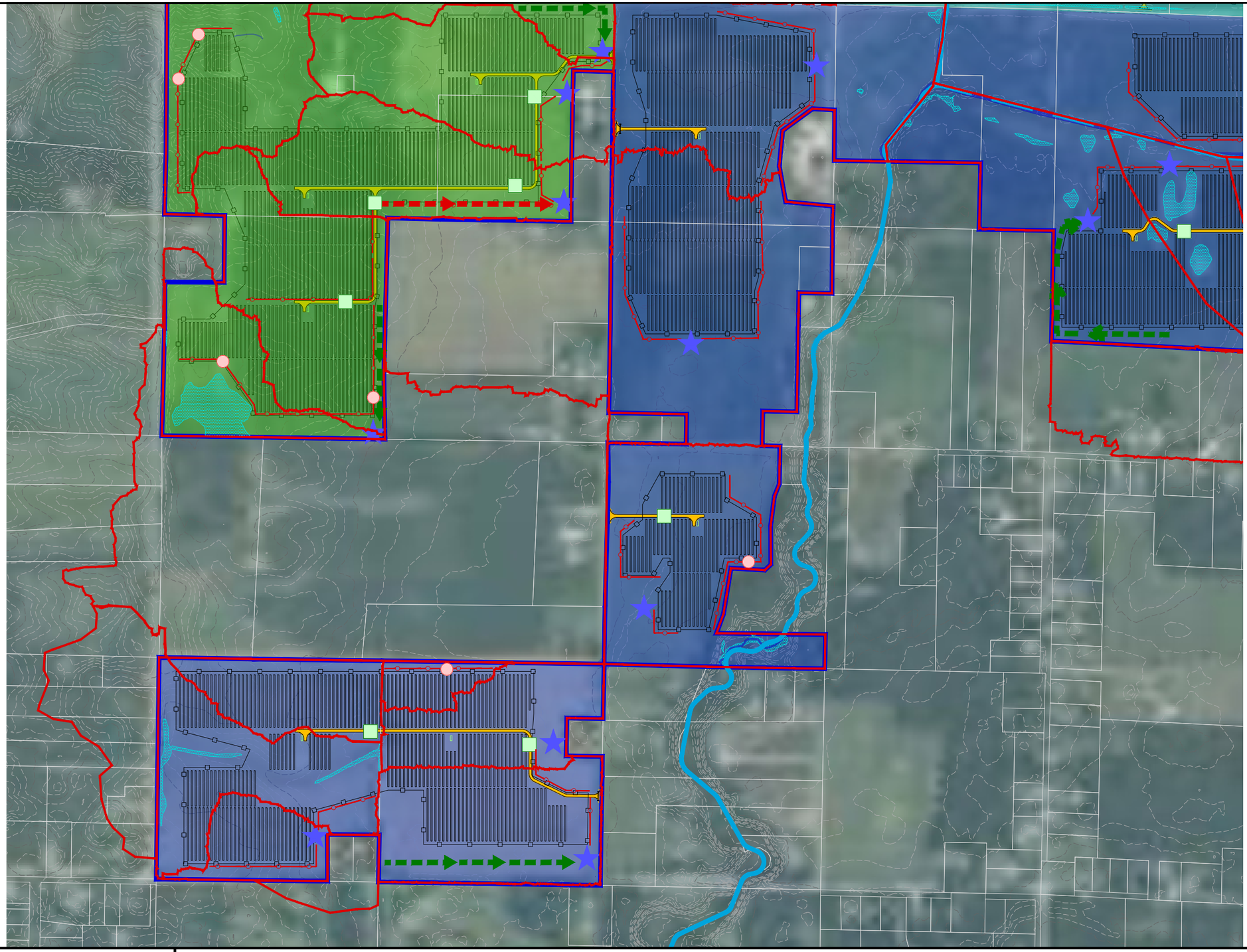
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- PERMANENT CULVERTS
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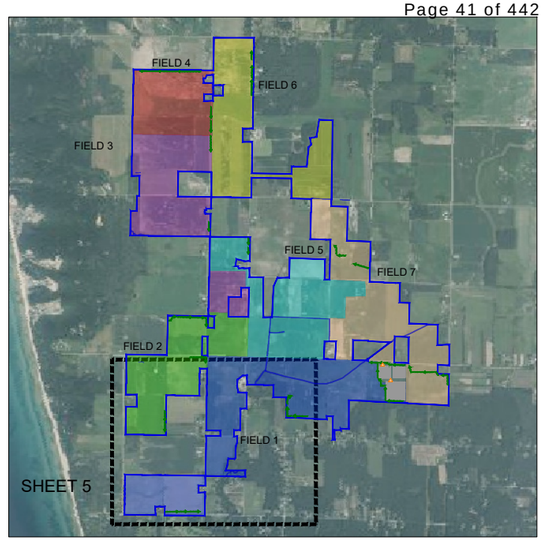
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0 600 1200

GERONIMO POWER
LAKESIDE SOLAR
STORMWATER MITIGATION MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 4 OF 5





INDEX MAP

LEGEND

- TEMPORARY SEDIMENT BASIN
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N

0 600 1200

GERONIMO POWER
LAKESIDE SOLAR

STORMWATER MITIGATION MAP

SCALE: 1=600	BY: JPC	DATE: 01/22/2026	PAGE 5 OF 5

PONDS SHOWN ARE PRELIMINARY DESIGNS. NOT FOR CONSTRUCTION

SUBSTATION POND

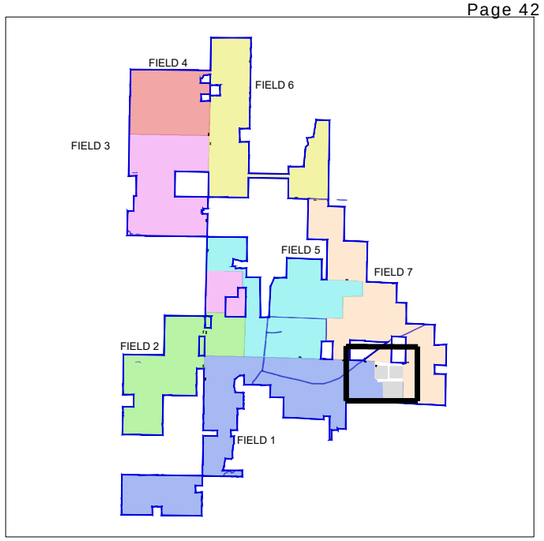
OFFSITE DRAINAGE TO BE ROUTED AROUND BMP

PROPOSED PROJECT SUBSTATION

ITC SUBSTATION

BESS POND

BESS



INDEX MAP

LEGEND

- PROJECT BOUNDARY
- PROPOSED FENCE
- FLOW DIRECTION (OFFSITE) THROUGH SITE
- FLOW DIRECTION FROM SUBSTATION AND BESS PAD
- PROPOSED GRAVEL SURFACE

N

0 200 300

GERONIMO POWER
LAKESIDE SOLAR

PERMANENT STORMWATER MANAGEMENT

SCALE: 1=200	BY: JPC	DATE: 01/22/2026	PAGE 1 OF 1

Appendix B

Results Summary Table

Existing and Proposed Results for All Drainage Areas

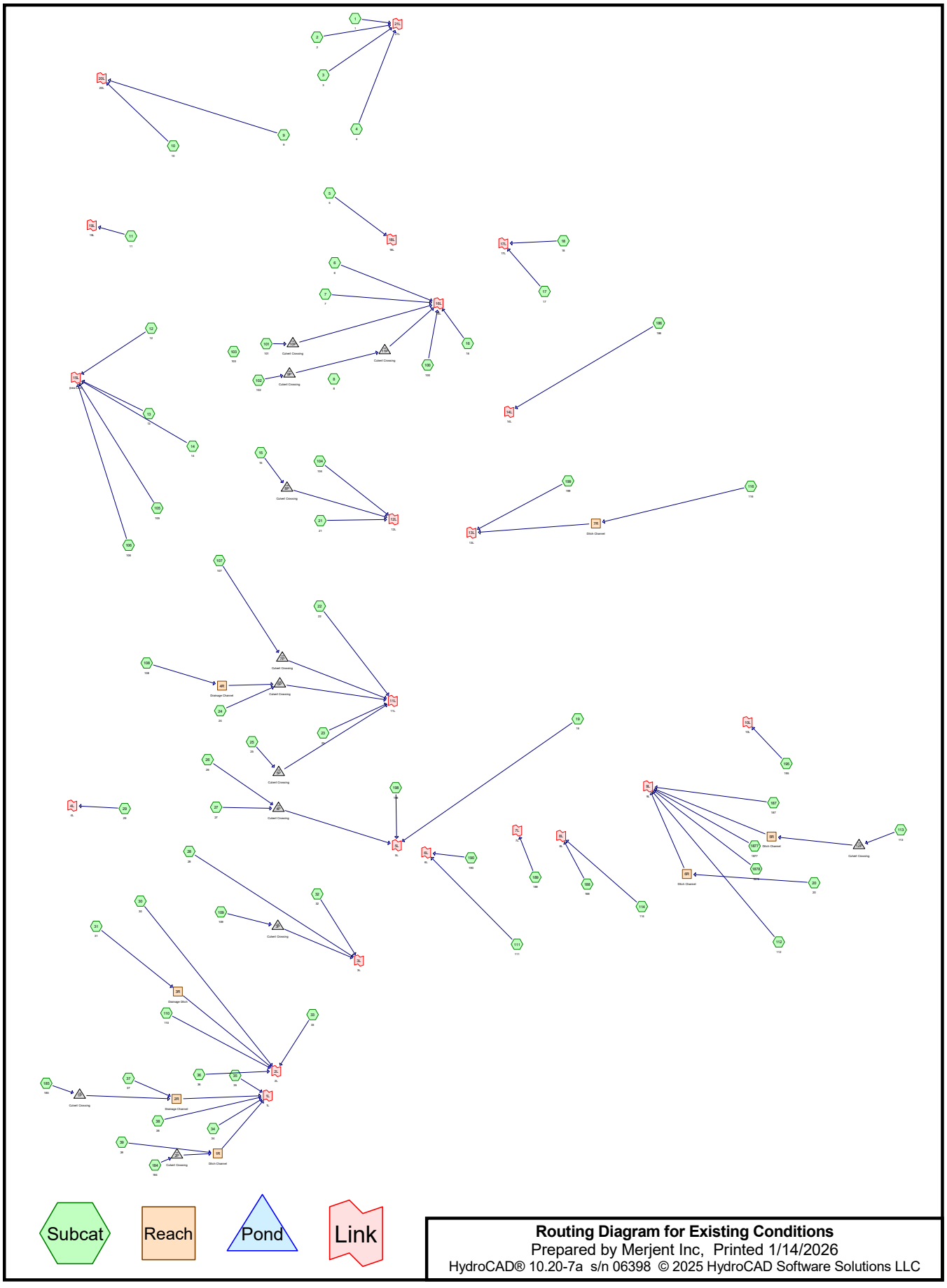
			Curve Number		Runoff (cfs)		
ID	Area (Acres)	Time of Concentration (minutes)	Existing	Proposed	Existing	Proposed	Difference
1	6.42	9	69	64	31.67	26.94	-4.73
2	12.9	13.8	76	68	64.55	51.88	-12.67
3	15.15	12.9	77	72	80.19	70.8	-9.39
4	28.45	28.1	76	71	100.73	88.16	-12.57
5	28.32	20.7	78	73	123.46	109.16	-14.3
6	13.78	24	77	73	54.46	49.24	-5.22
7	62.89	29.8	79	71	231.25	188.61	-42.64
8	13.98	18.4	70	61	52.31	38.27	-14.04
9	6.84	25.7	83	72	29.58	22.9	-6.68
10	105.78	28.8	86	76	453.96	337.13	-116.83
11	34.77	15.8	92	77	216.16	167.76	-48.4
12	57.04	18.6	81	75	278.91	242.89	-36.02
13	15.7	11.5	71	71	74.49	74.49	0
14	43.43	25.8	85	80	194.4	214.43	20.03
15	17.24	15.1	86	73	100.75	76.73	-24.02
16	4.47	8.3	68	68	22.05	22.05	0
17	18.05	19.7	88	81	96.55	85.56	-10.99
18	7.71	18	89	83	43.73	39.74	-3.99
19	359.55	164.6	88	83	518.85	471.13	-47.72
20	4.01	21.8	89	87	20.77	20.18	-0.59
21	27.51	19.4	87	80	146.17	128.8	-17.37
22	39.35	16.6	87	80	225.85	199.29	-26.56
23	36.5	24.9	89	79	176.81	147.8	-29.01
24	18.91	17.7	83	81	43.96	94.57	50.61
25	8.33	17.7	86	80	98.27	39.36	-58.91
26	16.55	21.2	87	75	84.49	66.32	-18.17
27	23.28	17	75	75	103.67	103.67	0
28	22.43	25.7	69	66	68.79	62.26	-6.53
29	19.51	14.1	89	86	123.42	118.18	-5.24
30	26.91	20.5	85	76	134.84	112.1	-22.74
31	14.89	12.5	83	79	90.03	83.27	-6.76
32	41.79	49.2	67	54	82.06	46.7	-35.36
33	29.3	41.8	68	56	65.84	40.37	-25.47
34	21.33	37.8	68	51	50.88	23.25	-27.63
35	13.87	16.6	71	57	56.4	33.62	-22.78
36	3.69	16.1	81	70	19.26	14.74	-4.52
37	10.95	16.2	86	77	62.34	52.34	-10
38	19.74	19.6	87	81	104.43	93.92	-10.51
39	7.49	9.9	85	72	50.9	38.45	-12.45
100	12.28	14.5	60	58	36.05	33.03	-3.02

Existing and Proposed Results for All Drainage Areas

			Curve Number		Runoff (cfs)		
ID	Area (Acres)	Time of Concentration (minutes)	Existing	Proposed	Existing	Proposed	Difference
101	3.83	9.5	83	73	25.51	20.53	-4.98
102	4.21	10.3	83	75	27.16	22.99	-4.17
103	10.35	8.4	82	82	70.99	70.99	0
104	22.58	13.3	67	67	89.6	89.6	0
105	16.8	15.5	87	87	98.68	98.68	0
106	19.63	22.1	75	75	76.78	76.78	0
107	61.37	39.6	86	84	220.05	212.43	-7.62
108	83.21	43.1	86	86	283.67	283.67	0
109	33.52	19.9	55	53	66.71	59.62	-7.09
110	98.59	38.4	77	75	299.55	285.03	-14.52
111	19.48	57.7	88	85	57.51	54.66	-2.85
112	204.259	97.7	69	66	271.32	245.32	-26
113	135.94	41.2	78	76	406.11	387.07	-19.04
114	11.88	62	79	79	28.16	28.16	0
116	148.53	55	86	85	437.43	429.77	-7.66
184	4.17	15.5	85	83	23.74	22.93	-0.81
185	14.89	25.3	80	72	61.02	50.18	-10.84
186	213.63	41.9	76	74	603.33	573.09	-30.24
187	70.8	68.3	80	78	160.99	153.91	-7.08
188	36.33	45.9	89	83	125.08	112.94	-12.14
189	14	30.6	89	82	60.98	54.14	-6.84
190	32.64	40.4	84	81	111.75	105.35	-6.4
195	48.4	43.8	81	76	148.7	132.61	-16.09
198	73.81	32.7	85	78	290.25	251.95	-38.3
199	159.75	67.2	86	82	414.06	383.62	-30.44
1877	6.72	20.7	73	96	25.88	25.29	-0.59
1878	8.24	20.7	88	96	43.21	40.88	-2.33

Appendix C

100-year Existing HydroCAD Report



Routing Diagram for Existing Conditions
Prepared by Merjent Inc, Printed 1/14/2026
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Project Notes

Rainfall events imported from "NRCS2-Rain.txt" for 2713 MI Muskegon
Rainfall events imported from "NRCS2-Rain.txt" for 2713 MI Muskegon

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	MSE 24-hr	4	Default	24.00	1	7.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
47.588	59	Farmsteads, HSG A (100, 109, 110, 112, 186)
4.404	74	Farmsteads, HSG B (195)
77.353	82	Farmsteads, HSG C (4, 5, 9, 12, 31, 101, 102, 103, 107, 108, 113, 116, 185, 195)
92.175	86	Farmsteads, HSG D (9, 12, 19, 31, 102, 103, 107, 111, 112, 113, 116, 185, 186, 195, 199)
61.579	39	Pasture/grassland/range, good, HSG A (1, 2, 3, 4, 5, 6, 7, 8, 27, 28, 104, 109, 110, 113, 186, 199)
14.795	61	Pasture/grassland/range, good, HSG B (28, 109, 113, 187, 1877)
144.886	74	Pasture/grassland/range, good, HSG C (3, 4, 5, 6, 7, 8, 26, 27, 28, 31, 104, 109, 110, 113, 116, 187, 195, 1877, 1878)
274.376	80	Pasture/grassland/range, good, HSG D (1, 2, 3, 4, 5, 6, 7, 24, 25, 26, 27, 28, 104, 109, 110, 112, 113, 116, 186, 187, 195, 199, 1877, 1878)
11.141	83	Paved roads w/open ditches, 50% imp, HSG A (1, 2, 3, 4, 5, 6, 7, 8, 32, 33, 34, 35, 100, 109, 110, 112, 184, 186, 198)
0.227	89	Paved roads w/open ditches, 50% imp, HSG B (39, 113, 195)
42.452	92	Paved roads w/open ditches, 50% imp, HSG C (1, 2, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 21, 22, 23, 26, 101, 102, 107, 110, 116, 186)
39.684	93	Paved roads w/open ditches, 50% imp, HSG D (3, 6, 7, 9, 11, 12, 13, 15, 19, 20, 21, 23, 25, 26, 27, 38, 39, 102, 107, 110, 111, 112, 113, 116, 184, 185, 186, 188, 195, 198, 199)
0.803	0	Paved; open ditches, 50% imp, HSG B (187)
1.168	0	Paved; open ditches, 50% imp, HSG C (187)
1.627	0	Paved; open ditches, 50% imp, HSG D (187)
150.286	67	Row crops, straight row, good, HSG A (1, 5, 8, 14, 16, 17, 32, 33, 34, 35, 36, 38, 109, 110, 184, 186, 198, 199)
32.848	78	Row crops, straight row, good, HSG B (28, 30, 38, 39, 184, 187, 195)
344.301	85	Row crops, straight row, good, HSG C (1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 15, 21, 22, 23, 24, 26, 27, 28, 30, 31, 35, 36, 37, 38, 107, 108, 110, 186, 187, 195)
1,161.163	89	Row crops, straight row, good, HSG D (1, 2, 3, 5, 7, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 37, 38, 39, 105, 106, 107, 108, 110, 111, 114, 116, 184, 185, 186, 187, 188, 189, 190, 195, 198, 199, 1878)
55.836	30	Woods, Good, HSG A (106, 108, 112, 186, 190)
32.780	70	Woods, Good, HSG C (12, 13, 14, 105, 185)
237.138	77	Woods, Good, HSG D (12, 14, 19, 105, 106, 108, 112, 113, 114, 116, 185, 186, 190, 199)
2,828.610	**81**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
326.430	HSG A	1, 2, 3, 4, 5, 6, 7, 8, 14, 16, 17, 27, 28, 32, 33, 34, 35, 36, 38, 100, 104, 106, 108, 109, 110, 112, 113, 184, 186, 190, 198, 199
53.078	HSG B	28, 30, 38, 39, 109, 113, 184, 187, 195, 1877
642.939	HSG C	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 22, 23, 24, 26, 27, 28, 30, 31, 35, 36, 37, 38, 101, 102, 103, 104, 105, 107, 108, 109, 110, 113, 116, 185, 186, 187, 195, 1877, 1878
1,806.163	HSG D	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 37, 38, 39, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 184, 185, 186, 187, 188, 189, 190, 195, 198, 199, 1877, 1878
0.000	Other	
2,828.610		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatch Numbers
47.588	4.404	77.353	92.175	0.000	221.520	Farmsteads	
61.579	14.795	144.886	274.376	0.000	495.636	Pasture/grassland/range, good	
11.141	0.227	42.452	39.684	0.000	93.503	Paved roads w/open ditches, 50% imp	
0.000	0.803	1.168	1.627	0.000	3.599	Paved; open ditches, 50% imp	
150.286	32.848	344.301	1,161.163	0.000	1,688.598	Row crops, straight row, good	
55.836	0.000	32.780	237.138	0.000	325.754	Woods, Good	
326.430	**53.078**	**642.939**	**1,806.163**	**0.000**	**2,828.610**	**TOTAL AREA**	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
2	2P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
3	3P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
4	4P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
5	5P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
6	6P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
7	7P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
8	8P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
9	9P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
10	10P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
11	11P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
12	12P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6.420 ac 1.55% Impervious Runoff Depth>3.32"
Flow Length=1,325' Tc=9.0 min CN=69 Runoff=31.67 cfs 1.776 af

Subcatchment 2: 2 Runoff Area=12.896 ac 1.70% Impervious Runoff Depth>4.04"
Flow Length=1,456' Tc=13.8 min CN=76 Runoff=64.55 cfs 4.343 af

Subcatchment 3: 3 Runoff Area=15.149 ac 2.00% Impervious Runoff Depth>4.15"
Flow Length=1,770' Tc=12.9 min CN=77 Runoff=80.19 cfs 5.237 af

Subcatchment 4: 4 Runoff Area=28.453 ac 2.04% Impervious Runoff Depth>4.02"
Flow Length=2,451' Tc=28.1 min CN=76 Runoff=100.73 cfs 9.539 af

Subcatchment 5: 5 Runoff Area=28.319 ac 1.51% Impervious Runoff Depth>4.25"
Flow Length=1,891' Tc=20.7 min CN=78 Runoff=123.46 cfs 10.019 af

Subcatchment 6: 6 Runoff Area=13.781 ac 0.50% Impervious Runoff Depth>4.13"
Flow Length=1,603' Tc=24.0 min CN=77 Runoff=54.46 cfs 4.748 af

Subcatchment 7: 7 Runoff Area=62.894 ac 2.16% Impervious Runoff Depth>4.34"
Flow Length=3,517' Tc=29.8 min CN=79 Runoff=231.25 cfs 22.752 af

Subcatchment 8: 8 Runoff Area=13.978 ac 3.34% Impervious Runoff Depth>3.41"
Flow Length=1,653' Tc=18.4 min CN=70 Runoff=52.31 cfs 3.974 af

Subcatchment 9: 9 Runoff Area=6.836 ac 5.98% Impervious Runoff Depth>4.78"
Flow Length=1,099' Tc=25.7 min CN=83 Runoff=29.58 cfs 2.724 af

Subcatchment 10: 10 Runoff Area=105.776 ac 0.00% Impervious Runoff Depth>5.11"
Flow Length=3,763' Tc=28.8 min CN=86 Runoff=453.96 cfs 45.052 af

Subcatchment 11: 11 Runoff Area=34.768 ac 50.00% Impervious Runoff Depth>5.80"
Flow Length=2,382' Tc=15.8 min CN=92 Runoff=216.16 cfs 16.794 af

Subcatchment 12: 12 Runoff Area=57.042 ac 5.94% Impervious Runoff Depth>4.57"
Flow Length=2,340' Tc=18.6 min CN=81 Runoff=278.91 cfs 21.735 af

Subcatchment 13: 13 Runoff Area=15.700 ac 0.06% Impervious Runoff Depth>3.52"
Flow Length=1,517' Tc=11.5 min CN=71 Runoff=74.49 cfs 4.608 af

Subcatchment 14: 14 Runoff Area=43.429 ac 0.00% Impervious Runoff Depth>5.00"
Flow Length=2,714' Tc=25.8 min CN=85 Runoff=194.40 cfs 18.108 af

Subcatchment 15: 15 Runoff Area=17.241 ac 3.76% Impervious Runoff Depth>5.13"
Flow Length=1,300' Tc=15.1 min CN=86 Runoff=100.75 cfs 7.370 af

Subcatchment 16: 16 Runoff Area=4.472 ac 0.00% Impervious Runoff Depth>3.22"
Flow Length=508' Tc=8.3 min CN=68 Runoff=22.05 cfs 1.200 af

Subcatchment 17: 17 Runoff Area=18.049 ac 0.00% Impervious Runoff Depth>5.35"
Flow Length=978' Tc=19.7 min CN=88 Runoff=96.55 cfs 8.044 af

Subcatchment 18: 18 Runoff Area=7.706 ac 0.00% Impervious Runoff Depth>5.46"
Flow Length=814' Tc=18.0 min CN=89 Runoff=43.73 cfs 3.508 af

Subcatchment 19: 19 Runoff Area=359.550 ac 0.51% Impervious Runoff Depth>5.09"
Flow Length=8,776' Tc=164.6 min CN=88 Runoff=518.85 cfs 152.618 af

Subcatchment 20: 20 Runoff Area=4.011 ac 1.37% Impervious Runoff Depth>5.46"
Flow Length=599' Tc=21.8 min CN=89 Runoff=20.77 cfs 1.824 af

Subcatchment 21: 21 Runoff Area=27.513 ac 0.32% Impervious Runoff Depth>5.24"
Flow Length=1,589' Tc=19.4 min CN=87 Runoff=146.17 cfs 12.005 af

Subcatchment 22: 22 Runoff Area=39.352 ac 0.36% Impervious Runoff Depth>5.24"
Flow Length=1,626' Tc=16.6 min CN=87 Runoff=225.85 cfs 17.184 af

Subcatchment 23: 23 Runoff Area=36.495 ac 2.27% Impervious Runoff Depth>5.45"
Flow Length=2,056' Tc=24.9 min CN=89 Runoff=176.81 cfs 16.587 af

Subcatchment 24: 24 Runoff Area=18.905 ac 0.00% Impervious Runoff Depth>4.79"
Flow Length=2,052' Tc=17.7 min CN=83 Runoff=98.27 cfs 7.551 af

Subcatchment 25: 25 Runoff Area=8.334 ac 1.93% Impervious Runoff Depth>5.12"
Flow Length=638' Tc=19.0 min CN=86 Runoff=43.96 cfs 3.559 af

Subcatchment 26: 26 Runoff Area=16.551 ac 4.65% Impervious Runoff Depth>5.23"
Flow Length=2,052' Tc=21.2 min CN=87 Runoff=84.49 cfs 7.219 af

Subcatchment 27: 27 Runoff Area=23.277 ac 0.08% Impervious Runoff Depth>3.93"
Flow Length=1,924' Tc=17.0 min CN=75 Runoff=103.67 cfs 7.626 af

Subcatchment 28: 28 Runoff Area=22.431 ac 0.00% Impervious Runoff Depth>3.30"
Flow Length=2,274' Tc=25.7 min CN=69 Runoff=68.79 cfs 6.171 af

Subcatchment 29: 29 Runoff Area=19.508 ac 0.00% Impervious Runoff Depth>5.47"
Flow Length=884' Tc=14.1 min CN=89 Runoff=123.42 cfs 8.889 af

Subcatchment 30: 30 Runoff Area=26.912 ac 0.00% Impervious Runoff Depth>5.01"
Flow Length=2,159' Tc=20.5 min CN=85 Runoff=134.84 cfs 11.238 af

Subcatchment 31: 31 Runoff Area=14.886 ac 0.00% Impervious Runoff Depth>4.80"
Flow Length=1,079' Tc=12.5 min CN=83 Runoff=90.03 cfs 5.954 af

Subcatchment 32: 32 Runoff Area=41.788 ac 0.85% Impervious Runoff Depth>3.07"
Flow Length=2,678' Tc=49.2 min CN=67 Runoff=82.06 cfs 10.700 af

Subcatchment 33: 33 Runoff Area=29.298 ac 1.12% Impervious Runoff Depth>3.18"
Flow Length=1,974' Tc=41.8 min CN=68 Runoff=65.84 cfs 7.767 af

Subcatchment 34: 34 Runoff Area=21.329 ac 2.54% Impervious Runoff Depth>3.19"
Flow Length=2,345' Slope=0.0050 '/' Tc=37.8 min CN=68 Runoff=50.88 cfs 5.663 af

Subcatchment 35: 35 Runoff Area=13.870 ac 0.89% Impervious Runoff Depth>3.52"
Flow Length=1,290' Slope=0.0050 '/' Tc=16.6 min CN=71 Runoff=56.40 cfs 4.064 af

Subcatchment 36: 36 Runoff Area=3.694 ac 0.00% Impervious Runoff Depth>4.58"
Flow Length=534' Tc=16.1 min CN=81 Runoff=19.26 cfs 1.409 af

Subcatchment 37: 37 Runoff Area=10.949 ac 0.00% Impervious Runoff Depth>5.13"
Flow Length=1,588' Tc=16.2 min CN=86 Runoff=62.34 cfs 4.679 af

Subcatchment 38: 38 Runoff Area=19.742 ac 0.03% Impervious Runoff Depth>5.24"
Flow Length=2,023' Tc=19.6 min CN=87 Runoff=104.43 cfs 8.614 af

Subcatchment 39: 39 Runoff Area=7.485 ac 2.63% Impervious Runoff Depth>5.02"
Flow Length=717' Tc=9.9 min CN=85 Runoff=50.90 cfs 3.135 af

Subcatchment 100: 100 Runoff Area=12.284 ac 1.14% Impervious Runoff Depth>2.43"
Flow Length=908' Tc=14.5 min CN=60 Runoff=36.05 cfs 2.489 af

Subcatchment 101: 101 Runoff Area=3.826 ac 5.63% Impervious Runoff Depth>4.80"
Flow Length=700' Tc=9.5 min CN=83 Runoff=25.51 cfs 1.532 af

Subcatchment 102: 102 Runoff Area=4.212 ac 4.47% Impervious Runoff Depth>4.80"
Flow Length=644' Tc=10.3 min CN=83 Runoff=27.16 cfs 1.686 af

Subcatchment 103: 103 Runoff Area=10.346 ac 0.00% Impervious Runoff Depth>4.70"
Flow Length=922' Tc=8.4 min CN=82 Runoff=70.99 cfs 4.048 af

Subcatchment 104: 104 Runoff Area=22.579 ac 0.00% Impervious Runoff Depth>3.11"
Flow Length=1,782' Tc=13.3 min CN=67 Runoff=89.60 cfs 5.860 af

Subcatchment 105: 105 Runoff Area=16.804 ac 0.00% Impervious Runoff Depth>5.24"
Flow Length=1,183' Tc=15.5 min CN=87 Runoff=98.68 cfs 7.340 af

Subcatchment 106: 106 Runoff Area=19.632 ac 0.00% Impervious Runoff Depth>3.93"
Flow Length=1,831' Tc=22.1 min CN=75 Runoff=76.78 cfs 6.422 af

Subcatchment 107: 107 Runoff Area=61.367 ac 1.42% Impervious Runoff Depth>5.10"
Flow Length=3,278' Tc=39.6 min CN=86 Runoff=220.05 cfs 26.058 af

Subcatchment 108: 108 Runoff Area=83.209 ac 0.00% Impervious Runoff Depth>5.09"
Flow Length=2,176' Tc=43.1 min CN=86 Runoff=283.67 cfs 35.298 af

Subcatchment 109: 109 Runoff Area=33.516 ac 1.44% Impervious Runoff Depth>1.97"
Flow Length=1,589' Tc=19.9 min CN=55 Runoff=66.71 cfs 5.489 af

Subcatchment 110: 110 Runoff Area=98.589 ac 1.37% Impervious Runoff Depth>4.12"
Flow Length=4,703' Tc=38.4 min CN=77 Runoff=299.55 cfs 33.812 af

Subcatchment 111: 111 Runoff Area=19.482 ac 1.64% Impervious Runoff Depth>5.29"
Flow Length=1,485' Tc=57.7 min CN=88 Runoff=57.51 cfs 8.594 af

Subcatchment 112: 112 Runoff Area=204.259 ac 2.08% Impervious Runoff Depth>3.21"
Flow Length=6,748' Tc=97.7 min CN=69 Runoff=271.32 cfs 54.605 af

Subcatchment 113: 113 Runoff Area=135.938 ac 1.40% Impervious Runoff Depth>4.22"
Flow Length=4,754' Tc=41.2 min CN=78 Runoff=406.11 cfs 47.786 af

Subcatchment 114: 114 Runoff Area=11.883 ac 0.00% Impervious Runoff Depth>4.30"
Flow Length=978' Tc=62.0 min CN=79 Runoff=28.16 cfs 4.254 af

Subcatchment 116: 116 Runoff Area=148.528 ac 0.81% Impervious Runoff Depth>5.07"
Flow Length=4,303' Tc=55.0 min CN=86 Runoff=437.43 cfs 62.789 af

Subcatchment 184: 184 Runoff Area=4.172 ac 1.42% Impervious Runoff Depth>5.02"
Flow Length=620' Tc=15.5 min CN=85 Runoff=23.74 cfs 1.744 af

Subcatchment 185: 185 Runoff Area=14.888 ac 4.21% Impervious Runoff Depth>4.45"
Flow Length=1,171' Tc=25.3 min CN=80 Runoff=61.02 cfs 5.527 af

Subcatchment 186: 186 Runoff Area=213.626 ac 1.19% Impervious Runoff Depth>4.00"
Flow Length=6,029' Tc=41.9 min CN=76 Runoff=603.33 cfs 71.295 af

Subcatchment 187: 187 Runoff Area=70.803 ac 2.54% Impervious Runoff Depth>4.39"
Flow Length=3,564' Tc=68.3 min CN=80 Runoff=160.99 cfs 25.927 af

Subcatchment 188: 188 Runoff Area=36.332 ac 0.06% Impervious Runoff Depth>5.42"
Flow Length=2,269' Tc=45.9 min CN=89 Runoff=125.08 cfs 16.422 af

Subcatchment 189: 189 Runoff Area=13.995 ac 0.00% Impervious Runoff Depth>5.45"
Flow Length=1,604' Tc=30.6 min CN=89 Runoff=60.98 cfs 6.351 af

Subcatchment 190: 190 Runoff Area=32.643 ac 0.00% Impervious Runoff Depth>4.87"
Flow Length=2,312' Tc=40.4 min CN=84 Runoff=111.75 cfs 13.253 af

Subcatchment 195: 195 Runoff Area=48.402 ac 0.21% Impervious Runoff Depth>4.54"
Flow Length=1,905' Tc=43.8 min CN=81 Runoff=148.70 cfs 18.305 af

Subcatchment 198: 198 Runoff Area=73.809 ac 1.30% Impervious Runoff Depth>4.99"
Flow Length=2,214' Tc=32.7 min CN=85 Runoff=290.25 cfs 30.716 af

Subcatchment 199: 199 Runoff Area=159.747 ac 0.44% Impervious Runoff Depth>5.05"
Flow Length=3,713' Slope=0.0050 '/' Tc=67.2 min CN=86 Runoff=414.06 cfs 67.282 af

Subcatchment 1877: 1877 Runoff Area=6.715 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=600' Slope=0.0100 '/' Tc=20.7 min CN=73 Runoff=25.88 cfs 2.080 af

Subcatchment 1878: 1878 Runoff Area=8.235 ac 0.00% Impervious Runoff Depth>5.35"
Flow Length=600' Slope=0.0100 '/' Tc=20.7 min CN=88 Runoff=43.21 cfs 3.669 af

Reach 1R: Ditch Channel Avg. Flow Depth=1.19' Max Vel=3.57 fps Inflow=72.34 cfs 4.879 af
n=0.025 L=2,500.0' S=0.0050 '/' Capacity=393.51 cfs Outflow=53.59 cfs 4.822 af

Reach 2R: Drainage Channel Avg. Flow Depth=1.58' Max Vel=4.31 fps Inflow=116.15 cfs 10.206 af
n=0.025 L=2,679.0' S=0.0050 '/' Capacity=393.43 cfs Outflow=99.12 cfs 10.101 af

Reach 3R: Drainage Ditch Avg. Flow Depth=1.25' Max Vel=3.69 fps Inflow=90.03 cfs 5.954 af
n=0.025 L=3,554.0' S=0.0050 '/' Capacity=393.51 cfs Outflow=59.83 cfs 5.858 af

Reach 4R: Drainage Channel Avg. Flow Depth=2.53' Max Vel=5.87 fps Inflow=283.67 cfs 35.298 af
n=0.025 L=2,665.0' S=0.0050 '/' Capacity=393.58 cfs Outflow=272.77 cfs 35.052 af

Reach 5R: Ditch Channel Avg. Flow Depth=2.97' Max Vel=6.51 fps Inflow=406.11 cfs 47.786 af
n=0.025 L=3,385.0' S=0.0050 '/' Capacity=393.57 cfs Outflow=384.69 cfs 47.365 af

Reach 6R: Ditch Channel Avg. Flow Depth=0.71' Max Vel=2.53 fps Inflow=20.77 cfs 1.824 af
n=0.025 L=1,685.0' S=0.0050 '/' Capacity=393.62 cfs Outflow=17.48 cfs 1.806 af

Reach 7R: Ditch Channel Avg. Flow Depth=3.11' Max Vel=6.70 fps Inflow=437.43 cfs 62.789 af
n=0.025 L=3,423.0' S=0.0050 '/' Capacity=393.56 cfs Outflow=423.10 cfs 62.307 af

Pond 1P: Culvert Crossing Peak Elev=30.35' Inflow=61.02 cfs 5.527 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=61.02 cfs 5.527 af

Pond 2P: Culvert Crossing Peak Elev=6.01' Inflow=23.74 cfs 1.744 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=23.74 cfs 1.744 af

Pond 3P: Culvert Crossing Peak Elev=35.92' Inflow=66.71 cfs 5.489 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=66.71 cfs 5.489 af

Pond 4P: Culvert Crossing Peak Elev=267.25' Inflow=185.77 cfs 14.844 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=185.77 cfs 14.844 af

Pond 5P: Culvert Crossing Peak Elev=16.55' Inflow=43.96 cfs 3.559 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=43.96 cfs 3.559 af

Pond 6P: Culvert Crossing Peak Elev=706.85' Inflow=302.57 cfs 42.603 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=302.57 cfs 42.603 af

Pond 7P: Culvert Crossing Peak Elev=374.65' Inflow=220.05 cfs 26.058 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=220.05 cfs 26.058 af

Pond 8P: Culvert Crossing Peak Elev=79.75' Inflow=100.75 cfs 7.370 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=100.75 cfs 7.370 af

Pond 9P: Culvert Crossing Peak Elev=12.46' Inflow=27.16 cfs 1.686 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=27.16 cfs 1.686 af

Pond 10P: Culvert Crossing Peak Elev=6.66' Inflow=25.51 cfs 1.532 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=25.51 cfs 1.532 af

Pond 11P: Culvert Crossing Peak Elev=7.32' Inflow=27.16 cfs 1.686 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=27.16 cfs 1.686 af

Pond 12P: Culvert Crossing Peak Elev=1,273.13' Inflow=406.11 cfs 47.786 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=406.11 cfs 47.786 af

Link 1L: 1L Inflow=333.64 cfs 33.264 af
Primary=333.64 cfs 33.264 af

Link 2L: 2L Inflow=507.64 cfs 60.083 af
Primary=507.64 cfs 60.083 af

Link 3L: 3L Inflow=182.11 cfs 22.360 af
Primary=182.11 cfs 22.360 af

Link 4L: 4L Inflow=123.42 cfs 8.889 af
Primary=123.42 cfs 8.889 af

Link 5L: 5L Inflow=553.92 cfs 198.179 af
Primary=553.92 cfs 198.179 af

Link 6L: 6L Inflow=163.04 cfs 21.847 af
Primary=163.04 cfs 21.847 af

Link 7L: 7L Inflow=60.98 cfs 6.351 af
Primary=60.98 cfs 6.351 af

Link 8L: 8L Inflow=149.73 cfs 20.676 af
Primary=149.73 cfs 20.676 af

Link 9L: 9L Inflow=722.62 cfs 135.453 af
Primary=722.62 cfs 135.453 af

Link 10L: 10L Inflow=148.70 cfs 18.305 af
Primary=148.70 cfs 18.305 af

Link 11L: 11L Inflow=809.98 cfs 105.991 af
Primary=809.98 cfs 105.991 af

Link 12L: 12L Inflow=330.07 cfs 25.235 af
Primary=330.07 cfs 25.235 af

Link 13L: 13L Inflow=835.39 cfs 129.589 af
Primary=835.39 cfs 129.589 af

Link 14L: 14L Inflow=603.33 cfs 71.295 af
Primary=603.33 cfs 71.295 af

Link 15L: (new Link) Inflow=681.07 cfs 58.213 af
Primary=681.07 cfs 58.213 af

Link 16L: 16L Inflow=334.09 cfs 34.406 af
Primary=334.09 cfs 34.406 af

Link 17L: 17L Inflow=139.81 cfs 11.552 af
Primary=139.81 cfs 11.552 af

Link 18L: 18L Inflow=123.46 cfs 10.019 af
Primary=123.46 cfs 10.019 af

Link 19L: 19L Inflow=216.16 cfs 16.794 af
Primary=216.16 cfs 16.794 af

Link 20L: 20L Inflow=483.07 cfs 47.776 af
Primary=483.07 cfs 47.776 af

Link 21L: 21L Inflow=237.86 cfs 20.895 af
Primary=237.86 cfs 20.895 af

Total Runoff Area = 2,828.610 ac Runoff Volume = 1,066.621 af Average Runoff Depth = 4.52"
98.28% Pervious = 2,780.059 ac 1.72% Impervious = 48.551 ac

Summary for Subcatchment 1: 1

[47] Hint: Peak is 107% of capacity of segment #3

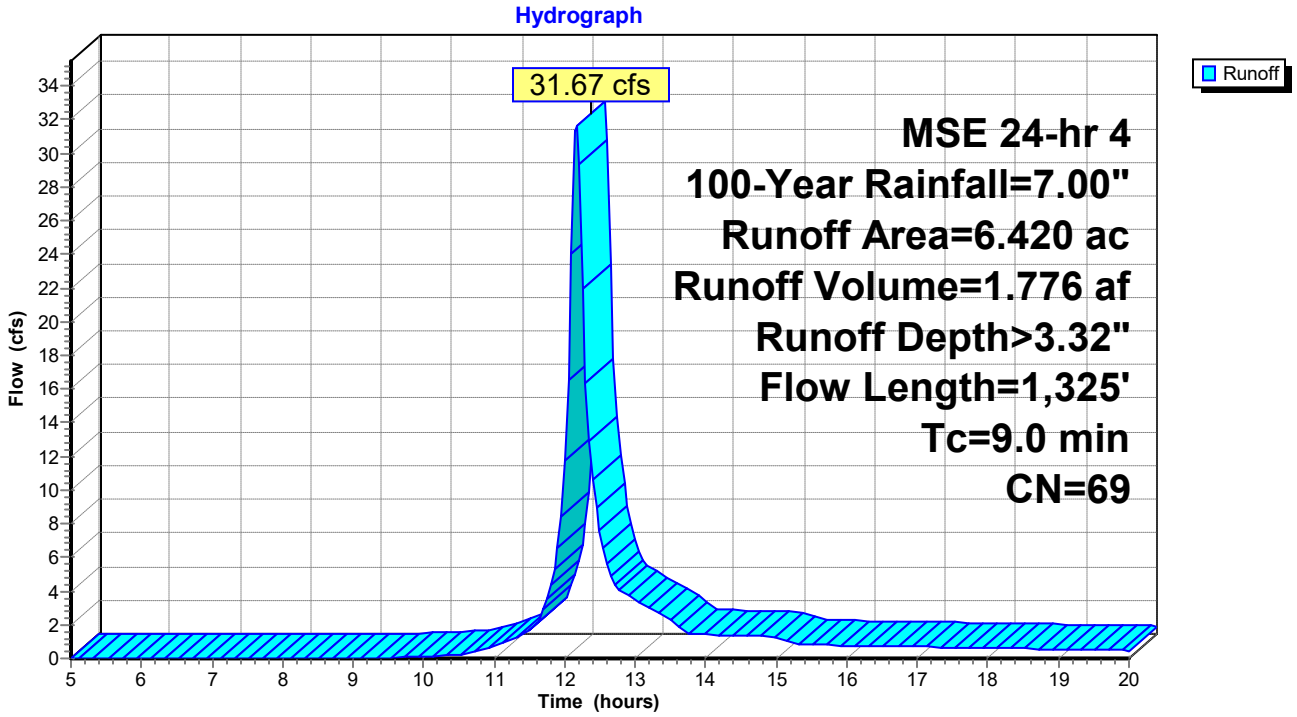
Runoff = 31.67 cfs @ 12.16 hrs, Volume= 1.776 af, Depth> 3.32"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.886	89	Row crops, straight row, good, HSG D
0.023	67	Row crops, straight row, good, HSG A
1.240	85	Row crops, straight row, good, HSG C
0.077	92	Paved roads w/open ditches, 50% imp, HSG C
0.123	83	Paved roads w/open ditches, 50% imp, HSG A
0.724	80	Pasture/grassland/range, good, HSG D
2.347	39	Pasture/grassland/range, good, HSG A
6.420	69	Weighted Average
6.320		98.45% Pervious Area
0.100		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0170	0.32		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
0.9	183	0.0434	3.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.9	1,042	0.0249	5.91	29.54	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
9.0	1,325	Total			

Subcatchment 1: 1



Summary for Subcatchment 2: 2

[47] Hint: Peak is 223% of capacity of segment #3

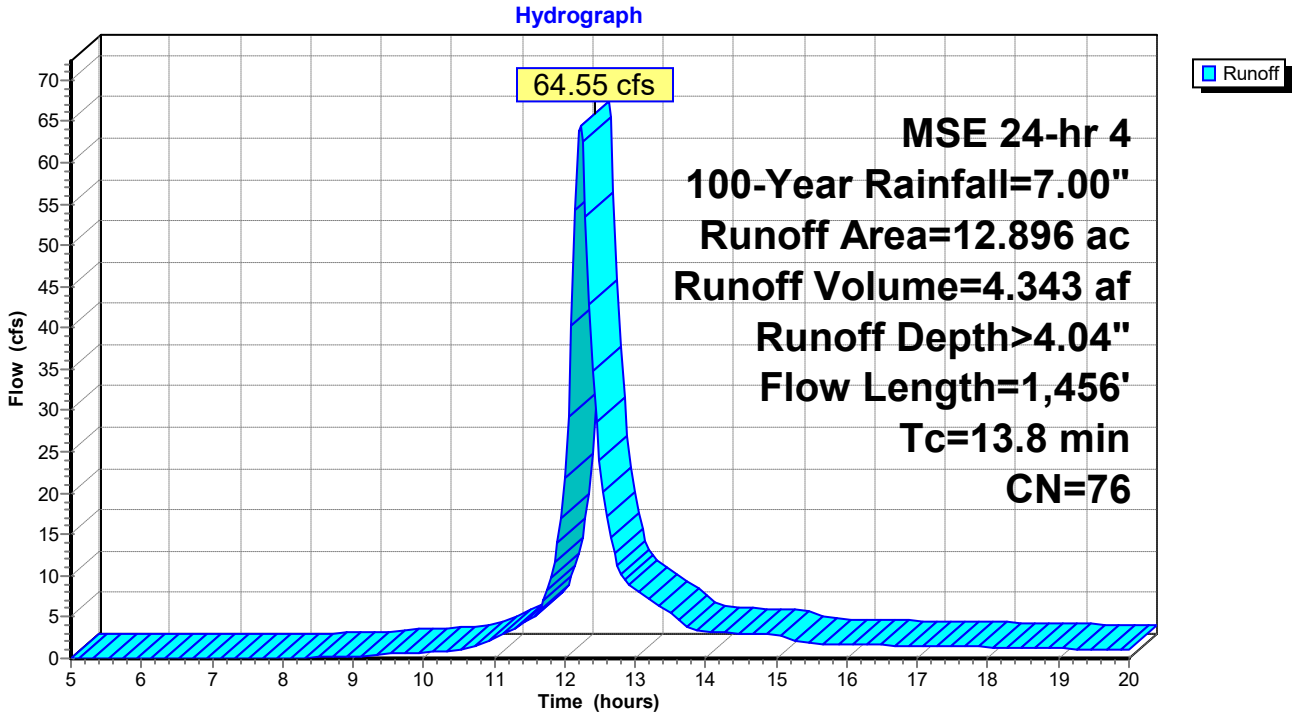
Runoff = 64.55 cfs @ 12.22 hrs, Volume= 4.343 af, Depth> 4.04"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
5.627	89	Row crops, straight row, good, HSG D
3.125	85	Row crops, straight row, good, HSG C
0.081	92	Paved roads w/open ditches, 50% imp, HSG C
0.358	83	Paved roads w/open ditches, 50% imp, HSG A
0.803	80	Pasture/grassland/range, good, HSG D
2.902	39	Pasture/grassland/range, good, HSG A
0.000	83	Paved roads w/open ditches, 50% imp, HSG A
12.896	76	Weighted Average
12.677		98.30% Pervious Area
0.220		1.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.7	437	0.0291	2.75		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.6	919	0.0239	5.79	28.94	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
13.8	1,456	Total			

Subcatchment 2: 2



Summary for Subcatchment 3: 3

[47] Hint: Peak is 333% of capacity of segment #3

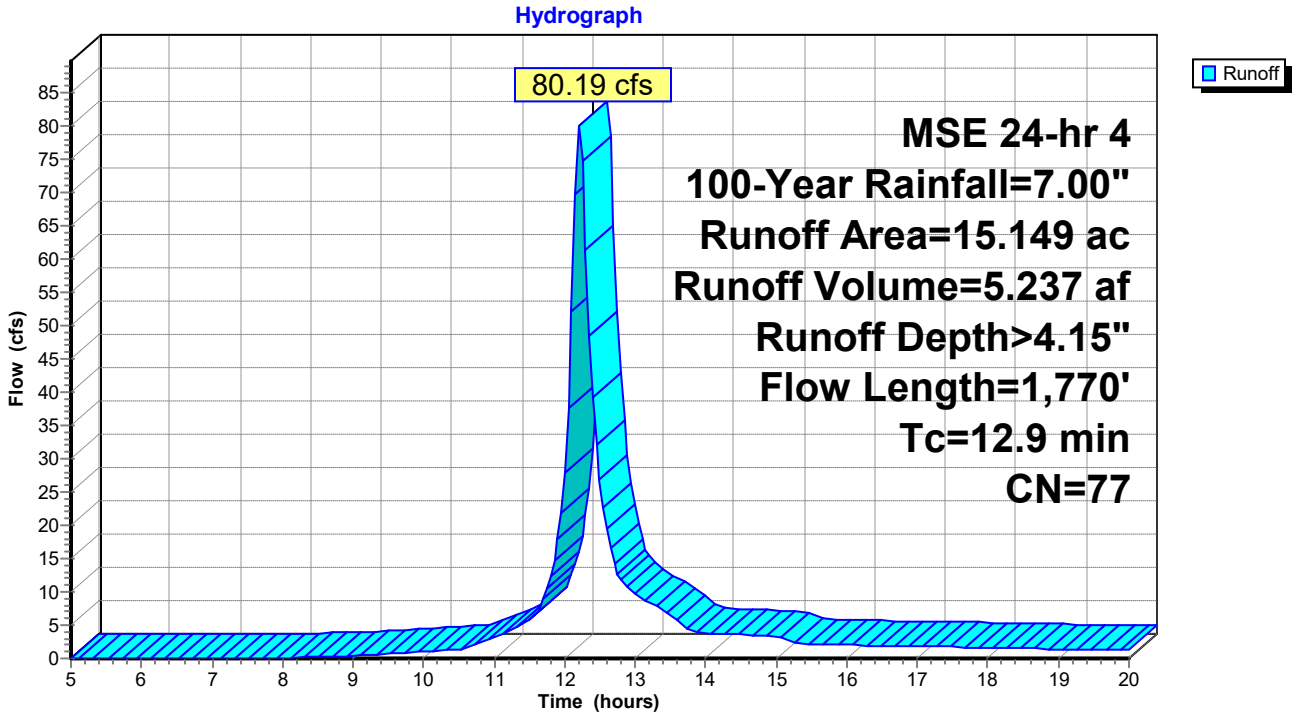
Runoff = 80.19 cfs @ 12.21 hrs, Volume= 5.237 af, Depth> 4.15"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.711	80	Pasture/grassland/range, good, HSG D
1.753	39	Pasture/grassland/range, good, HSG A
1.662	80	Pasture/grassland/range, good, HSG D
4.886	74	Pasture/grassland/range, good, HSG C
0.098	93	Paved roads w/open ditches, 50% imp, HSG D
0.173	92	Paved roads w/open ditches, 50% imp, HSG C
0.082	92	Paved roads w/open ditches, 50% imp, HSG C
0.249	83	Paved roads w/open ditches, 50% imp, HSG A
3.820	89	Row crops, straight row, good, HSG D
1.149	89	Row crops, straight row, good, HSG D
0.561	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
0.003	92	Paved roads w/open ditches, 50% imp, HSG C
0.000	83	Paved roads w/open ditches, 50% imp, HSG A
15.149	77	Weighted Average
14.847		98.00% Pervious Area
0.303		2.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0186	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.8	486	0.0177	2.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.1	1,184	0.0165	4.81	24.05	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
12.9	1,770	Total			

Subcatchment 3: 3



Summary for Subcatchment 4: 4

[47] Hint: Peak is 511% of capacity of segment #3

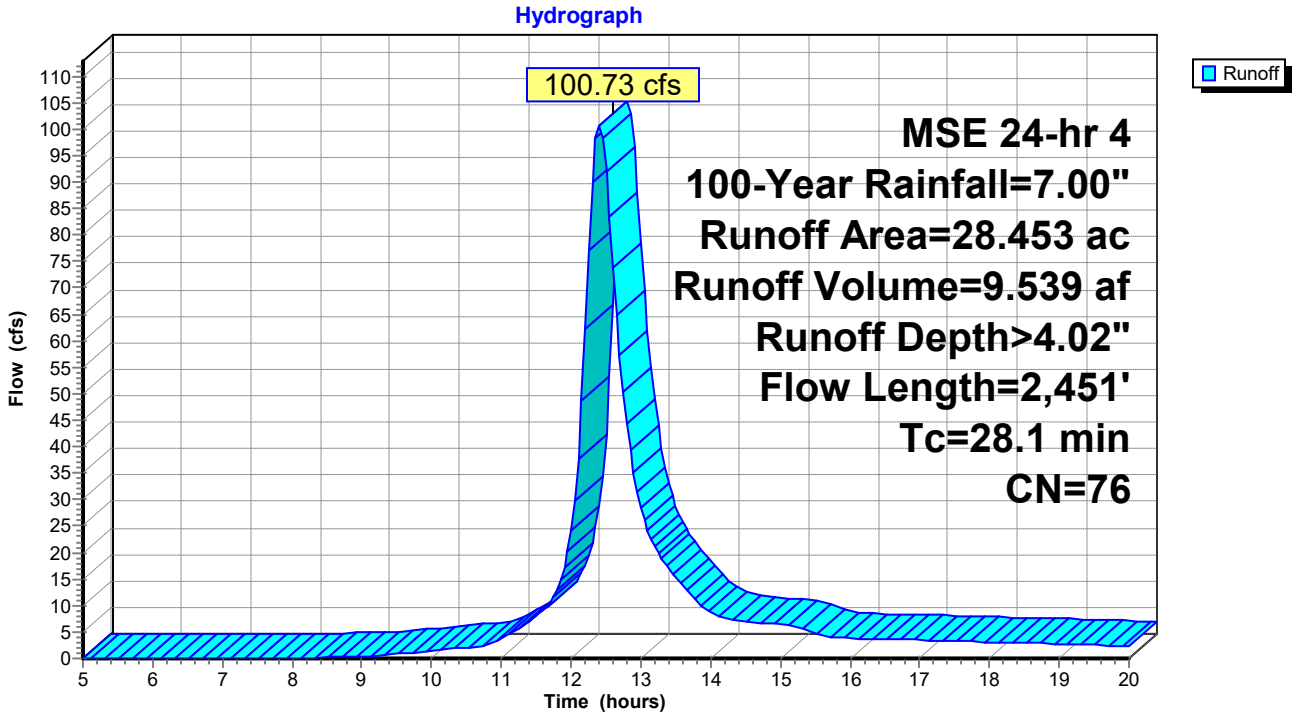
Runoff = 100.73 cfs @ 12.40 hrs, Volume= 9.539 af, Depth> 4.02"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.382	39	Pasture/grassland/range, good, HSG A
0.014	80	Pasture/grassland/range, good, HSG D
17.834	74	Pasture/grassland/range, good, HSG C
0.157	92	Paved roads w/open ditches, 50% imp, HSG C
0.279	83	Paved roads w/open ditches, 50% imp, HSG A
0.715	92	Paved roads w/open ditches, 50% imp, HSG C
5.707	85	Row crops, straight row, good, HSG C
2.356	82	Farmsteads, HSG C
0.008	92	Paved roads w/open ditches, 50% imp, HSG C
28.453	76	Weighted Average
27.873		97.96% Pervious Area
0.580		2.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0095	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.7	559	0.0153	1.99		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.6	1,792	0.0111	3.95	19.73	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
28.1	2,451	Total			

Subcatchment 4: 4



Summary for Subcatchment 5: 5

[47] Hint: Peak is 553% of capacity of segment #3

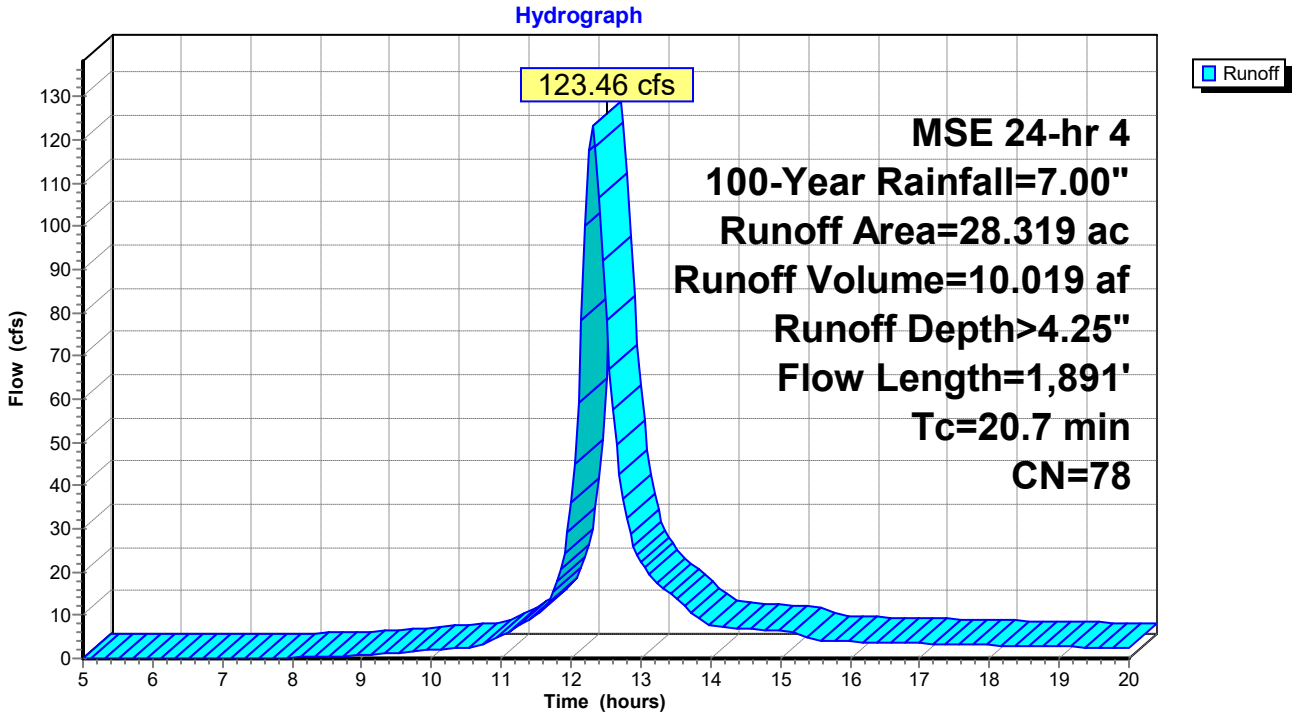
Runoff = 123.46 cfs @ 12.30 hrs, Volume= 10.019 af, Depth> 4.25"
Routed to Link 18L : 18L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.532	80	Pasture/grassland/range, good, HSG D
0.315	39	Pasture/grassland/range, good, HSG A
15.045	74	Pasture/grassland/range, good, HSG C
0.236	92	Paved roads w/open ditches, 50% imp, HSG C
0.336	83	Paved roads w/open ditches, 50% imp, HSG A
0.284	92	Paved roads w/open ditches, 50% imp, HSG C
3.016	85	Row crops, straight row, good, HSG C
0.773	89	Row crops, straight row, good, HSG D
0.303	67	Row crops, straight row, good, HSG A
6.068	85	Row crops, straight row, good, HSG C
0.412	82	Farmsteads, HSG C
28.319	78	Weighted Average
27.892		98.49% Pervious Area
0.428		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	98	0.0211	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.8	563	0.0150	1.97		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.6	1,230	0.0142	4.46	22.31	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
20.7	1,891	Total			

Subcatchment 5: 5



Summary for Subcatchment 6: 6

[47] Hint: Peak is 305% of capacity of segment #3

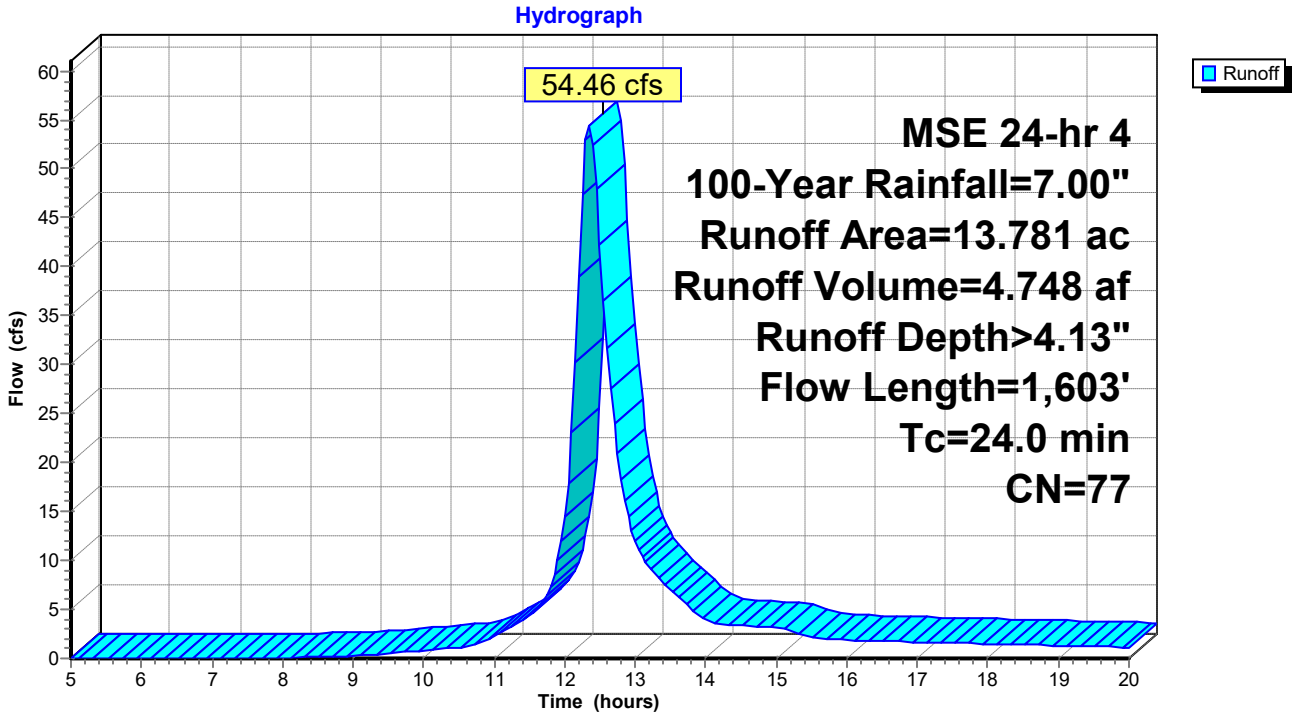
Runoff = 54.46 cfs @ 12.35 hrs, Volume= 4.748 af, Depth> 4.13"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.693	80	Pasture/grassland/range, good, HSG D
1.564	74	Pasture/grassland/range, good, HSG C
0.223	39	Pasture/grassland/range, good, HSG A
4.331	74	Pasture/grassland/range, good, HSG C
0.036	93	Paved roads w/open ditches, 50% imp, HSG D
0.068	83	Paved roads w/open ditches, 50% imp, HSG A
0.010	93	Paved roads w/open ditches, 50% imp, HSG D
0.019	83	Paved roads w/open ditches, 50% imp, HSG A
1.447	85	Row crops, straight row, good, HSG C
3.040	85	Row crops, straight row, good, HSG C
0.130	74	Pasture/grassland/range, good, HSG C
2.215	74	Pasture/grassland/range, good, HSG C
0.001	80	Pasture/grassland/range, good, HSG D
0.001	93	Paved roads w/open ditches, 50% imp, HSG D
0.003	93	Paved roads w/open ditches, 50% imp, HSG D
13.781	77	Weighted Average
13.712		99.50% Pervious Area
0.068		0.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	99	0.0016	0.12		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
10.3	1,392	0.0194	2.24		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.5	112	0.0091	3.57	17.86	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
24.0	1,603	Total			

Subcatchment 6: 6



Summary for Subcatchment 7: 7

[47] Hint: Peak is 1332% of capacity of segment #3

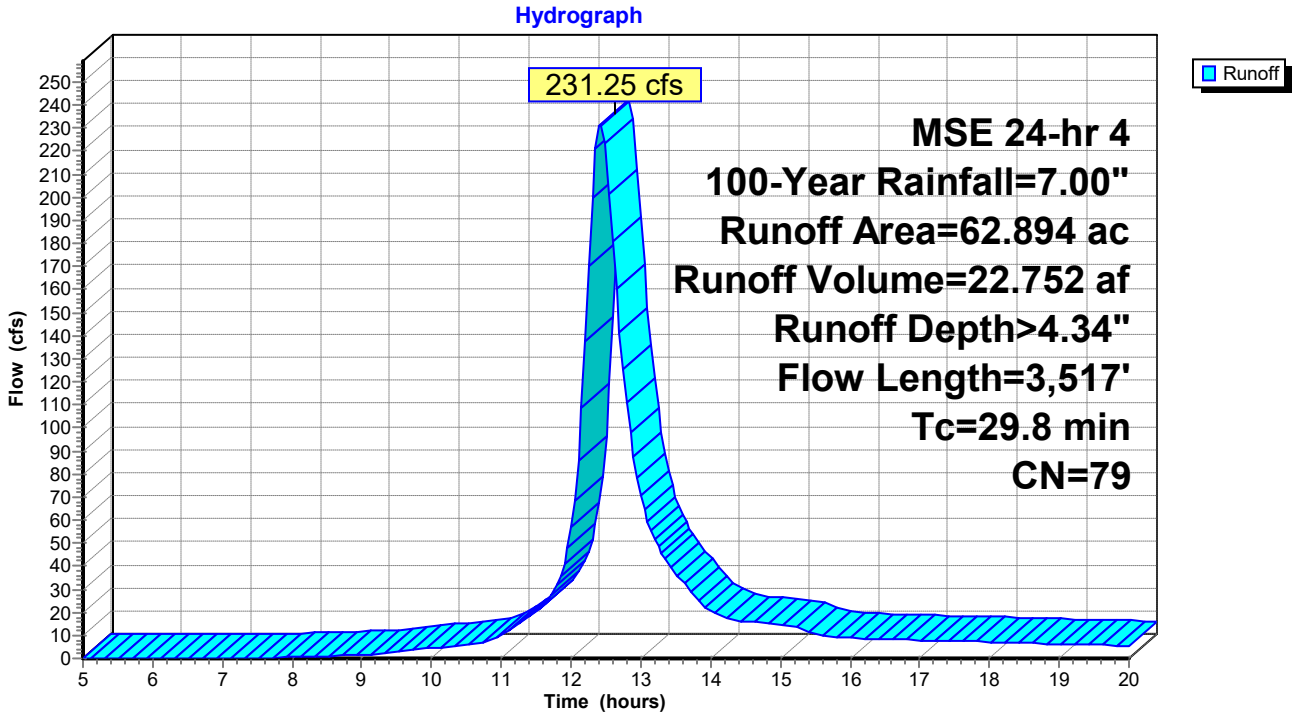
Runoff = 231.25 cfs @ 12.42 hrs, Volume= 22.752 af, Depth> 4.34"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
2.161	80	Pasture/grassland/range, good, HSG D
2.784	80	Pasture/grassland/range, good, HSG D
4.126	74	Pasture/grassland/range, good, HSG C
2.699	39	Pasture/grassland/range, good, HSG A
4.202	74	Pasture/grassland/range, good, HSG C
23.356	85	Row crops, straight row, good, HSG C
1.253	92	Paved roads w/open ditches, 50% imp, HSG C
0.946	92	Paved roads w/open ditches, 50% imp, HSG C
0.085	93	Paved roads w/open ditches, 50% imp, HSG D
0.219	93	Paved roads w/open ditches, 50% imp, HSG D
0.216	83	Paved roads w/open ditches, 50% imp, HSG A
1.408	89	Row crops, straight row, good, HSG D
1.110	85	Row crops, straight row, good, HSG C
6.080	85	Row crops, straight row, good, HSG C
0.608	80	Pasture/grassland/range, good, HSG D
0.377	74	Pasture/grassland/range, good, HSG C
11.257	74	Pasture/grassland/range, good, HSG C
0.001	80	Pasture/grassland/range, good, HSG D
0.001	80	Pasture/grassland/range, good, HSG D
0.001	85	Row crops, straight row, good, HSG C
0.003	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	83	Paved roads w/open ditches, 50% imp, HSG A
62.894	79	Weighted Average
61.533		97.84% Pervious Area
1.361		2.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	99	0.0259	0.16		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.3	295	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
15.0	3,123	0.0086	3.47	17.36	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
29.8	3,517	Total			

Subcatchment 7: 7



Summary for Subcatchment 8: 8

[47] Hint: Peak is 244% of capacity of segment #3

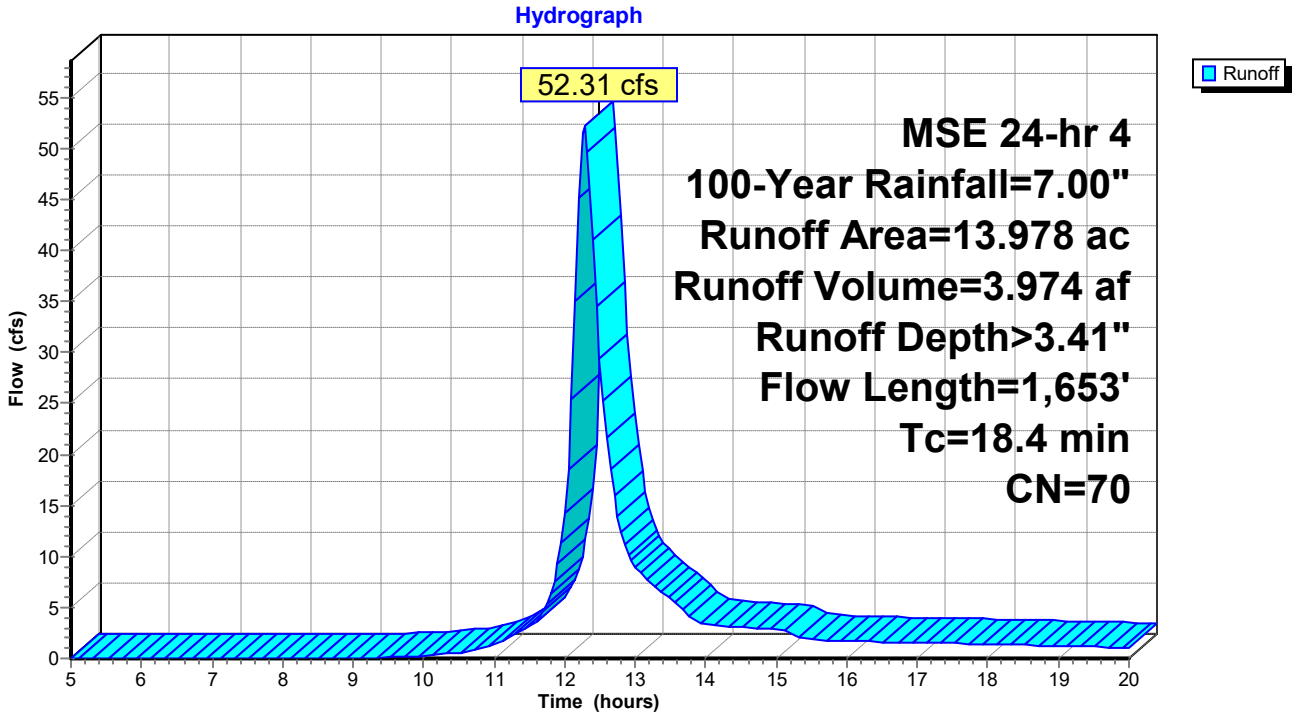
Runoff = 52.31 cfs @ 12.28 hrs, Volume= 3.974 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.176	39	Pasture/grassland/range, good, HSG A
3.109	74	Pasture/grassland/range, good, HSG C
0.002	74	Pasture/grassland/range, good, HSG C
0.004	83	Paved roads w/open ditches, 50% imp, HSG A
0.081	83	Paved roads w/open ditches, 50% imp, HSG A
0.100	92	Paved roads w/open ditches, 50% imp, HSG C
0.198	83	Paved roads w/open ditches, 50% imp, HSG A
0.006	83	Paved roads w/open ditches, 50% imp, HSG A
0.142	83	Paved roads w/open ditches, 50% imp, HSG A
0.404	92	Paved roads w/open ditches, 50% imp, HSG C
0.107	67	Row crops, straight row, good, HSG A
3.755	85	Row crops, straight row, good, HSG C
2.893	74	Pasture/grassland/range, good, HSG C
0.000	83	Paved roads w/open ditches, 50% imp, HSG A
13.978	70	Weighted Average
13.510		96.66% Pervious Area
0.468		3.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	99	0.0179	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
1.0	182	0.0346	2.99		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.3	1,372	0.0131	4.29	21.43	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
18.4	1,653	Total			

Subcatchment 8: 8



Summary for Subcatchment 9: 9

[47] Hint: Peak is 185% of capacity of segment #3

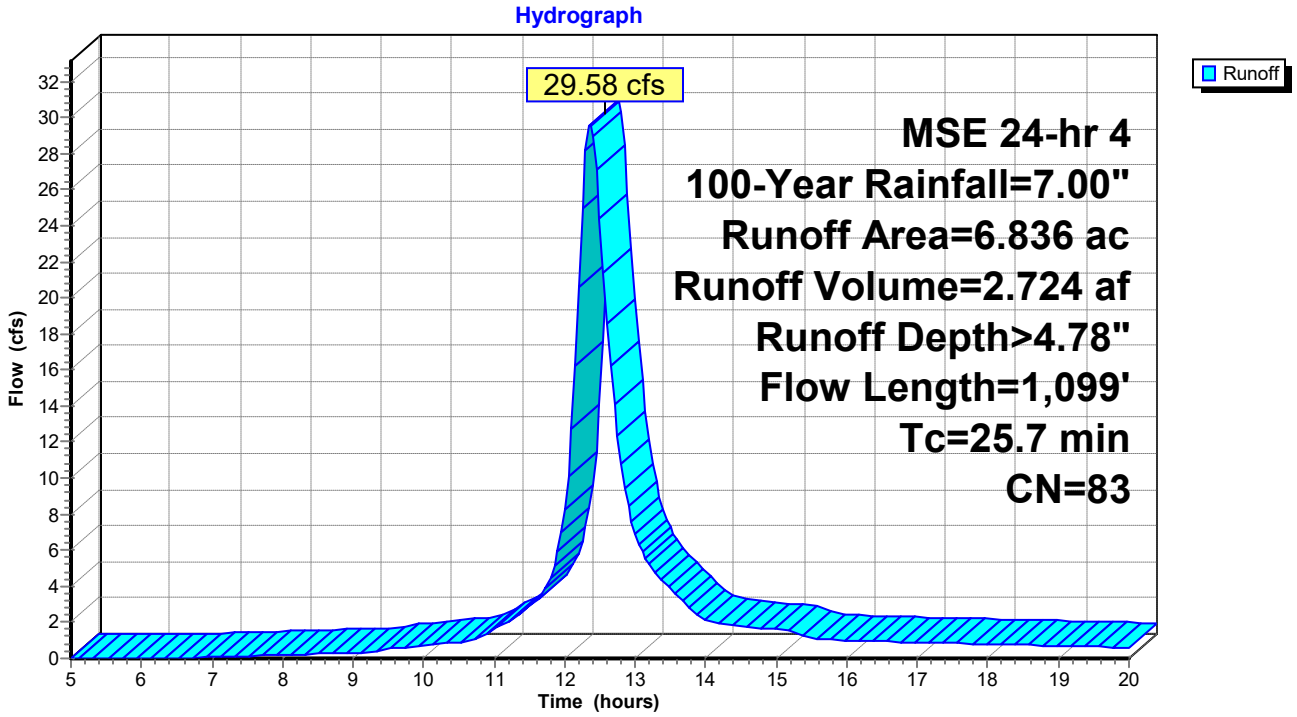
Runoff = 29.58 cfs @ 12.36 hrs, Volume= 2.724 af, Depth> 4.78"
Routed to Link 20L : 20L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.079	82	Farmsteads, HSG C
0.008	86	Farmsteads, HSG D
5.892	82	Farmsteads, HSG C
0.007	93	Paved roads w/open ditches, 50% imp, HSG D
0.411	92	Paved roads w/open ditches, 50% imp, HSG C
0.006	93	Paved roads w/open ditches, 50% imp, HSG D
0.382	92	Paved roads w/open ditches, 50% imp, HSG C
0.006	82	Farmsteads, HSG C
0.034	82	Farmsteads, HSG C
0.003	92	Paved roads w/open ditches, 50% imp, HSG C
0.008	92	Paved roads w/open ditches, 50% imp, HSG C
6.836	83	Weighted Average
6.428		94.02% Pervious Area
0.408		5.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	100	0.0141	0.12		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
9.9	563	0.0035	0.95		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	436	0.0073	3.20	16.00	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.7	1,099	Total			

Subcatchment 9: 9



Summary for Subcatchment 10: 10

[47] Hint: Peak is 2676% of capacity of segment #3

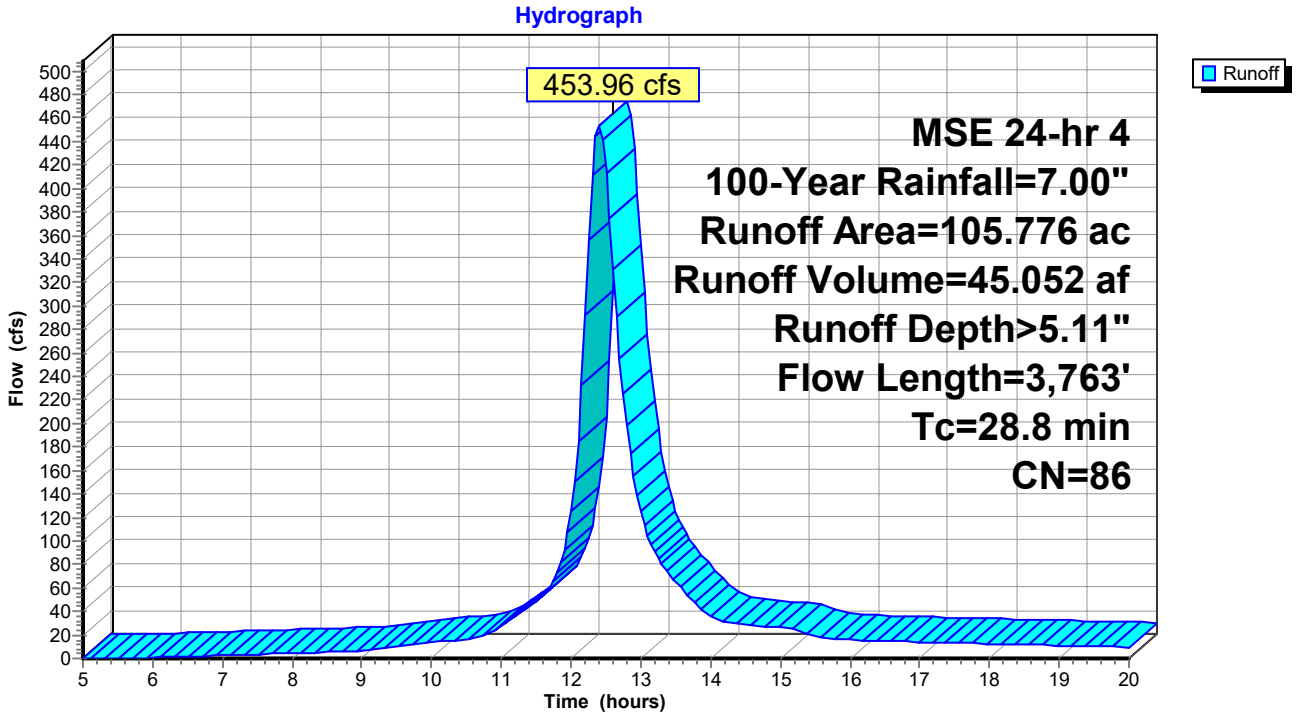
Runoff = 453.96 cfs @ 12.40 hrs, Volume= 45.052 af, Depth> 5.11"
Routed to Link 20L : 20L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
7.851	89	Row crops, straight row, good, HSG D
1.859	85	Row crops, straight row, good, HSG C
9.427	85	Row crops, straight row, good, HSG C
14.481	85	Row crops, straight row, good, HSG C
3.393	89	Row crops, straight row, good, HSG D
3.491	85	Row crops, straight row, good, HSG C
0.152	85	Row crops, straight row, good, HSG C
9.220	85	Row crops, straight row, good, HSG C
1.350	85	Row crops, straight row, good, HSG C
38.883	85	Row crops, straight row, good, HSG C
4.597	89	Row crops, straight row, good, HSG D
10.611	89	Row crops, straight row, good, HSG D
0.419	89	Row crops, straight row, good, HSG D
0.006	85	Row crops, straight row, good, HSG C
0.034	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
105.776	86	Weighted Average
105.776		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0292	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
3.6	581	0.0283	2.71		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
15.1	3,082	0.0141	3.39	16.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 15.0' r= 0.33' n= 0.025 Earth, clean & winding
28.8	3,763	Total			

Subcatchment 10: 10



Summary for Subcatchment 11: 11

[47] Hint: Peak is 883% of capacity of segment #3

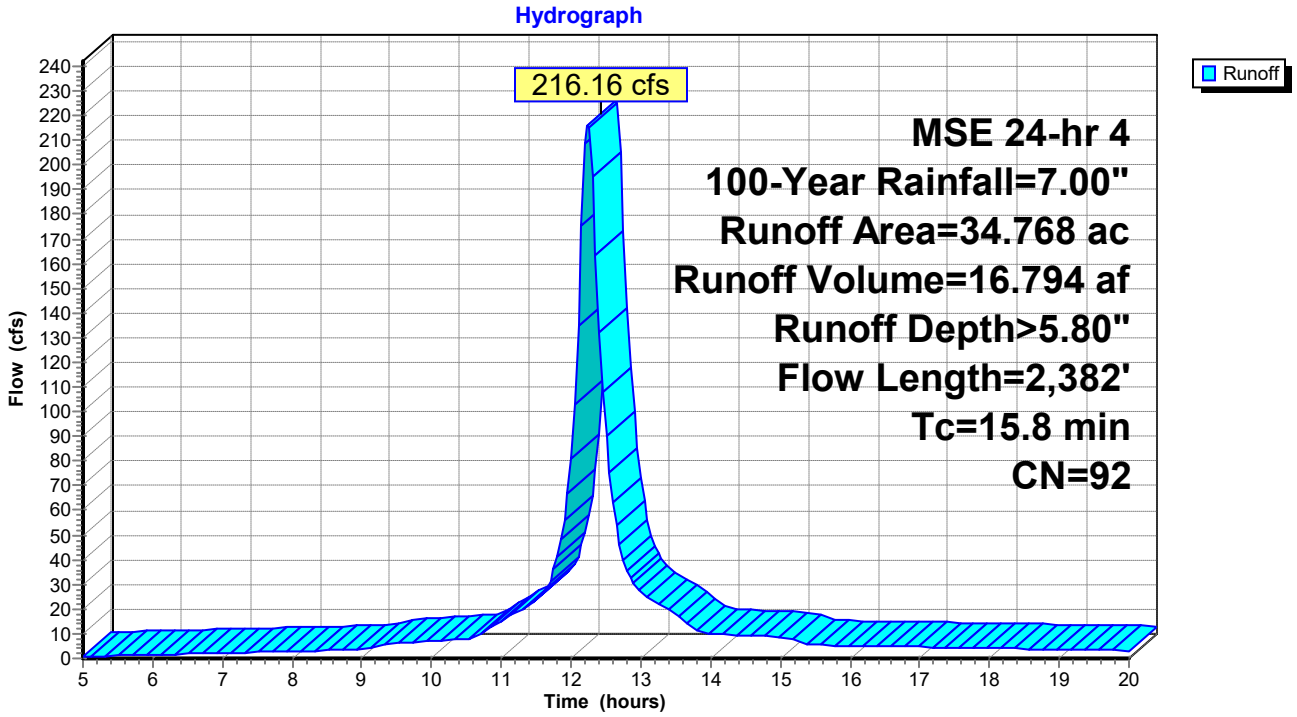
Runoff = 216.16 cfs @ 12.24 hrs, Volume= 16.794 af, Depth> 5.80"
Routed to Link 19L : 19L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.024	93	Paved roads w/open ditches, 50% imp, HSG D
9.446	92	Paved roads w/open ditches, 50% imp, HSG C
9.139	92	Paved roads w/open ditches, 50% imp, HSG C
0.494	93	Paved roads w/open ditches, 50% imp, HSG D
5.666	92	Paved roads w/open ditches, 50% imp, HSG C
2.134	93	Paved roads w/open ditches, 50% imp, HSG D
2.198	93	Paved roads w/open ditches, 50% imp, HSG D
5.665	93	Paved roads w/open ditches, 50% imp, HSG D
34.768	92	Weighted Average
17.384		50.00% Pervious Area
17.384		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0159	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.3	756	0.0217	2.37		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.2	1,526	0.0171	4.90	24.48	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.8	2,382	Total			

Subcatchment 11: 11



Summary for Subcatchment 12: 12

[47] Hint: Peak is 1070% of capacity of segment #3

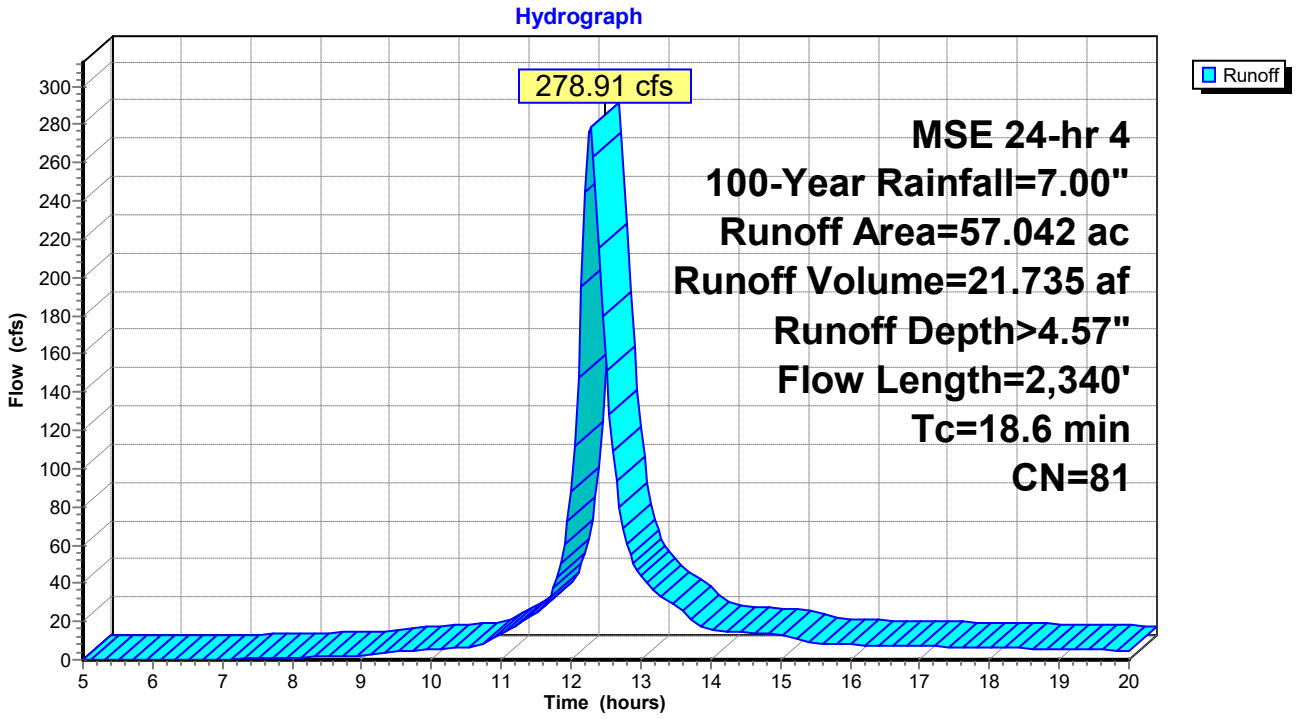
Runoff = 278.91 cfs @ 12.27 hrs, Volume= 21.735 af, Depth> 4.57"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
33.773	82	Farmsteads, HSG C
0.293	86	Farmsteads, HSG D
1.333	70	Woods, Good, HSG C
1.705	70	Woods, Good, HSG C
0.207	70	Woods, Good, HSG C
6.365	70	Woods, Good, HSG C
1.567	70	Woods, Good, HSG C
2.814	77	Woods, Good, HSG D
0.000	82	Farmsteads, HSG C
0.000	82	Farmsteads, HSG C
0.000	82	Farmsteads, HSG C
0.000	82	Farmsteads, HSG C
0.001	92	Paved roads w/open ditches, 50% imp, HSG C
0.002	92	Paved roads w/open ditches, 50% imp, HSG C
0.868	92	Paved roads w/open ditches, 50% imp, HSG C
0.011	89	Row crops, straight row, good, HSG D
2.191	85	Row crops, straight row, good, HSG C
0.062	93	Paved roads w/open ditches, 50% imp, HSG D
3.080	92	Paved roads w/open ditches, 50% imp, HSG C
0.129	92	Paved roads w/open ditches, 50% imp, HSG C
0.016	92	Paved roads w/open ditches, 50% imp, HSG C
0.665	92	Paved roads w/open ditches, 50% imp, HSG C
1.445	92	Paved roads w/open ditches, 50% imp, HSG C
0.460	92	Paved roads w/open ditches, 50% imp, HSG C
0.049	92	Paved roads w/open ditches, 50% imp, HSG C
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.001	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.001	92	Paved roads w/open ditches, 50% imp, HSG C
57.042	81	Weighted Average
53.652		94.06% Pervious Area
3.391		5.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
6.1	985	0.0280	2.69		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.0	1,255	0.0194	5.22	26.08	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
18.6	2,340	Total			

Subcatchment 12: 12



Summary for Subcatchment 13: 13

[47] Hint: Peak is 335% of capacity of segment #3

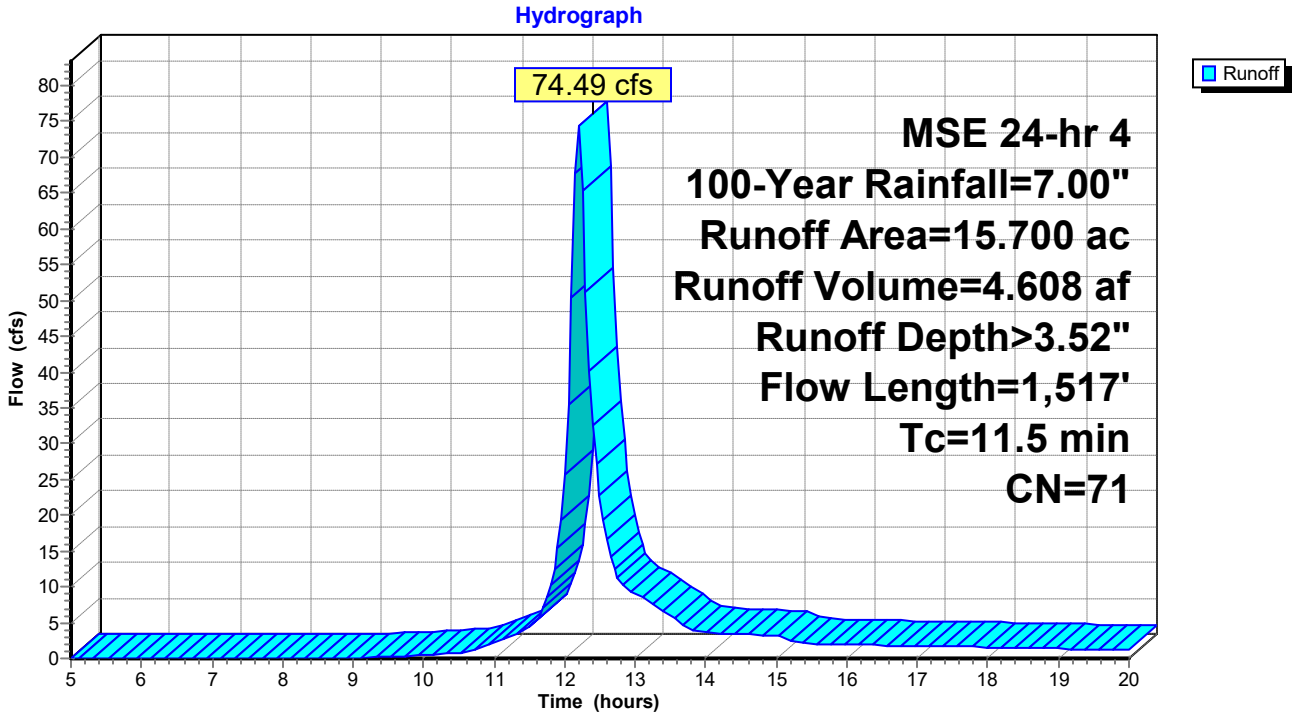
Runoff = 74.49 cfs @ 12.20 hrs, Volume= 4.608 af, Depth> 3.52"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
11.205	70	Woods, Good, HSG C
0.019	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.001	89	Row crops, straight row, good, HSG D
0.001	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
0.001	89	Row crops, straight row, good, HSG D
0.002	85	Row crops, straight row, good, HSG C
0.002	85	Row crops, straight row, good, HSG C
0.004	85	Row crops, straight row, good, HSG C
0.010	85	Row crops, straight row, good, HSG C
0.014	85	Row crops, straight row, good, HSG C
0.021	85	Row crops, straight row, good, HSG C
0.856	85	Row crops, straight row, good, HSG C
0.059	89	Row crops, straight row, good, HSG D
3.502	70	Woods, Good, HSG C
0.000	70	Woods, Good, HSG C
0.001	70	Woods, Good, HSG C
15.700	71	Weighted Average
15.690		99.94% Pervious Area
0.010		0.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.0282	0.39		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.5	398	0.0138	1.89		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.8	1,019	0.0141	4.45	22.23	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
11.5	1,517	Total			

Subcatchment 13: 13



Summary for Subcatchment 14: 14

[47] Hint: Peak is 813% of capacity of segment #3

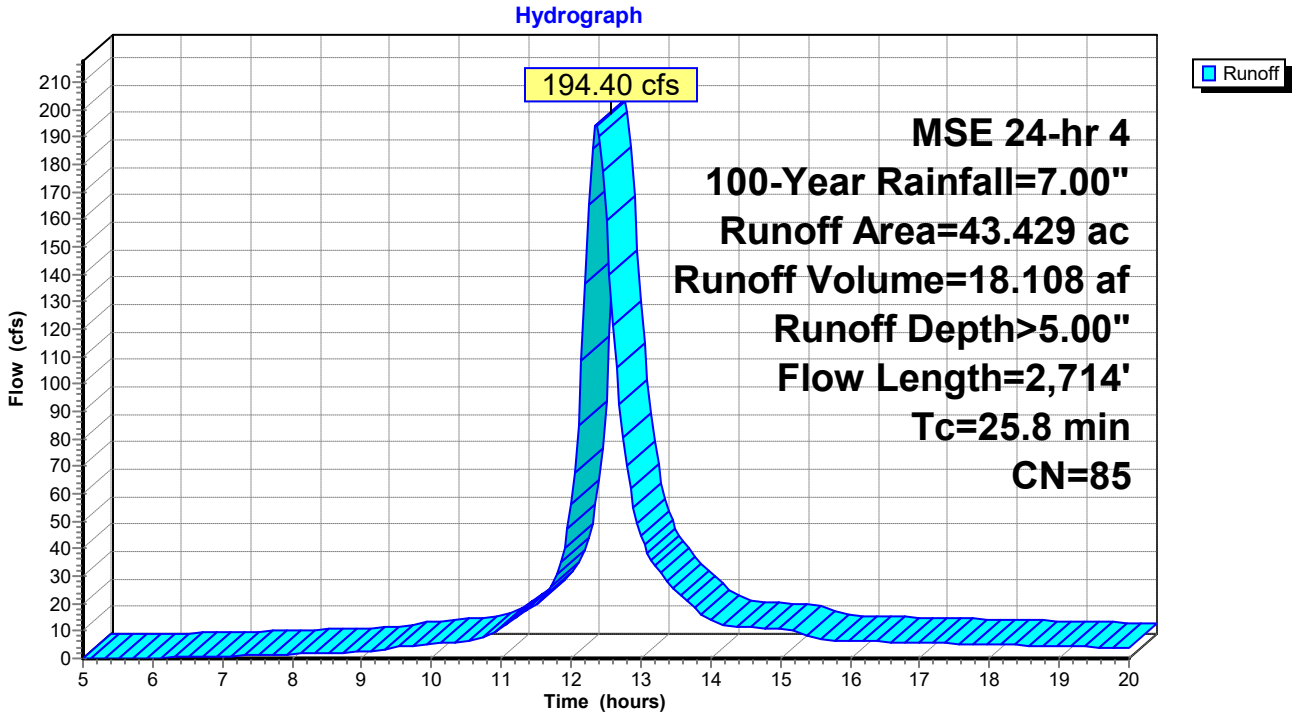
Runoff = 194.40 cfs @ 12.36 hrs, Volume= 18.108 af, Depth> 5.00"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.949	77	Woods, Good, HSG D
5.362	70	Woods, Good, HSG C
0.043	67	Row crops, straight row, good, HSG A
0.028	89	Row crops, straight row, good, HSG D
0.003	89	Row crops, straight row, good, HSG D
0.011	85	Row crops, straight row, good, HSG C
2.927	85	Row crops, straight row, good, HSG C
11.446	85	Row crops, straight row, good, HSG C
5.152	89	Row crops, straight row, good, HSG D
17.508	89	Row crops, straight row, good, HSG D
43.429	85	Weighted Average
43.429		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0140	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
17.4	1,806	0.0116	1.73		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.8	808	0.0163	4.78	23.90	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.8	2,714	Total			

Subcatchment 14: 14



Summary for Subcatchment 15: 15

[47] Hint: Peak is 538% of capacity of segment #3

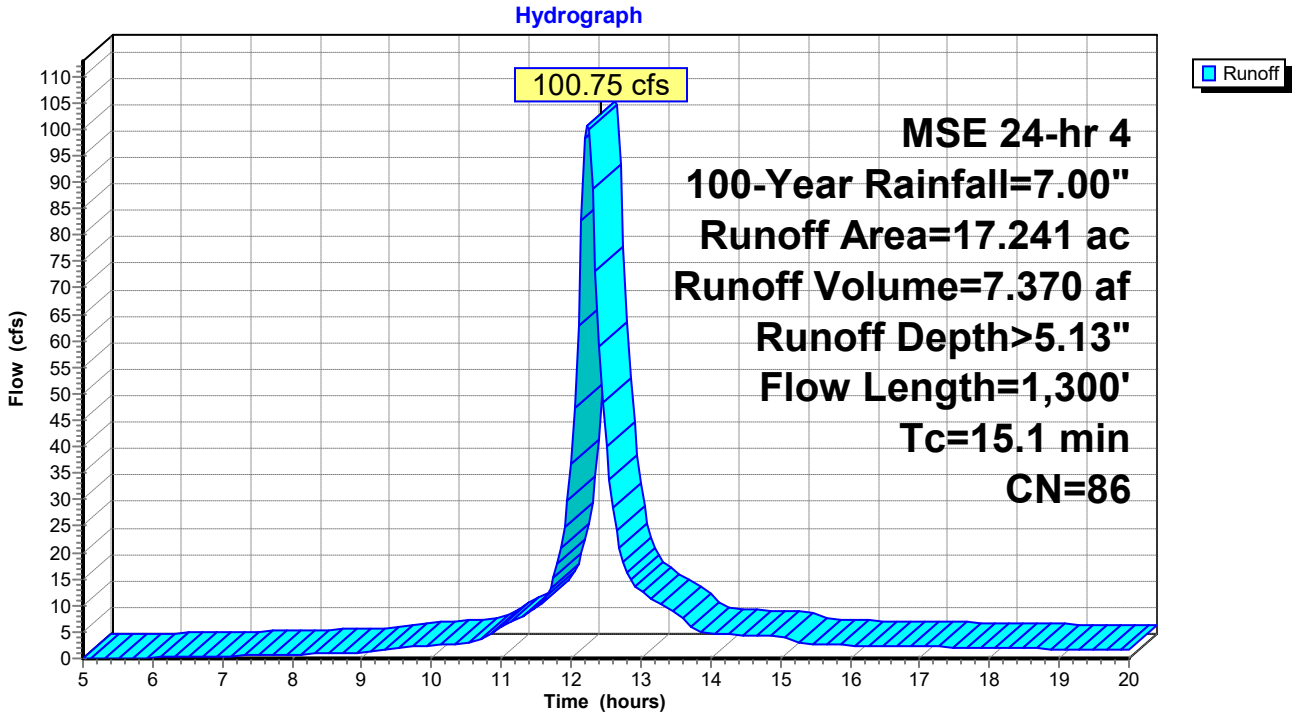
Runoff = 100.75 cfs @ 12.23 hrs, Volume= 7.370 af, Depth> 5.13"
Routed to Pond 8P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
13.079	85	Row crops, straight row, good, HSG C
2.812	89	Row crops, straight row, good, HSG D
0.033	89	Row crops, straight row, good, HSG D
0.008	89	Row crops, straight row, good, HSG D
0.001	85	Row crops, straight row, good, HSG C
0.006	92	Paved roads w/open ditches, 50% imp, HSG C
0.022	93	Paved roads w/open ditches, 50% imp, HSG D
0.213	92	Paved roads w/open ditches, 50% imp, HSG C
0.114	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	92	Paved roads w/open ditches, 50% imp, HSG C
0.182	92	Paved roads w/open ditches, 50% imp, HSG C
0.097	93	Paved roads w/open ditches, 50% imp, HSG D
0.149	92	Paved roads w/open ditches, 50% imp, HSG C
0.055	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.001	93	Paved roads w/open ditches, 50% imp, HSG D
0.001	92	Paved roads w/open ditches, 50% imp, HSG C
0.002	92	Paved roads w/open ditches, 50% imp, HSG C
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.120	92	Paved roads w/open ditches, 50% imp, HSG C
0.046	93	Paved roads w/open ditches, 50% imp, HSG D
0.256	92	Paved roads w/open ditches, 50% imp, HSG C
0.031	93	Paved roads w/open ditches, 50% imp, HSG D
0.010	85	Row crops, straight row, good, HSG C
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
17.241	86	Weighted Average
16.592		96.24% Pervious Area
0.649		3.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0052	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.3	414	0.0165	2.07		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.5	786	0.0100	3.74	18.72	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.1	1,300	Total			

Subcatchment 15: 15



Summary for Subcatchment 16: 16

[47] Hint: Peak is 162% of capacity of segment #3

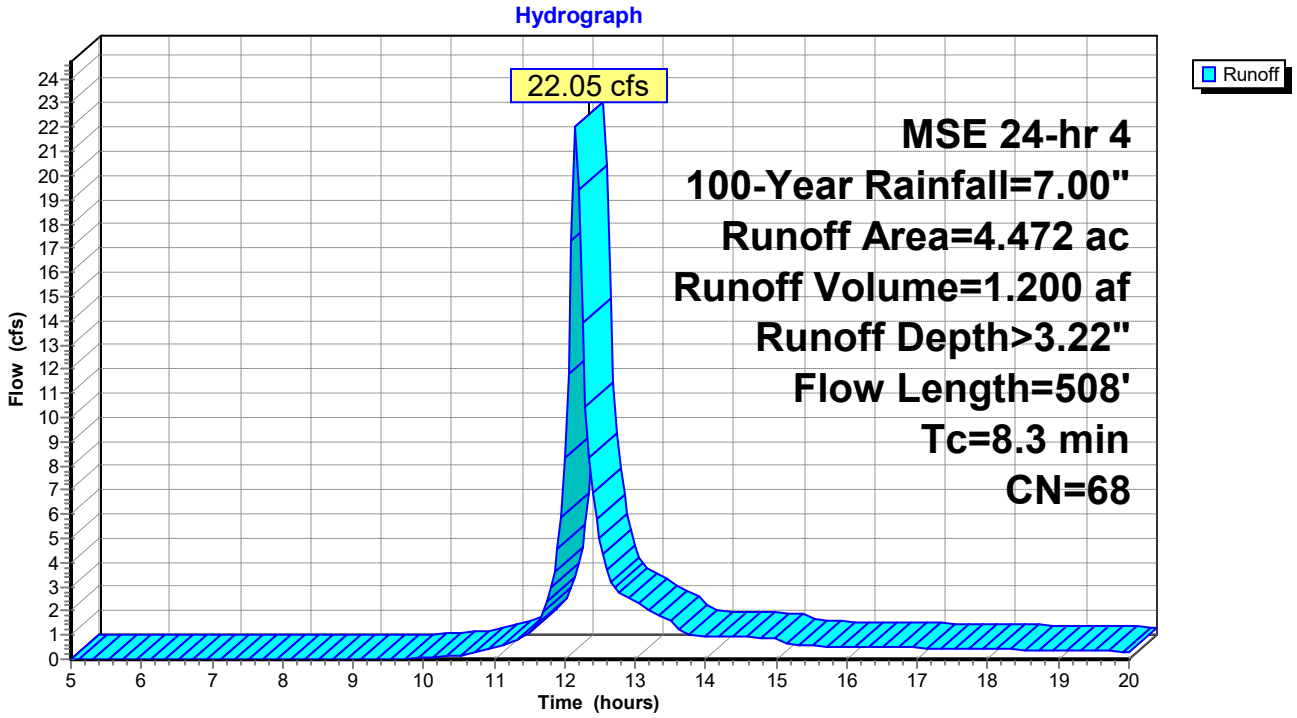
Runoff = 22.05 cfs @ 12.16 hrs, Volume= 1.200 af, Depth> 3.22"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.309	67	Row crops, straight row, good, HSG A
0.163	89	Row crops, straight row, good, HSG D
4.472	68	Weighted Average
4.472		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.0214	0.35		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.9	294	0.0111	1.70		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.7	114	0.0053	2.73	13.63	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
8.3	508	Total			

Subcatchment 16: 16



Summary for Subcatchment 17: 17

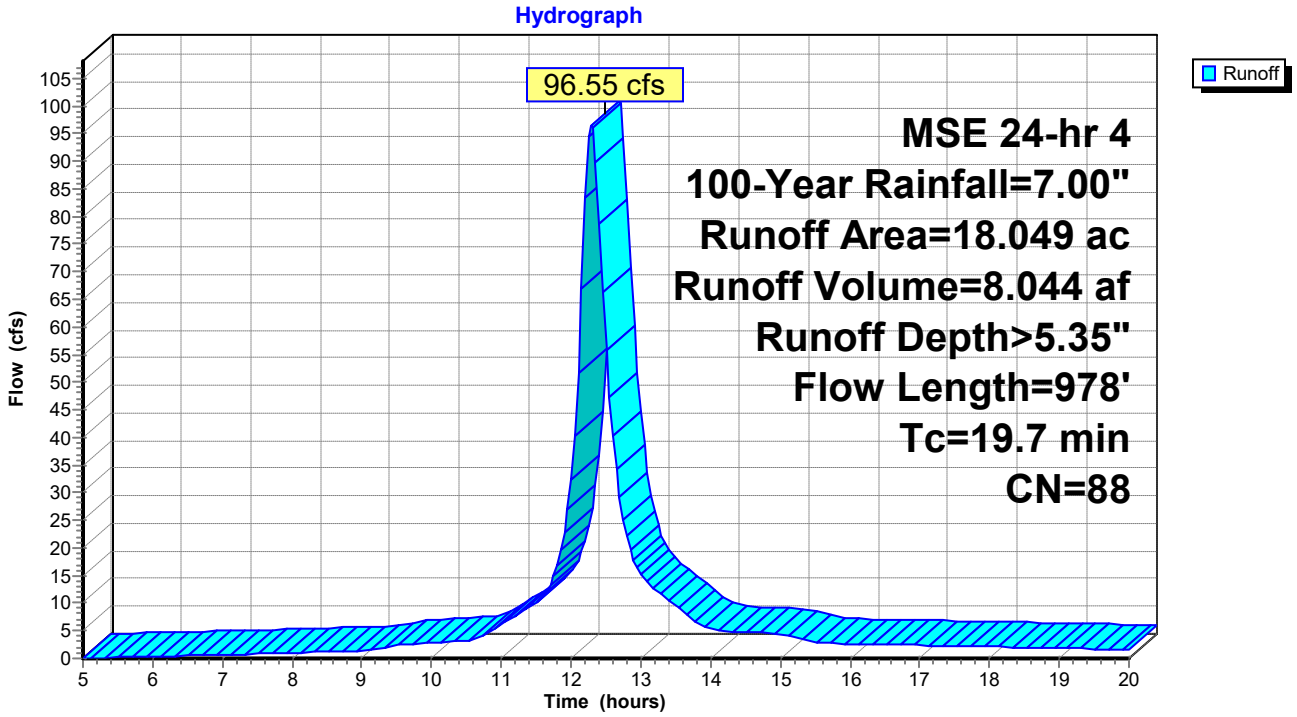
Runoff = 96.55 cfs @ 12.29 hrs, Volume= 8.044 af, Depth> 5.35"
Routed to Link 17L : 17L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
9.073	89	Row crops, straight row, good, HSG D
0.941	67	Row crops, straight row, good, HSG A
0.003	89	Row crops, straight row, good, HSG D
0.180	89	Row crops, straight row, good, HSG D
2.263	89	Row crops, straight row, good, HSG D
4.163	89	Row crops, straight row, good, HSG D
0.125	89	Row crops, straight row, good, HSG D
1.290	89	Row crops, straight row, good, HSG D
0.011	89	Row crops, straight row, good, HSG D
18.049	88	Weighted Average
18.049		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.2	878	0.0066	1.31		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.7	978	Total			

Subcatchment 17: 17



Summary for Subcatchment 18: 18

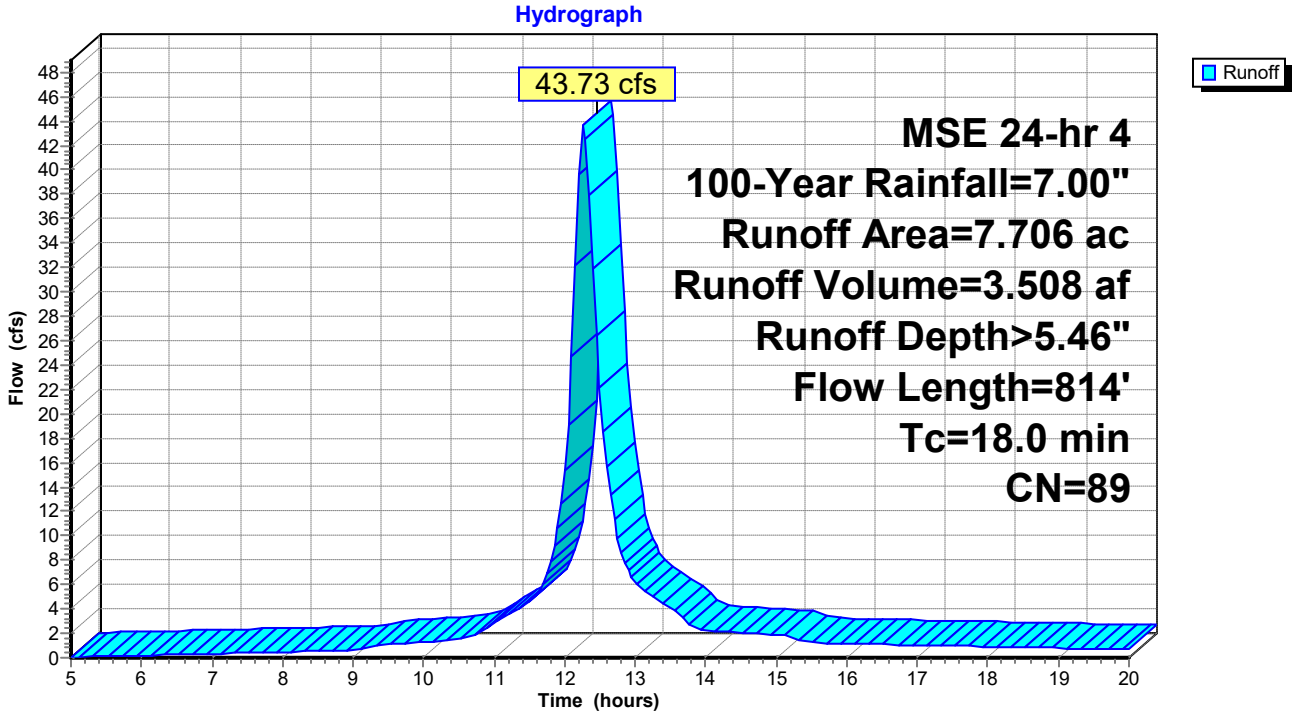
Runoff = 43.73 cfs @ 12.26 hrs, Volume= 3.508 af, Depth> 5.46"
Routed to Link 17L : 17L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.822	89	Row crops, straight row, good, HSG D
0.253	89	Row crops, straight row, good, HSG D
5.177	89	Row crops, straight row, good, HSG D
0.406	89	Row crops, straight row, good, HSG D
0.029	89	Row crops, straight row, good, HSG D
0.018	89	Row crops, straight row, good, HSG D
7.706	89	Weighted Average
7.706		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0090	0.25		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.3	714	0.0043	1.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
18.0	814	Total			

Subcatchment 18: 18



Summary for Subcatchment 19: 19

[47] Hint: Peak is 6522% of capacity of segment #3

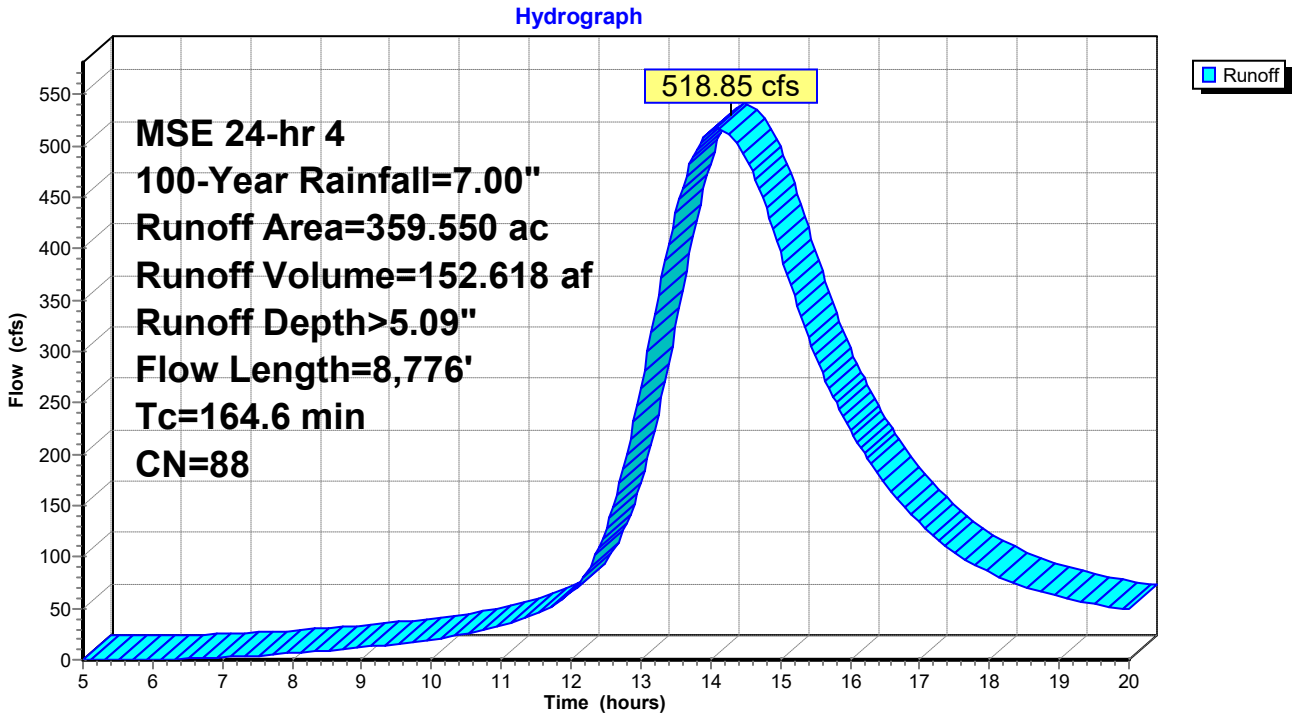
Runoff = 518.85 cfs @ 14.09 hrs, Volume= 152.618 af, Depth> 5.09"
Routed to Link 5L : 5L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.059	89	Row crops, straight row, good, HSG D
15.700	89	Row crops, straight row, good, HSG D
146.364	89	Row crops, straight row, good, HSG D
13.617	89	Row crops, straight row, good, HSG D
15.153	89	Row crops, straight row, good, HSG D
20.023	89	Row crops, straight row, good, HSG D
0.809	89	Row crops, straight row, good, HSG D
0.224	89	Row crops, straight row, good, HSG D
7.271	89	Row crops, straight row, good, HSG D
18.211	89	Row crops, straight row, good, HSG D
1.550	89	Row crops, straight row, good, HSG D
0.003	89	Row crops, straight row, good, HSG D
0.250	89	Row crops, straight row, good, HSG D
24.895	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
3.110	89	Row crops, straight row, good, HSG D
9.475	89	Row crops, straight row, good, HSG D
4.281	89	Row crops, straight row, good, HSG D
0.128	93	Paved roads w/open ditches, 50% imp, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.240	93	Paved roads w/open ditches, 50% imp, HSG D
8.735	89	Row crops, straight row, good, HSG D
7.816	89	Row crops, straight row, good, HSG D
8.100	89	Row crops, straight row, good, HSG D
18.119	89	Row crops, straight row, good, HSG D
0.079	89	Row crops, straight row, good, HSG D
1.399	93	Paved roads w/open ditches, 50% imp, HSG D
0.521	93	Paved roads w/open ditches, 50% imp, HSG D
1.231	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	89	Row crops, straight row, good, HSG D
5.894	77	Woods, Good, HSG D
8.059	77	Woods, Good, HSG D
0.047	77	Woods, Good, HSG D
0.381	77	Woods, Good, HSG D
0.078	86	Farmsteads, HSG D
0.006	86	Farmsteads, HSG D
9.514	86	Farmsteads, HSG D
0.787	77	Woods, Good, HSG D
7.084	77	Woods, Good, HSG D
0.065	89	Row crops, straight row, good, HSG D
0.112	89	Row crops, straight row, good, HSG D
359.550	88	Weighted Average
357.711		99.49% Pervious Area
1.839		0.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0158	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
138.4	6,684	0.0025	0.81		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
20.9	1,992	0.0031	1.59	7.96	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 15.0' r= 0.33' n= 0.025 Earth, clean & winding
164.6	8,776	Total			

Subcatchment 19: 19



Summary for Subcatchment 20: 20

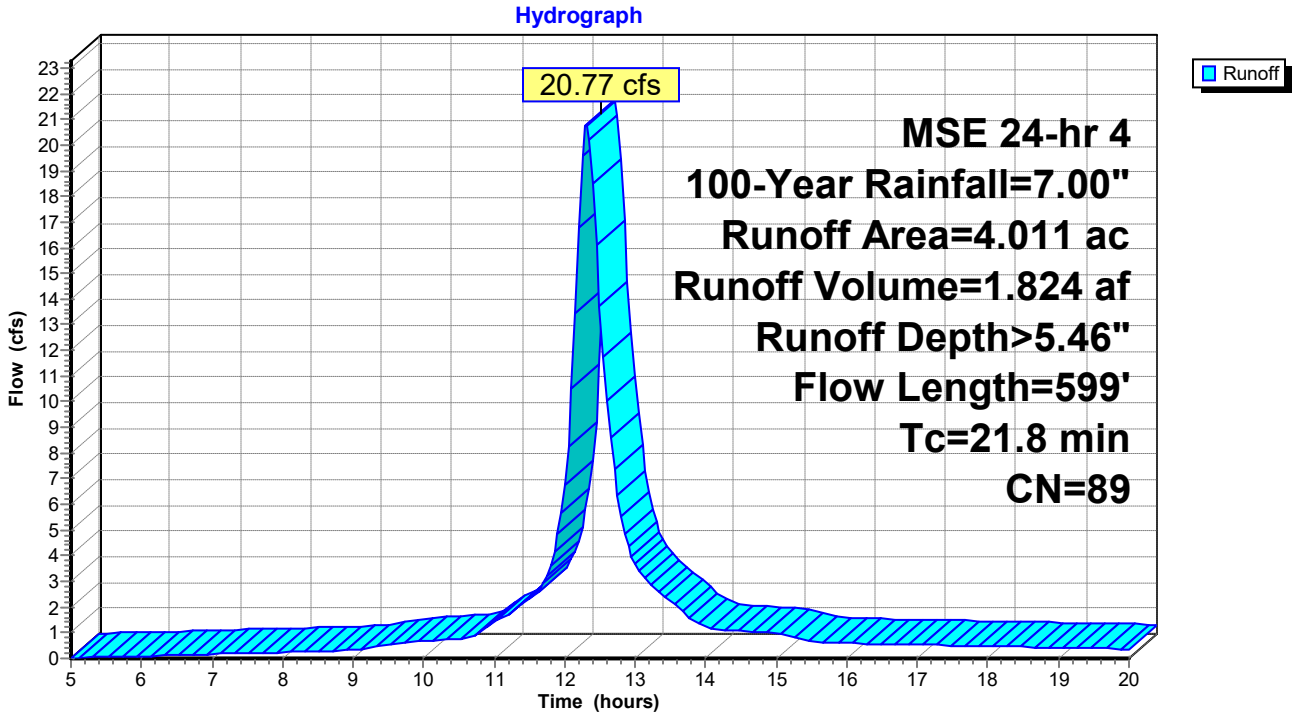
Runoff = 20.77 cfs @ 12.31 hrs, Volume= 1.824 af, Depth> 5.46"
Routed to Reach 6R : Ditch Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.015	89	Row crops, straight row, good, HSG D
2.537	89	Row crops, straight row, good, HSG D
1.219	89	Row crops, straight row, good, HSG D
0.128	89	Row crops, straight row, good, HSG D
0.006	93	Paved roads w/open ditches, 50% imp, HSG D
0.104	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	89	Row crops, straight row, good, HSG D
4.011	89	Weighted Average
3.956		98.63% Pervious Area
0.055		1.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
13.3	499	0.0015	0.62		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
21.8	599	Total			

Subcatchment 20: 20



Summary for Subcatchment 21: 21

[47] Hint: Peak is 920% of capacity of segment #3

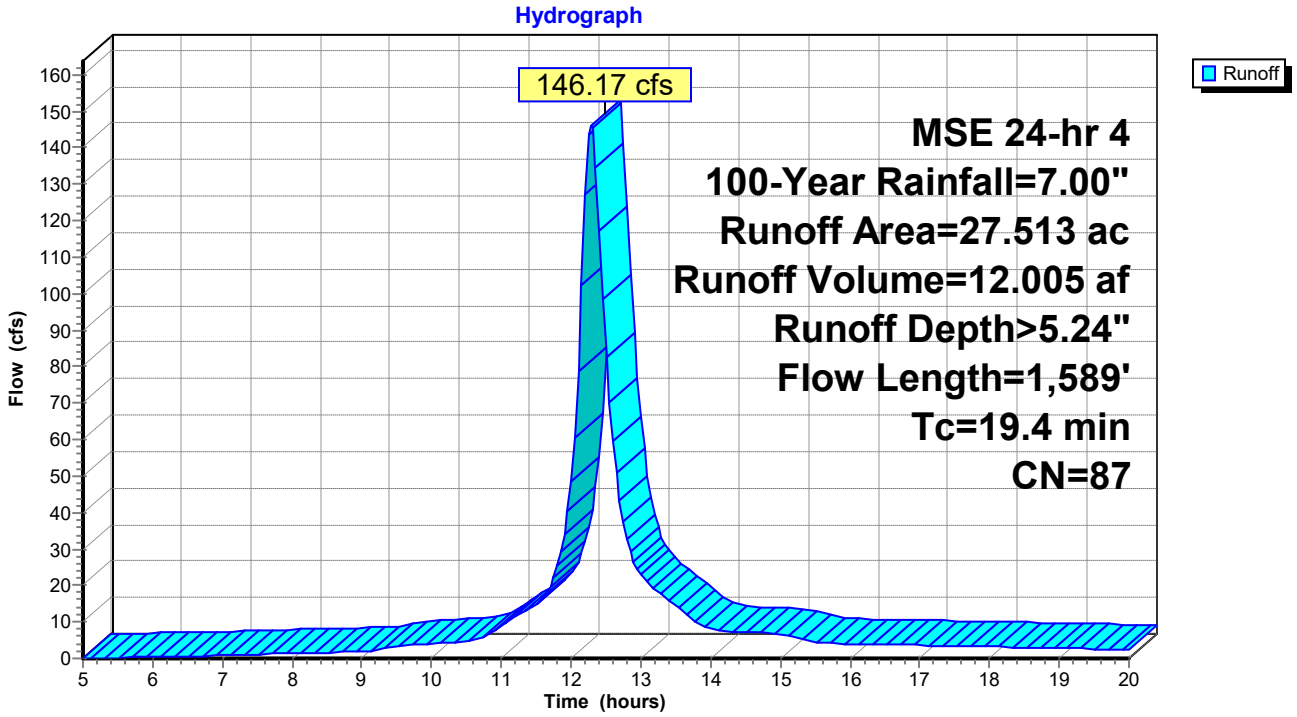
Runoff = 146.17 cfs @ 12.28 hrs, Volume= 12.005 af, Depth> 5.24"
Routed to Link 12L : 12L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
10.345	85	Row crops, straight row, good, HSG C
2.819	85	Row crops, straight row, good, HSG C
14.170	89	Row crops, straight row, good, HSG D
0.058	92	Paved roads w/open ditches, 50% imp, HSG C
0.068	92	Paved roads w/open ditches, 50% imp, HSG C
0.053	93	Paved roads w/open ditches, 50% imp, HSG D
27.513	87	Weighted Average
27.424		99.68% Pervious Area
0.089		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0073	0.23		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.2	1,325	0.0149	1.97		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.9	164	0.0072	3.18	15.89	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.4	1,589	Total			

Subcatchment 21: 21



Summary for Subcatchment 22: 22

[47] Hint: Peak is 1673% of capacity of segment #3

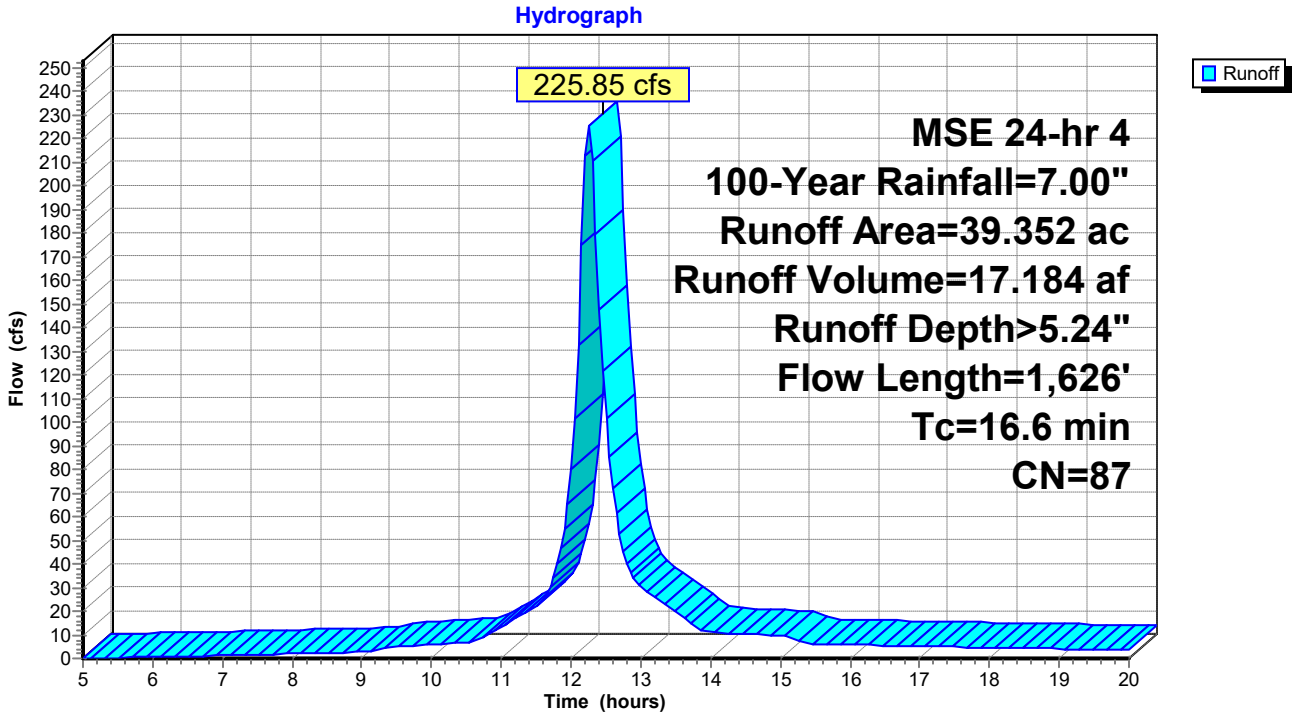
Runoff = 225.85 cfs @ 12.25 hrs, Volume= 17.184 af, Depth> 5.24"
Routed to Link 11L : 11L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.626	89	Row crops, straight row, good, HSG D
20.267	85	Row crops, straight row, good, HSG C
17.654	89	Row crops, straight row, good, HSG D
0.493	89	Row crops, straight row, good, HSG D
0.284	92	Paved roads w/open ditches, 50% imp, HSG C
0.027	89	Row crops, straight row, good, HSG D
39.352	87	Weighted Average
39.209		99.64% Pervious Area
0.142		0.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.0203	0.34		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
10.1	1,255	0.0164	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.7	273	0.0052	2.70	13.50	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
16.6	1,626	Total			

Subcatchment 22: 22



Summary for Subcatchment 23: 23

[47] Hint: Peak is 2619% of capacity of segment #3

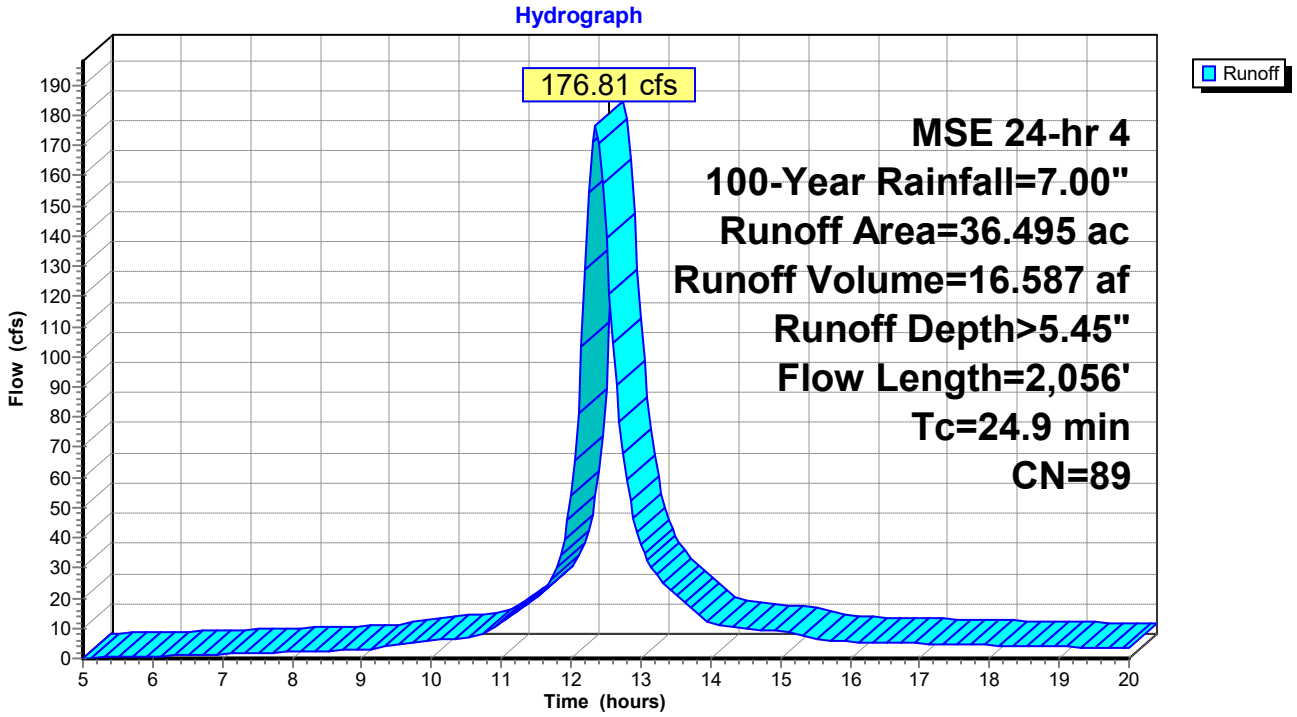
Runoff = 176.81 cfs @ 12.35 hrs, Volume= 16.587 af, Depth> 5.45"
Routed to Link 11L : 11L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
5.596	89	Row crops, straight row, good, HSG D
1.047	85	Row crops, straight row, good, HSG C
25.567	89	Row crops, straight row, good, HSG D
2.600	89	Row crops, straight row, good, HSG D
0.069	92	Paved roads w/open ditches, 50% imp, HSG C
0.064	93	Paved roads w/open ditches, 50% imp, HSG D
0.508	93	Paved roads w/open ditches, 50% imp, HSG D
0.016	93	Paved roads w/open ditches, 50% imp, HSG D
0.569	93	Paved roads w/open ditches, 50% imp, HSG D
0.432	93	Paved roads w/open ditches, 50% imp, HSG D
0.027	89	Row crops, straight row, good, HSG D
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
36.495	89	Weighted Average
35.666		97.73% Pervious Area
0.829		2.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	97	0.0366	0.43		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
14.9	1,451	0.0101	1.62		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
6.3	508	0.0013	1.35	6.75	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
24.9	2,056	Total			

Subcatchment 23: 23



Summary for Subcatchment 24: 24

[47] Hint: Peak is 758% of capacity of segment #3

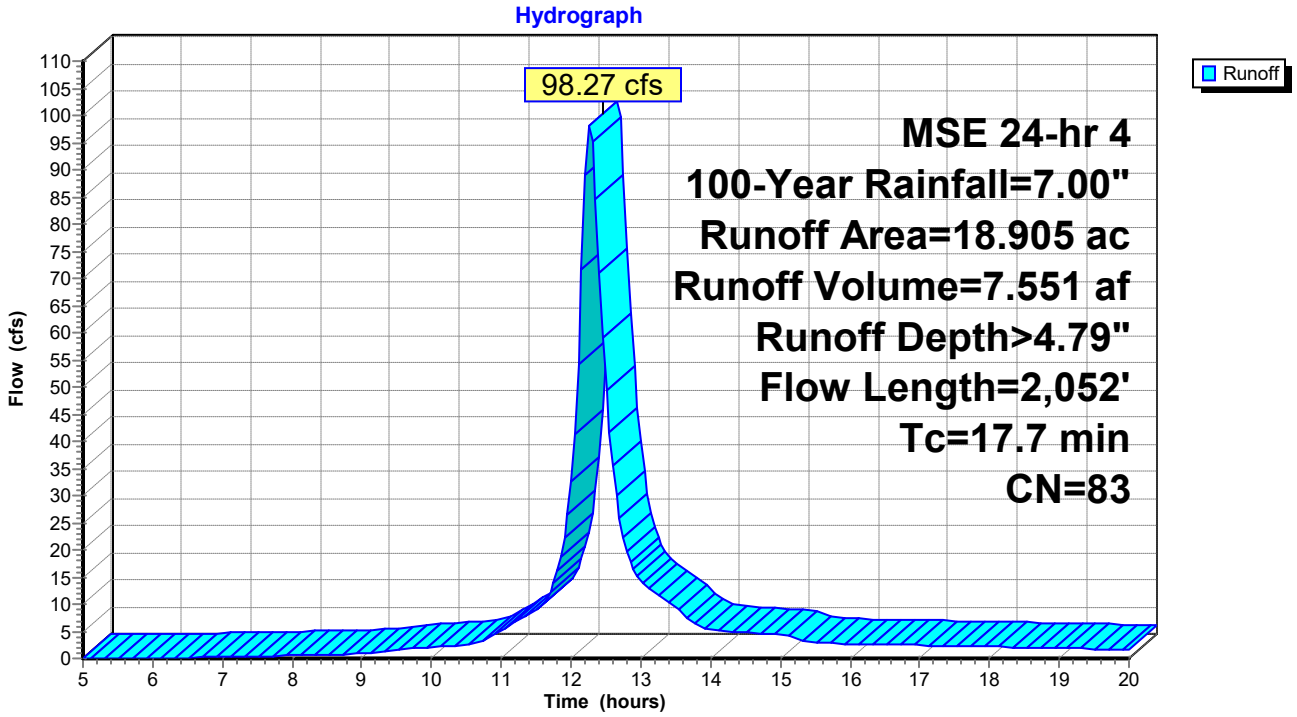
Runoff = 98.27 cfs @ 12.26 hrs, Volume= 7.551 af, Depth> 4.79"
Routed to Pond 6P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.208	80	Pasture/grassland/range, good, HSG D
10.154	80	Pasture/grassland/range, good, HSG D
0.275	80	Pasture/grassland/range, good, HSG D
2.579	80	Pasture/grassland/range, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
0.116	85	Row crops, straight row, good, HSG C
3.910	89	Row crops, straight row, good, HSG D
1.663	89	Row crops, straight row, good, HSG D
18.905	83	Weighted Average
18.905		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0176	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.7	406	0.0240	2.49		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.9	1,546	0.0048	2.59	12.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
17.7	2,052	Total			

Subcatchment 24: 24



Summary for Subcatchment 25: 25

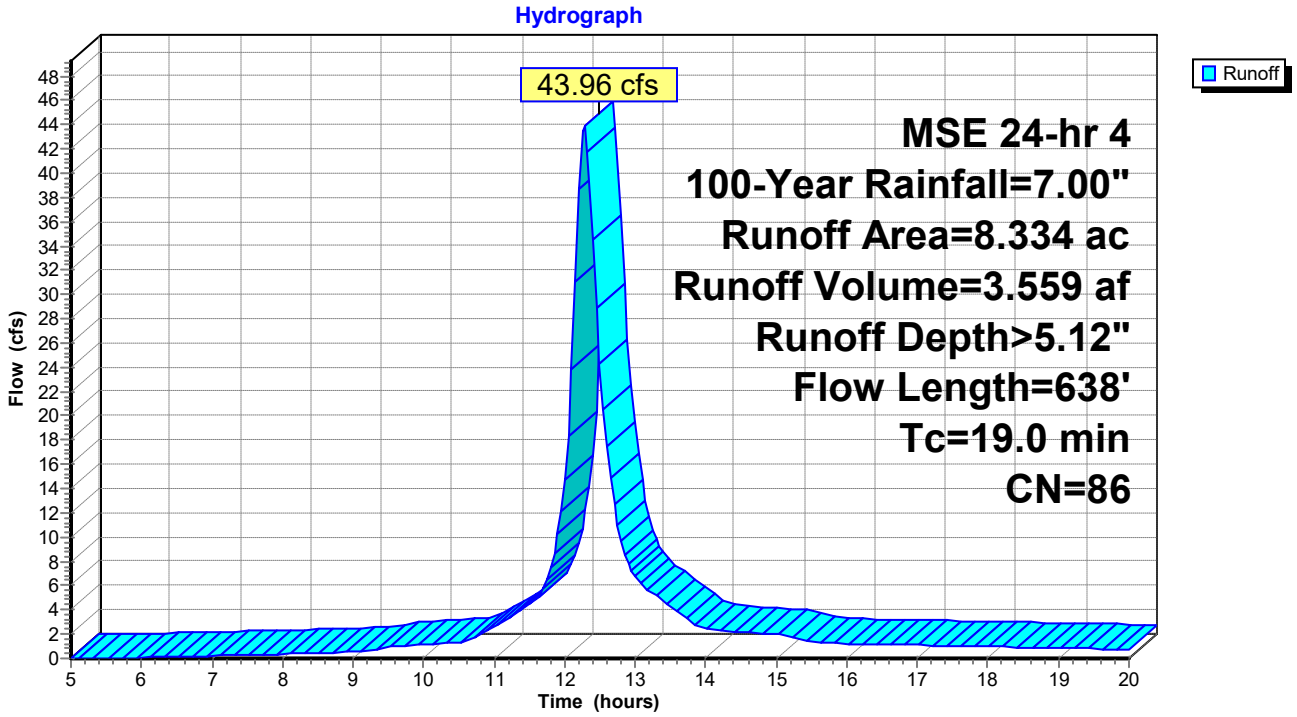
Runoff = 43.96 cfs @ 12.28 hrs, Volume= 3.559 af, Depth> 5.12"
Routed to Pond 5P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.774	89	Row crops, straight row, good, HSG D
4.466	89	Row crops, straight row, good, HSG D
0.306	93	Paved roads w/open ditches, 50% imp, HSG D
0.015	93	Paved roads w/open ditches, 50% imp, HSG D
1.782	80	Pasture/grassland/range, good, HSG D
0.983	80	Pasture/grassland/range, good, HSG D
0.008	80	Pasture/grassland/range, good, HSG D
8.334	86	Weighted Average
8.173		98.07% Pervious Area
0.160		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0107	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.0	538	0.0195	2.25		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.0	638	Total			

Subcatchment 25: 25



Summary for Subcatchment 26: 26

[47] Hint: Peak is 397% of capacity of segment #3

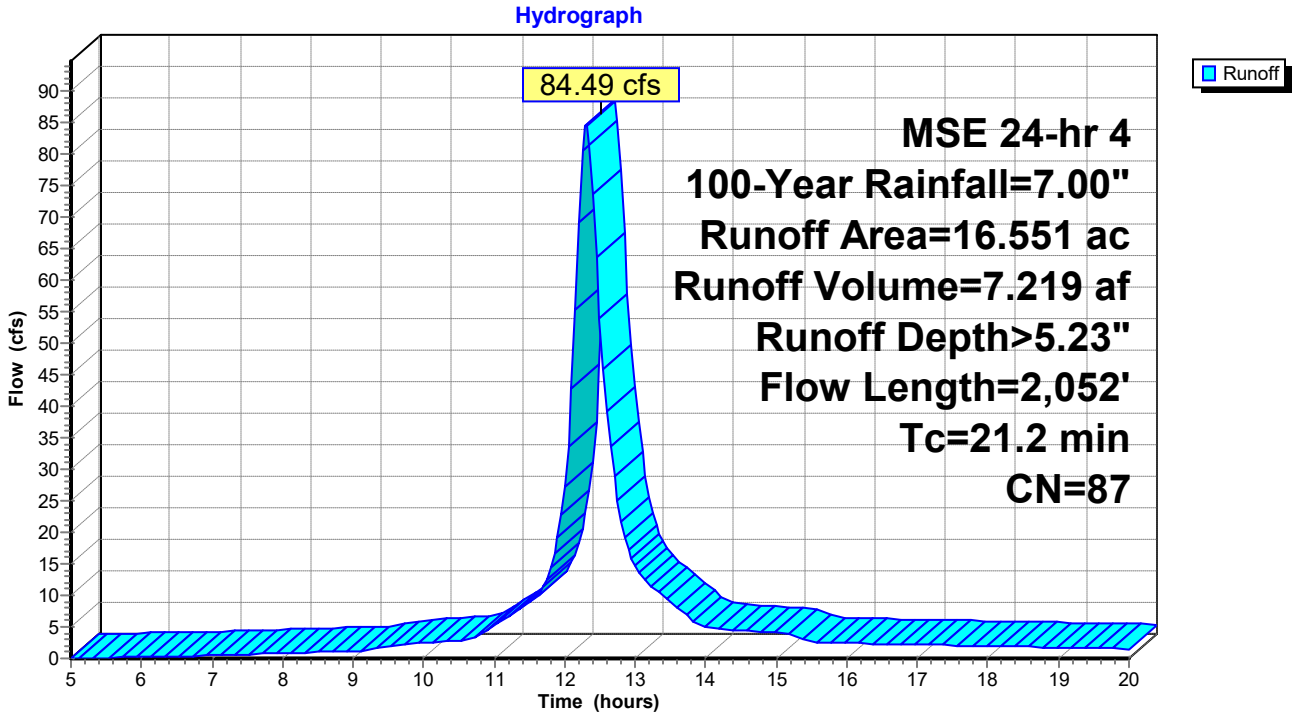
Runoff = 84.49 cfs @ 12.30 hrs, Volume= 7.219 af, Depth> 5.23"
Routed to Pond 4P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.771	89	Row crops, straight row, good, HSG D
0.380	85	Row crops, straight row, good, HSG C
0.939	89	Row crops, straight row, good, HSG D
0.895	89	Row crops, straight row, good, HSG D
2.210	89	Row crops, straight row, good, HSG D
0.145	93	Paved roads w/open ditches, 50% imp, HSG D
0.056	85	Row crops, straight row, good, HSG C
0.149	89	Row crops, straight row, good, HSG D
0.459	85	Row crops, straight row, good, HSG C
0.913	89	Row crops, straight row, good, HSG D
0.006	93	Paved roads w/open ditches, 50% imp, HSG D
0.567	93	Paved roads w/open ditches, 50% imp, HSG D
0.133	92	Paved roads w/open ditches, 50% imp, HSG C
0.688	93	Paved roads w/open ditches, 50% imp, HSG D
0.655	80	Pasture/grassland/range, good, HSG D
0.136	74	Pasture/grassland/range, good, HSG C
3.448	80	Pasture/grassland/range, good, HSG D
16.551	87	Weighted Average
15.781		95.35% Pervious Area
0.769		4.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0269	0.16		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
6.5	844	0.0183	2.18		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.3	1,108	0.0129	4.25	21.26	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
21.2	2,052	Total			

Subcatchment 26: 26



Summary for Subcatchment 27: 27

[47] Hint: Peak is 644% of capacity of segment #3

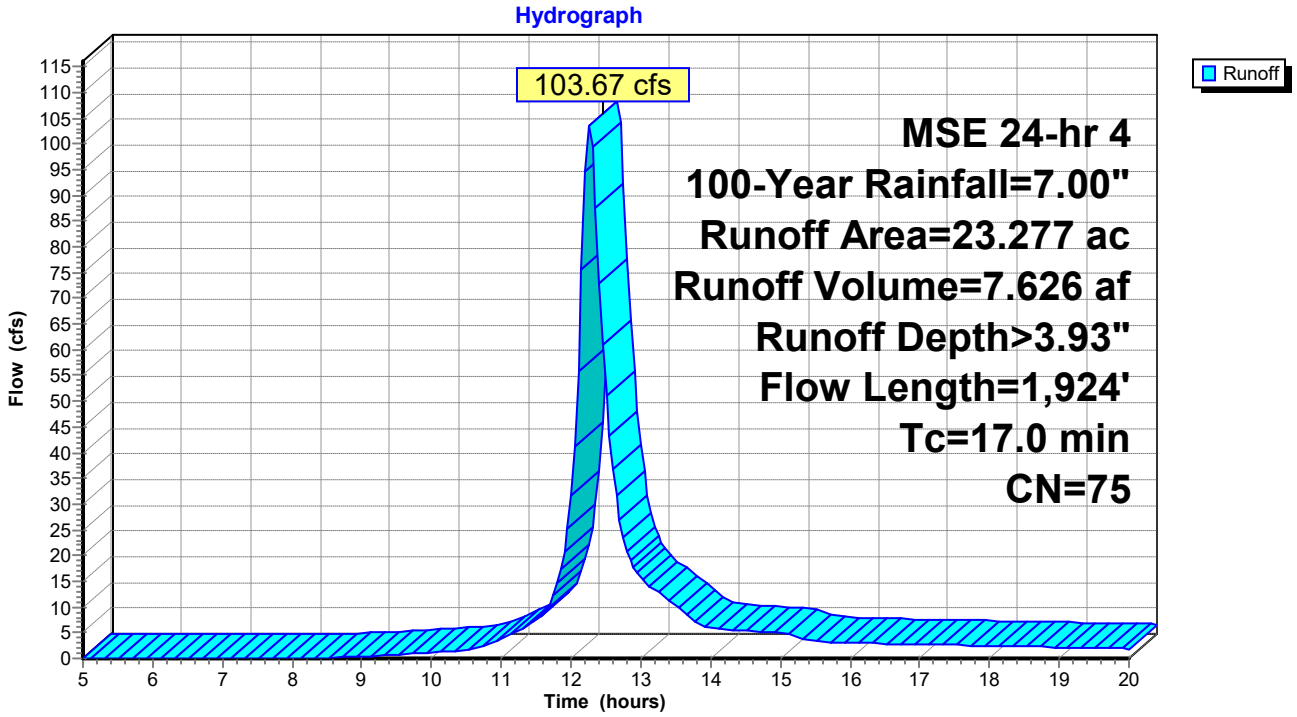
Runoff = 103.67 cfs @ 12.26 hrs, Volume= 7.626 af, Depth> 3.93"
Routed to Pond 4P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.899	39	Pasture/grassland/range, good, HSG A
9.040	80	Pasture/grassland/range, good, HSG D
1.478	74	Pasture/grassland/range, good, HSG C
2.591	80	Pasture/grassland/range, good, HSG D
0.037	93	Paved roads w/open ditches, 50% imp, HSG D
2.747	85	Row crops, straight row, good, HSG C
3.299	89	Row crops, straight row, good, HSG D
0.186	85	Row crops, straight row, good, HSG C
0.000	85	Row crops, straight row, good, HSG C
23.277	75	Weighted Average
23.258		99.92% Pervious Area
0.018		0.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	95	0.0357	0.43		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.3	1,446	0.0175	2.13		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.0	383	0.0074	3.22	16.11	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
17.0	1,924	Total			

Subcatchment 27: 27



Summary for Subcatchment 28: 28

[47] Hint: Peak is 530% of capacity of segment #3

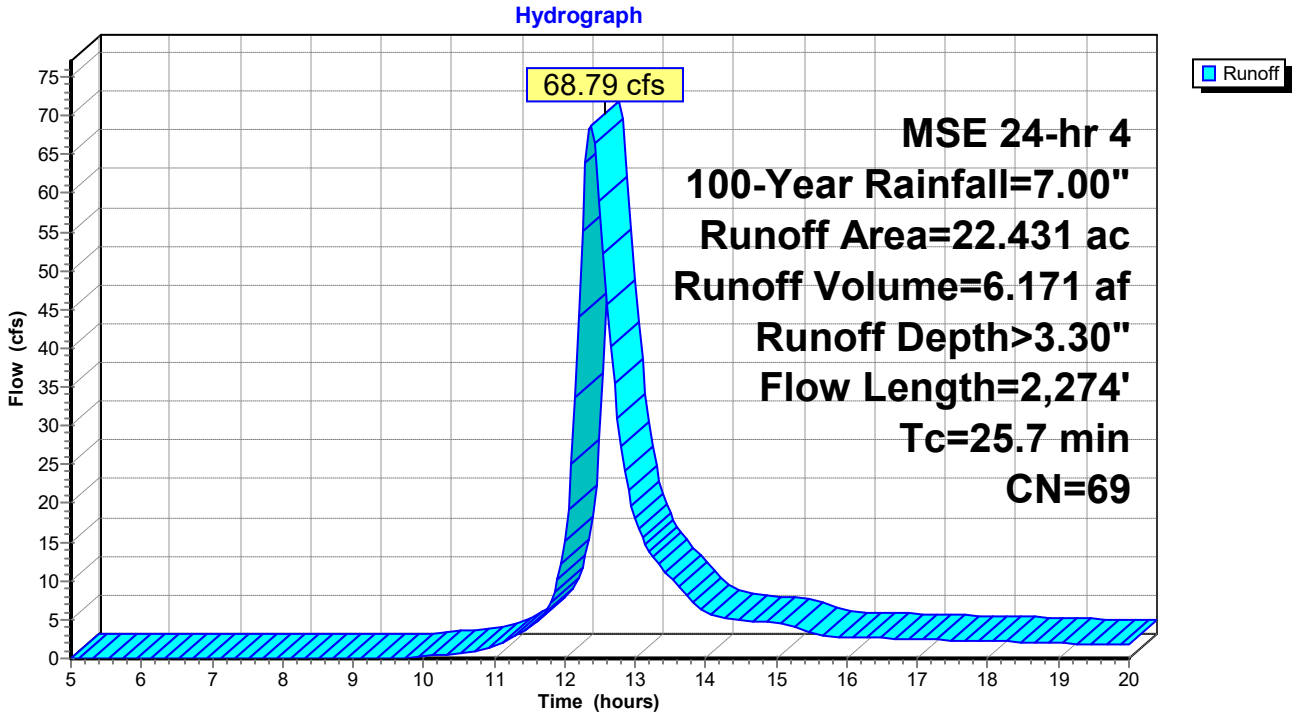
Runoff = 68.79 cfs @ 12.37 hrs, Volume= 6.171 af, Depth> 3.30"
Routed to Link 3L : 3L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.702	89	Row crops, straight row, good, HSG D
0.155	78	Row crops, straight row, good, HSG B
0.006	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
0.015	85	Row crops, straight row, good, HSG C
3.076	85	Row crops, straight row, good, HSG C
5.239	89	Row crops, straight row, good, HSG D
2.878	85	Row crops, straight row, good, HSG C
0.624	80	Pasture/grassland/range, good, HSG D
7.099	39	Pasture/grassland/range, good, HSG A
2.096	61	Pasture/grassland/range, good, HSG B
0.179	74	Pasture/grassland/range, good, HSG C
0.090	74	Pasture/grassland/range, good, HSG C
0.272	74	Pasture/grassland/range, good, HSG C
22.431	69	Weighted Average
22.431		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	99	0.0201	0.34		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
18.5	1,808	0.0102	1.63		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.4	367	0.0048	2.59	12.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.7	2,274	Total			

Subcatchment 28: 28



Summary for Subcatchment 29: 29

[47] Hint: Peak is 742% of capacity of segment #3

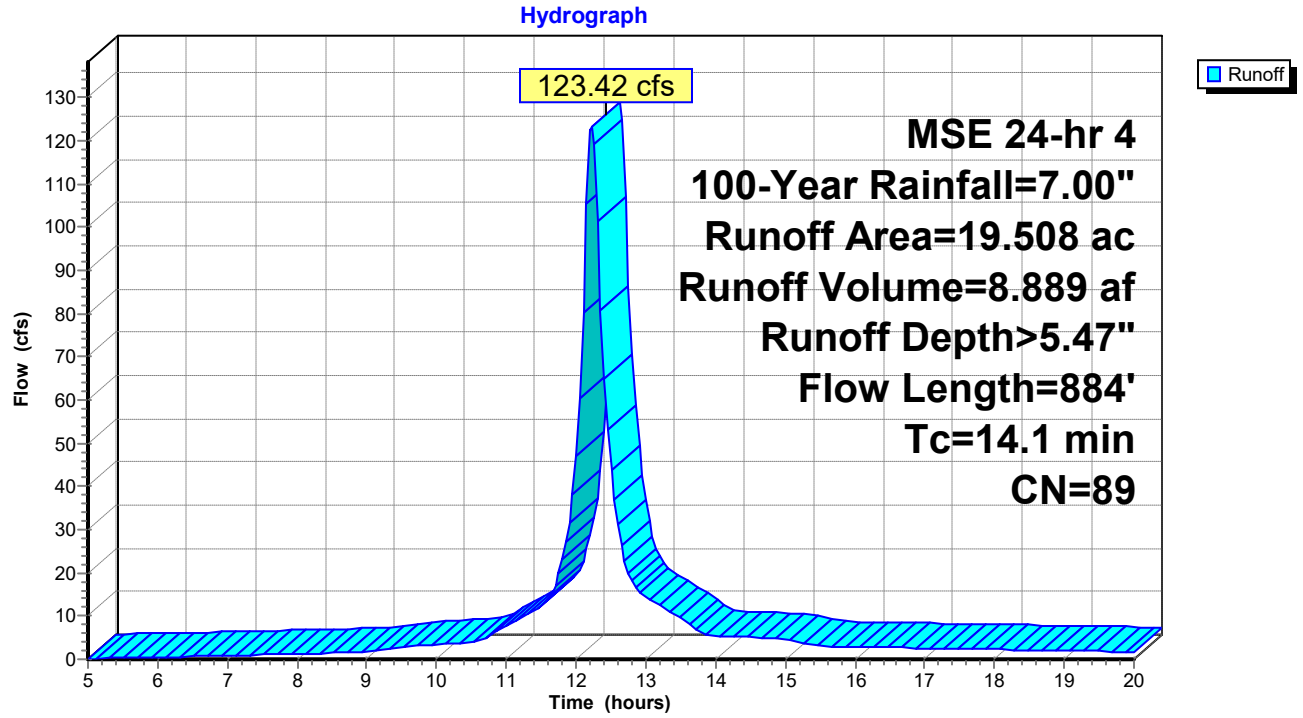
Runoff = 123.42 cfs @ 12.22 hrs, Volume= 8.889 af, Depth> 5.47"
Routed to Link 4L : 4L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
19.201	89	Row crops, straight row, good, HSG D
0.306	89	Row crops, straight row, good, HSG D
19.508	89	Weighted Average
19.508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.4	552	0.0166	2.07		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.2	232	0.0079	3.33	16.64	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
14.1	884	Total			

Subcatchment 29: 29



Summary for Subcatchment 30: 30

[47] Hint: Peak is 893% of capacity of segment #3

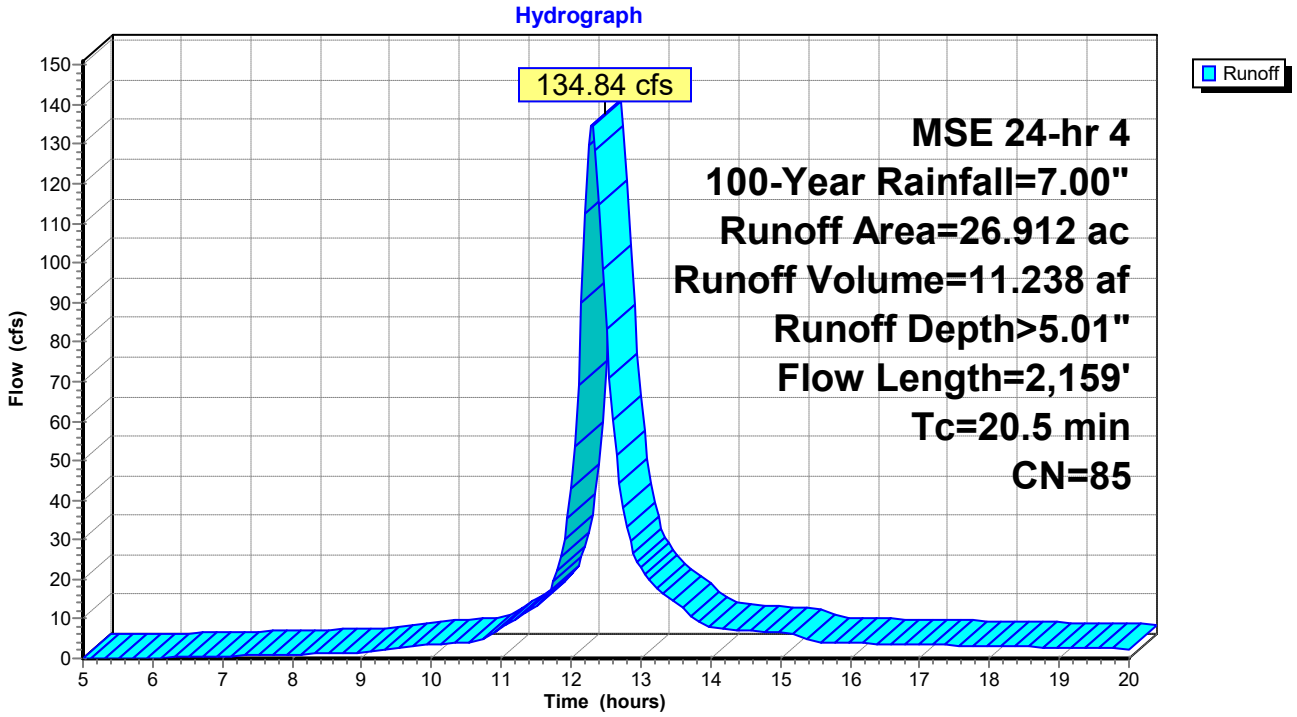
Runoff = 134.84 cfs @ 12.30 hrs, Volume= 11.238 af, Depth> 5.01"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.177	78	Row crops, straight row, good, HSG B
2.084	89	Row crops, straight row, good, HSG D
17.224	85	Row crops, straight row, good, HSG C
4.427	89	Row crops, straight row, good, HSG D
26.912	85	Weighted Average
26.912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0512	0.50		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.6	1,037	0.0085	1.48		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.6	1,022	0.0065	3.02	15.09	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
20.5	2,159	Total			

Subcatchment 30: 30



Summary for Subcatchment 31: 31

[47] Hint: Peak is 680% of capacity of segment #3

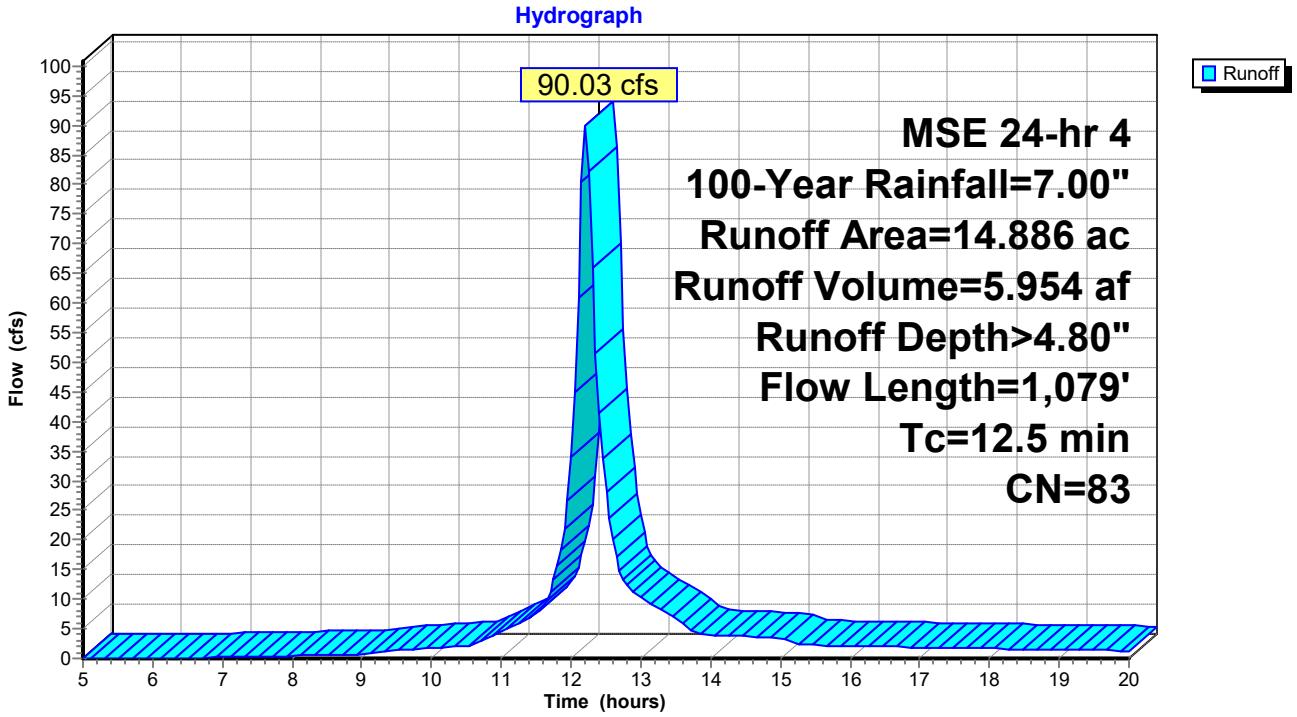
Runoff = 90.03 cfs @ 12.20 hrs, Volume= 5.954 af, Depth> 4.80"
Routed to Reach 3R : Drainage Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.914	85	Row crops, straight row, good, HSG C
0.043	89	Row crops, straight row, good, HSG D
8.515	85	Row crops, straight row, good, HSG C
0.875	74	Pasture/grassland/range, good, HSG C
2.382	74	Pasture/grassland/range, good, HSG C
0.042	82	Farmsteads, HSG C
0.292	82	Farmsteads, HSG C
0.821	86	Farmsteads, HSG D
14.886	83	Weighted Average
14.886		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.0440	0.47		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
6.7	611	0.0089	1.52		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	368	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
12.5	1,079	Total			

Subcatchment 31: 31



Summary for Subcatchment 32: 32

[47] Hint: Peak is 620% of capacity of segment #3

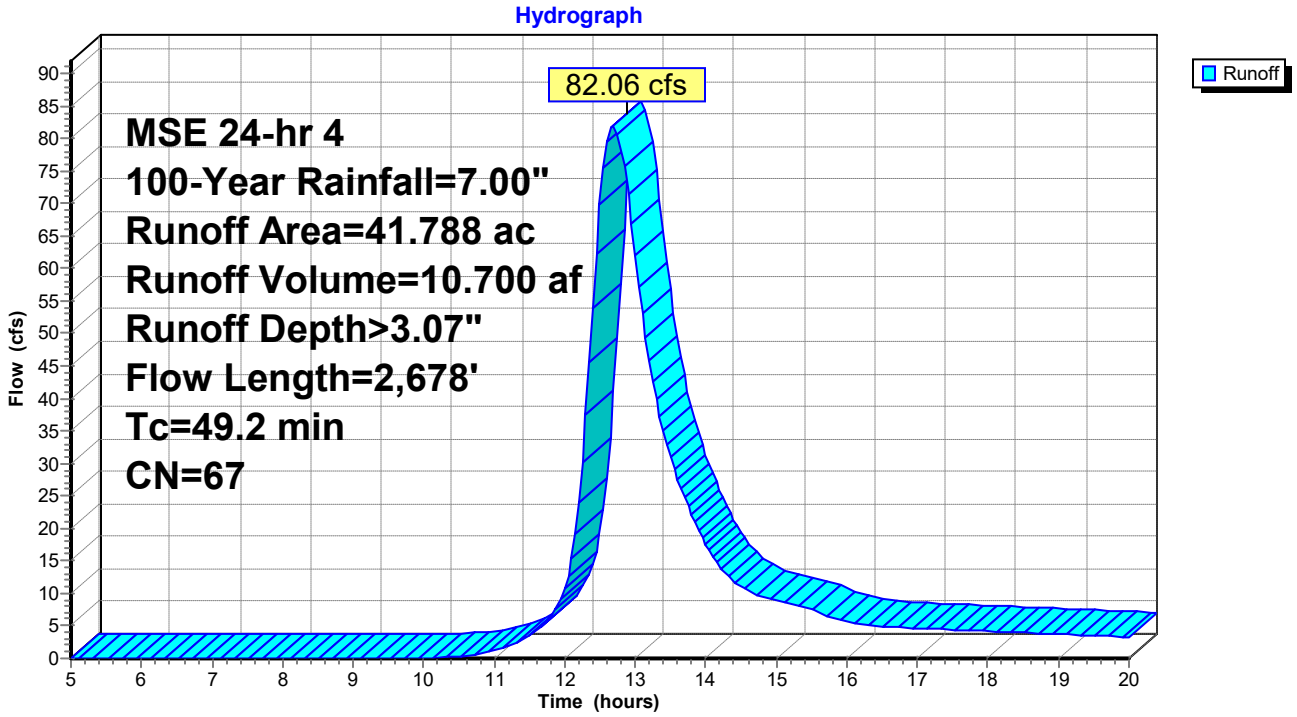
Runoff = 82.06 cfs @ 12.69 hrs, Volume= 10.700 af, Depth> 3.07"
Routed to Link 3L : 3L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
40.945	67	Row crops, straight row, good, HSG A
0.137	67	Row crops, straight row, good, HSG A
0.707	83	Paved roads w/open ditches, 50% imp, HSG A
41.788	67	Weighted Average
41.435		99.15% Pervious Area
0.353		0.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.9	100	0.0025	0.06		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
11.6	886	0.0063	1.28		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
10.7	1,692	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
49.2	2,678	Total			

Subcatchment 32: 32



Summary for Subcatchment 33: 33

[47] Hint: Peak is 497% of capacity of segment #3

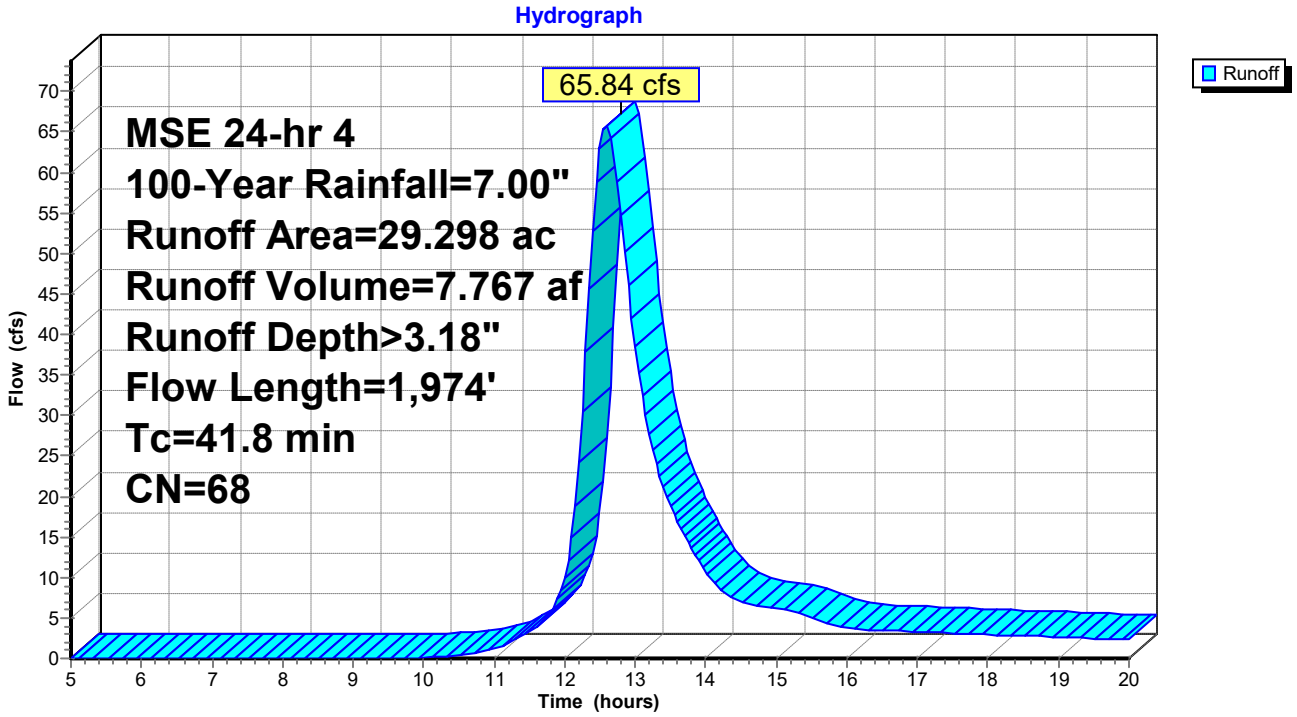
Runoff = 65.84 cfs @ 12.59 hrs, Volume= 7.767 af, Depth> 3.18"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.633	67	Row crops, straight row, good, HSG A
16.140	67	Row crops, straight row, good, HSG A
0.127	67	Row crops, straight row, good, HSG A
1.316	89	Row crops, straight row, good, HSG D
1.439	67	Row crops, straight row, good, HSG A
8.986	67	Row crops, straight row, good, HSG A
0.657	83	Paved roads w/open ditches, 50% imp, HSG A
29.298	68	Weighted Average
28.970		98.88% Pervious Area
0.328		1.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0054	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
17.9	1,226	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.1	648	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.8	1,974	Total			

Subcatchment 33: 33



Summary for Subcatchment 34: 34

[47] Hint: Peak is 384% of capacity of segment #3

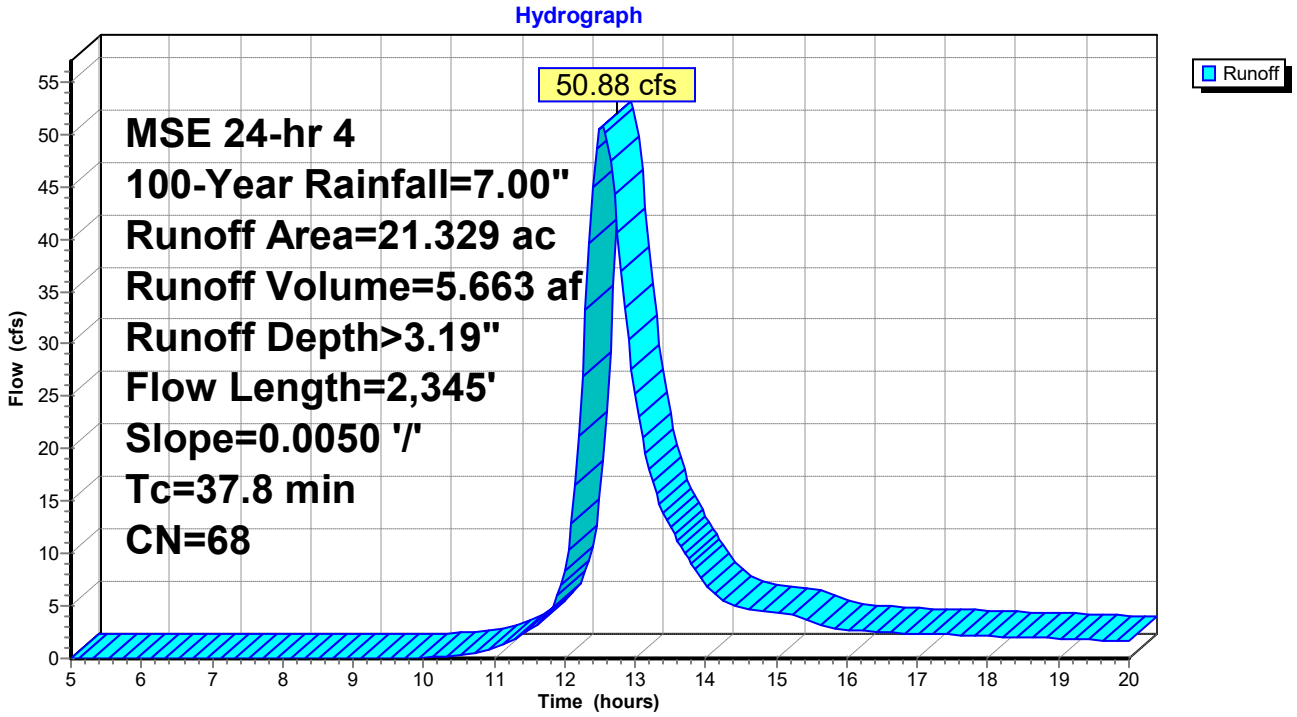
Runoff = 50.88 cfs @ 12.54 hrs, Volume= 5.663 af, Depth> 3.19"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
20.121	67	Row crops, straight row, good, HSG A
0.000	89	Row crops, straight row, good, HSG D
0.122	89	Row crops, straight row, good, HSG D
0.588	83	Paved roads w/open ditches, 50% imp, HSG A
0.010	83	Paved roads w/open ditches, 50% imp, HSG A
0.487	83	Paved roads w/open ditches, 50% imp, HSG A
0.001	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
21.329	68	Weighted Average
20.786		97.46% Pervious Area
0.542		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
26.6	1,817	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.7	428	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
37.8	2,345	Total			

Subcatchment 34: 34



Summary for Subcatchment 35: 35

[47] Hint: Peak is 426% of capacity of segment #3

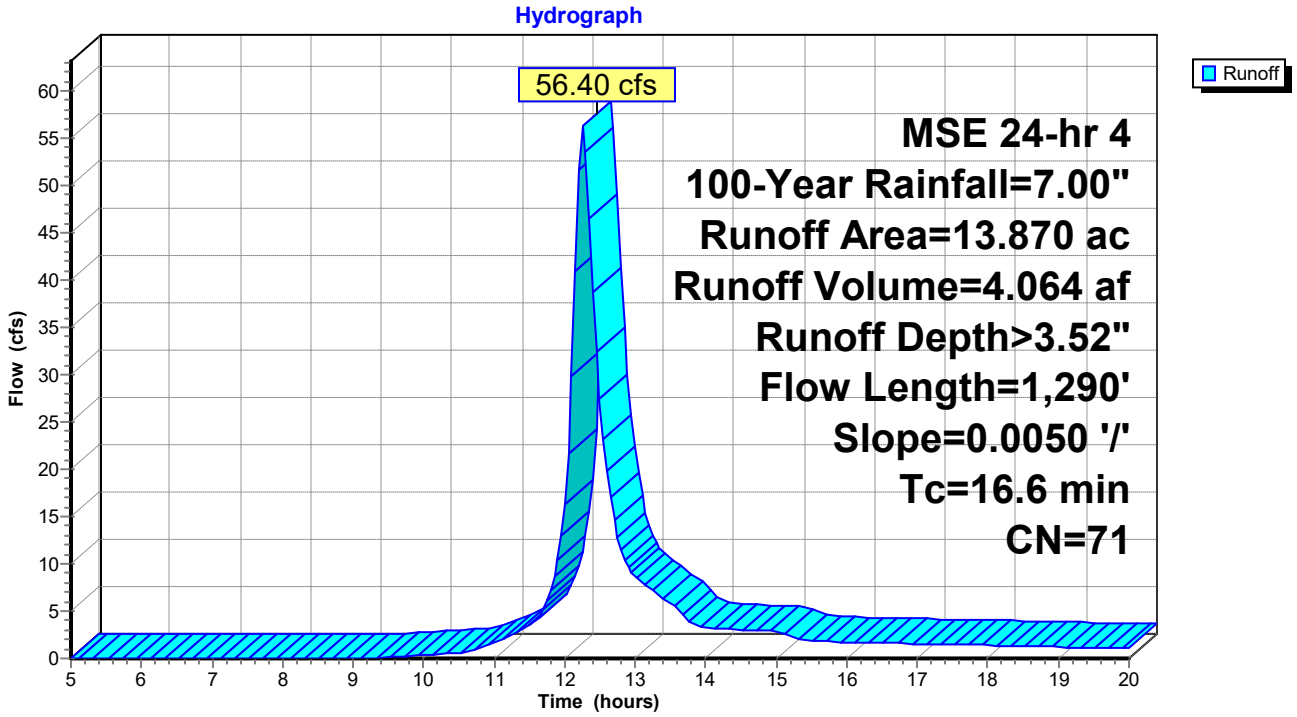
Runoff = 56.40 cfs @ 12.26 hrs, Volume= 4.064 af, Depth> 3.52"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
10.415	67	Row crops, straight row, good, HSG A
0.016	89	Row crops, straight row, good, HSG D
0.000	85	Row crops, straight row, good, HSG C
3.191	85	Row crops, straight row, good, HSG C
0.247	83	Paved roads w/open ditches, 50% imp, HSG A
13.870	71	Weighted Average
13.746		99.11% Pervious Area
0.124		0.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
1.1	76	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.0	1,114	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
16.6	1,290	Total			

Subcatchment 35: 35



Summary for Subcatchment 36: 36

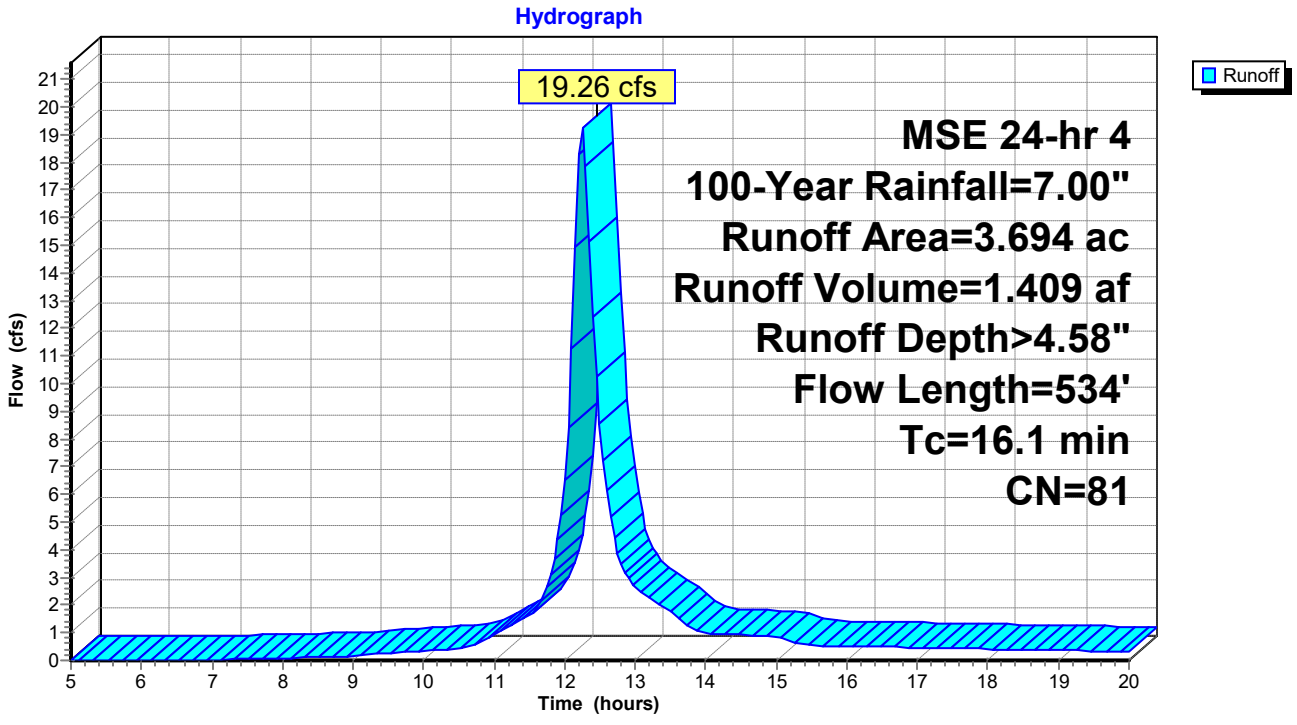
Runoff = 19.26 cfs @ 12.25 hrs, Volume= 1.409 af, Depth> 4.58"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.845	67	Row crops, straight row, good, HSG A
0.000	67	Row crops, straight row, good, HSG A
2.850	85	Row crops, straight row, good, HSG C
3.694	81	Weighted Average
3.694		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
7.6	434	0.0035	0.95		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
16.1	534	Total			

Subcatchment 36: 36



Summary for Subcatchment 37: 37

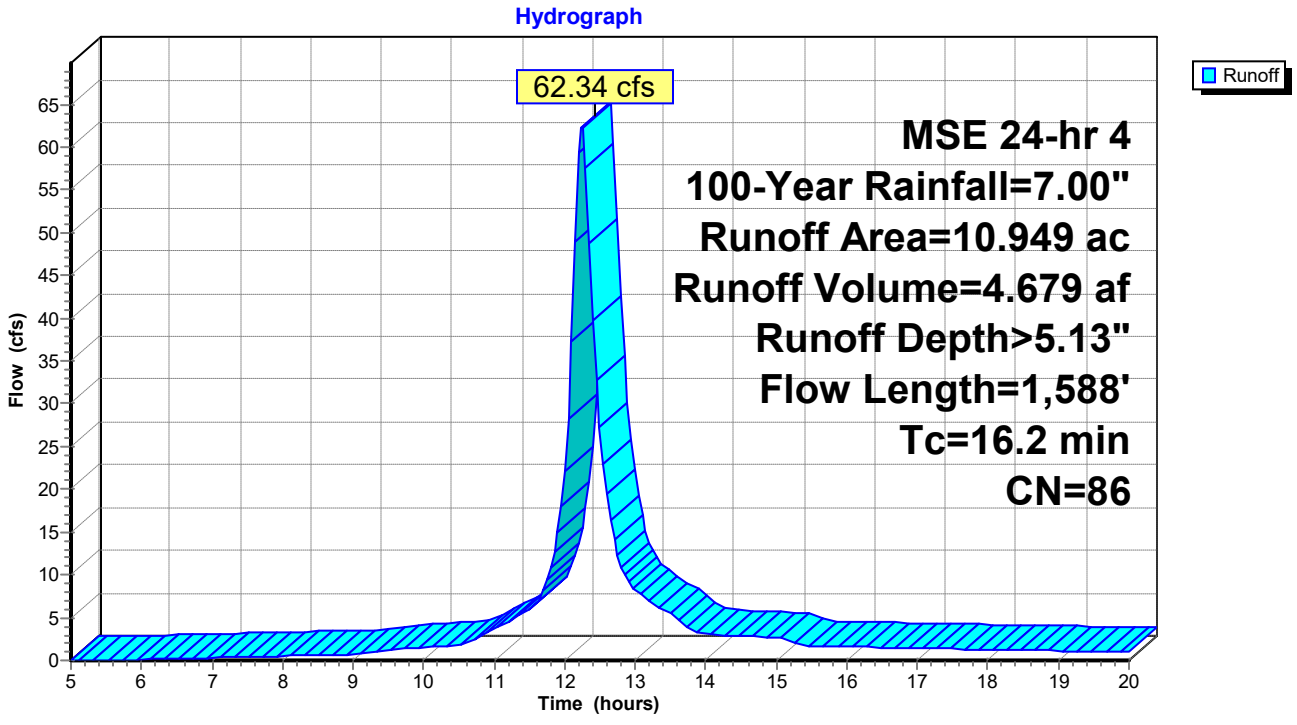
Runoff = 62.34 cfs @ 12.24 hrs, Volume= 4.679 af, Depth> 5.13"
Routed to Reach 2R : Drainage Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.982	89	Row crops, straight row, good, HSG D
8.963	85	Row crops, straight row, good, HSG C
0.004	85	Row crops, straight row, good, HSG C
10.949	86	Weighted Average
10.949		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0258	0.38		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.8	1,488	0.0171	2.11		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
16.2	1,588	Total			

Subcatchment 37: 37



Summary for Subcatchment 38: 38

[47] Hint: Peak is 612% of capacity of segment #3

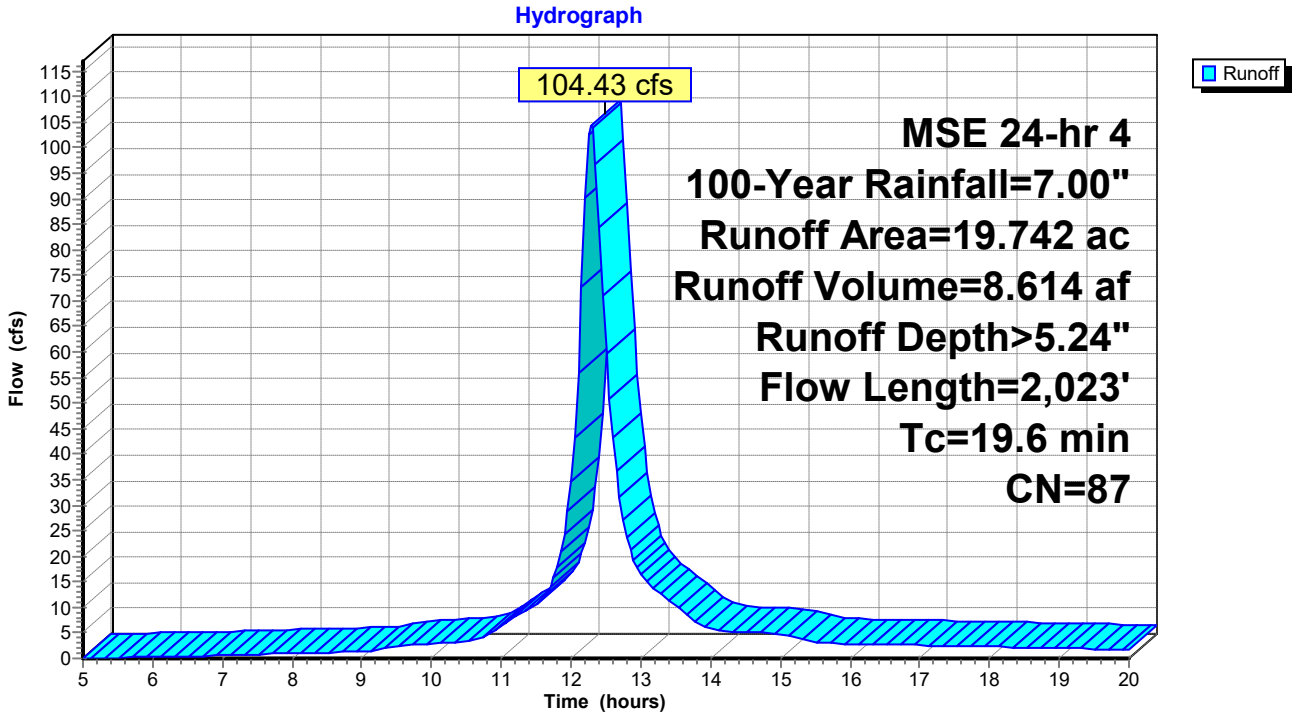
Runoff = 104.43 cfs @ 12.28 hrs, Volume= 8.614 af, Depth> 5.24"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.718	89	Row crops, straight row, good, HSG D
3.401	89	Row crops, straight row, good, HSG D
1.818	78	Row crops, straight row, good, HSG B
2.459	89	Row crops, straight row, good, HSG D
0.003	67	Row crops, straight row, good, HSG A
0.093	67	Row crops, straight row, good, HSG A
2.272	89	Row crops, straight row, good, HSG D
2.963	85	Row crops, straight row, good, HSG C
0.011	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	85	Row crops, straight row, good, HSG C
0.000	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
19.742	87	Weighted Average
19.736		99.97% Pervious Area
0.006		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0054	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.5	723	0.0187	2.20		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.9	1,200	0.0083	3.41	17.06	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.6	2,023	Total			

Subcatchment 38: 38



Summary for Subcatchment 39: 39

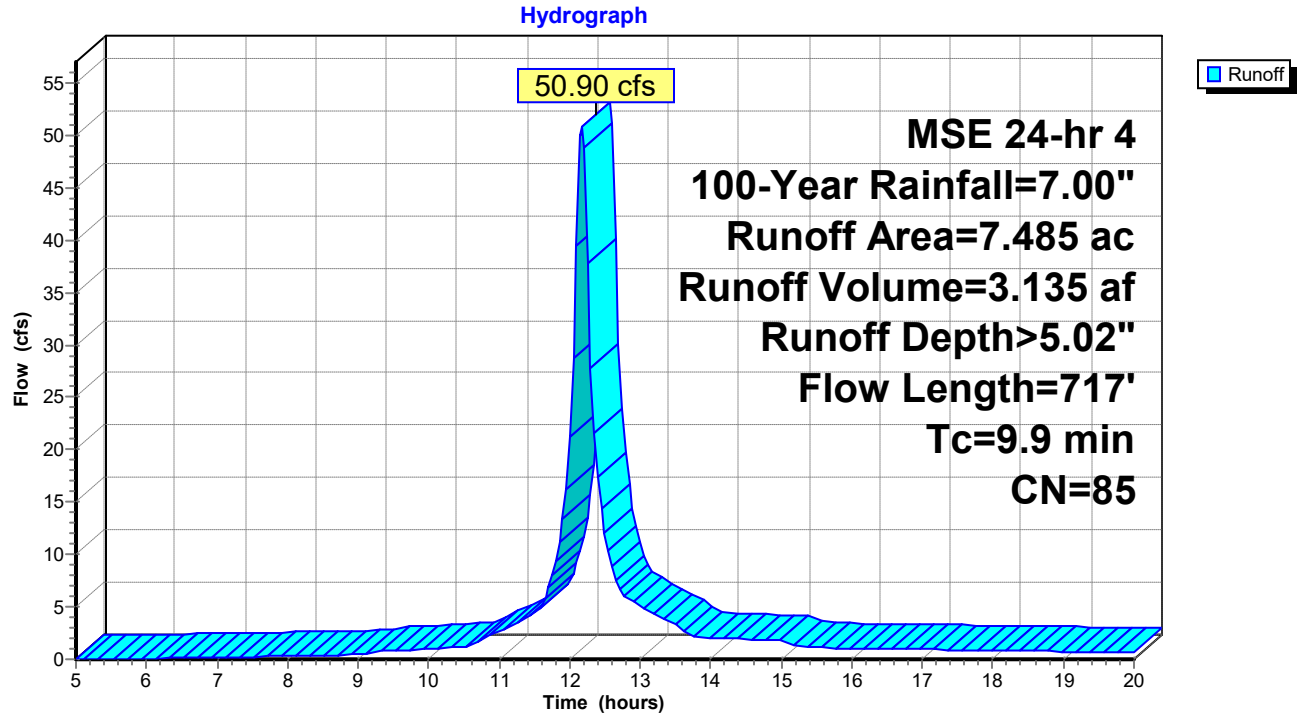
Runoff = 50.90 cfs @ 12.17 hrs, Volume= 3.135 af, Depth> 5.02"
Routed to Reach 1R : Ditch Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.166	89	Row crops, straight row, good, HSG D
2.721	78	Row crops, straight row, good, HSG B
0.204	89	Row crops, straight row, good, HSG D
0.268	93	Paved roads w/open ditches, 50% imp, HSG D
0.099	89	Paved roads w/open ditches, 50% imp, HSG B
0.028	93	Paved roads w/open ditches, 50% imp, HSG D
7.485	85	Weighted Average
7.288		97.37% Pervious Area
0.197		2.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0180	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.8	617	0.0177	2.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.9	717	Total			

Subcatchment 39: 39



Summary for Subcatchment 100: 100

[47] Hint: Peak is 132% of capacity of segment #3

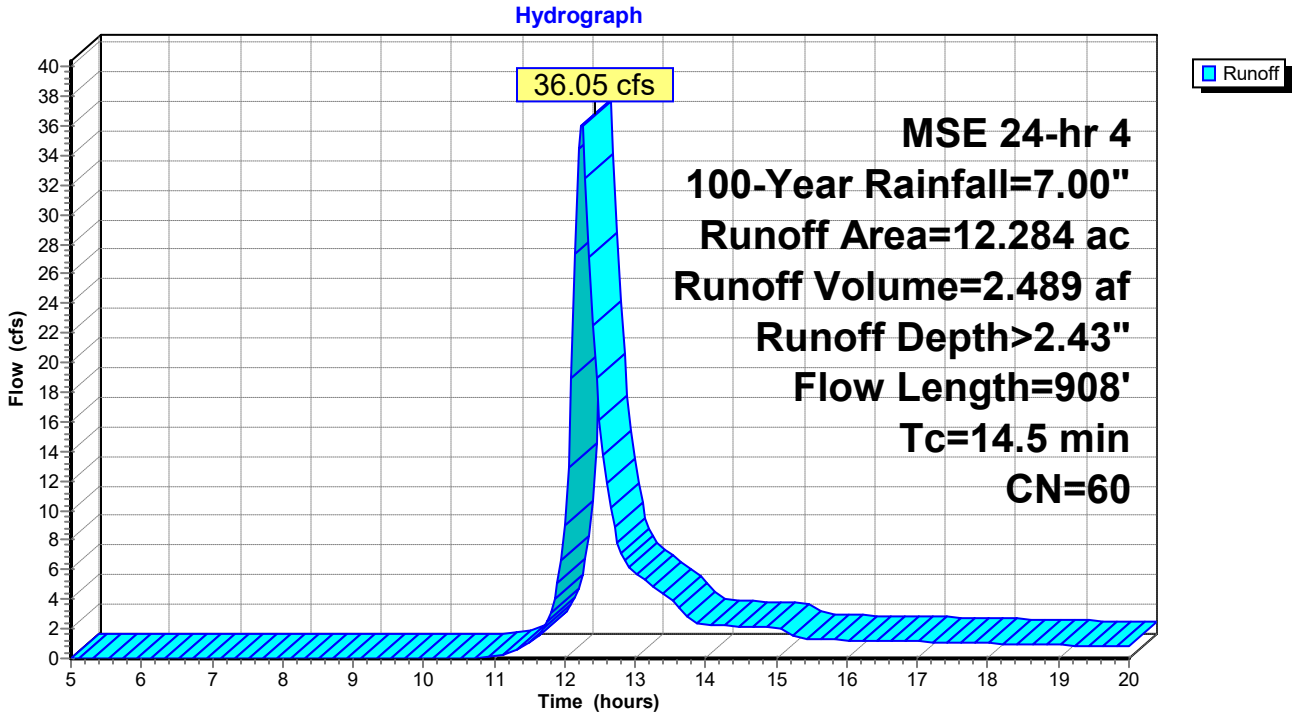
Runoff = 36.05 cfs @ 12.24 hrs, Volume= 2.489 af, Depth> 2.43"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
12.003	59	Farmsteads, HSG A
0.152	83	Paved roads w/open ditches, 50% imp, HSG A
0.129	83	Paved roads w/open ditches, 50% imp, HSG A
12.284	60	Weighted Average
12.143		98.86% Pervious Area
0.141		1.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	100	0.0125	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
8.0	626	0.0066	1.31		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.6	182	0.0213	5.46	27.32	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
14.5	908	Total			

Subcatchment 100: 100



Summary for Subcatchment 101: 101

[47] Hint: Peak is 193% of capacity of segment #3

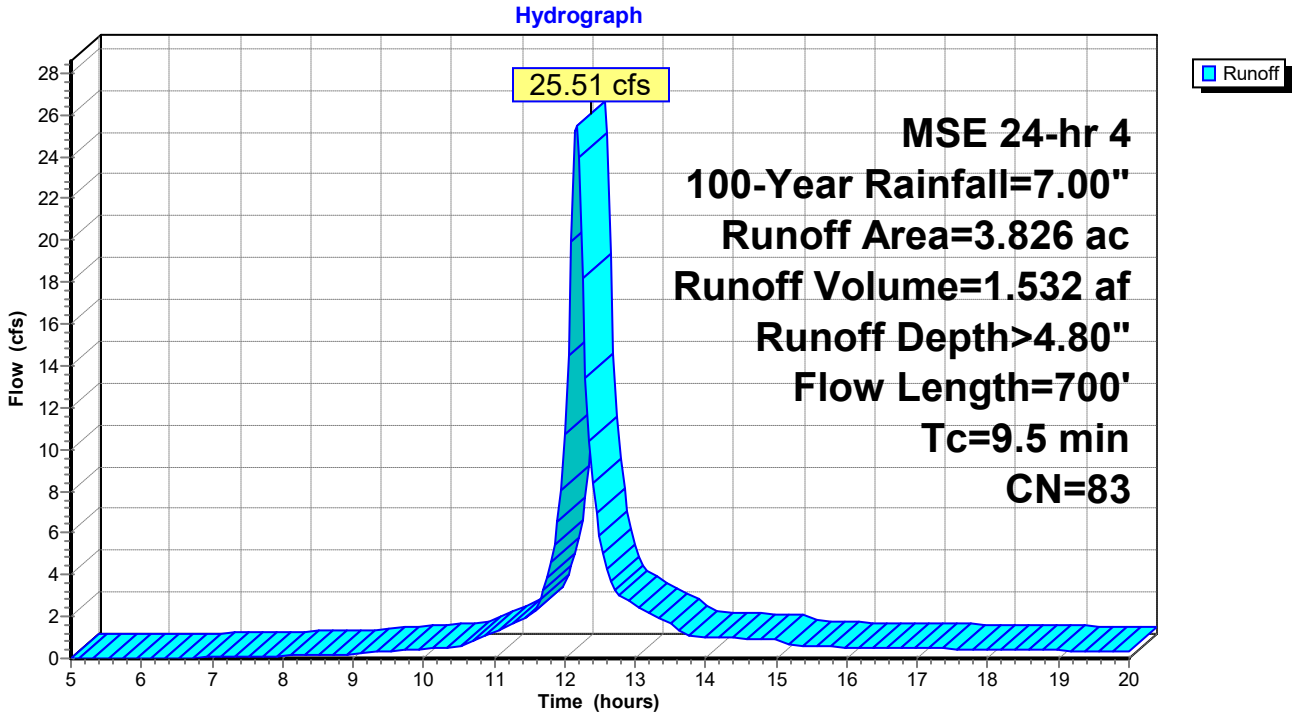
Runoff = 25.51 cfs @ 12.17 hrs, Volume= 1.532 af, Depth> 4.80"
Routed to Pond 10P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.395	82	Farmsteads, HSG C
0.240	92	Paved roads w/open ditches, 50% imp, HSG C
0.192	92	Paved roads w/open ditches, 50% imp, HSG C
3.826	83	Weighted Average
3.611		94.37% Pervious Area
0.216		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0143	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.3	343	0.0231	2.45		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.6	257	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
9.5	700	Total			

Subcatchment 101: 101



Summary for Subcatchment 102: 102

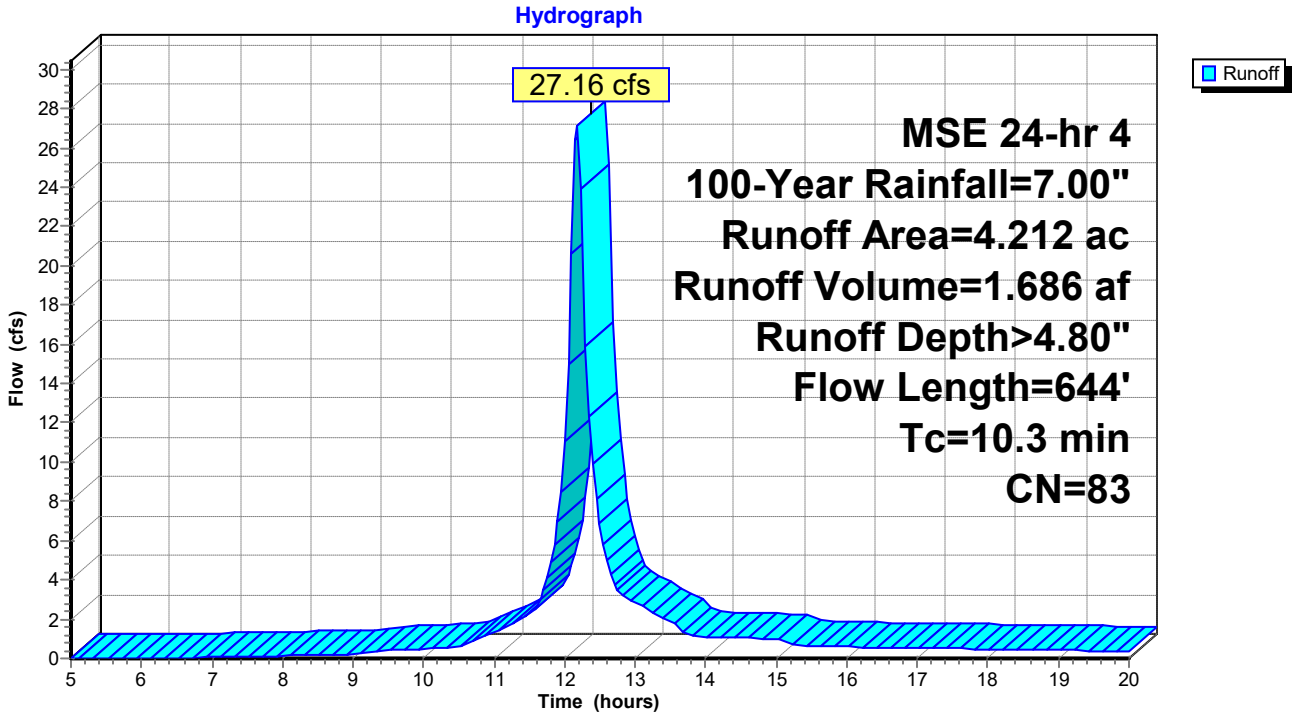
Runoff = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af, Depth> 4.80"
Routed to Pond 9P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.752	82	Farmsteads, HSG C
0.081	86	Farmsteads, HSG D
0.191	92	Paved roads w/open ditches, 50% imp, HSG C
0.153	92	Paved roads w/open ditches, 50% imp, HSG C
0.023	92	Paved roads w/open ditches, 50% imp, HSG C
0.008	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	86	Farmsteads, HSG D
0.001	93	Paved roads w/open ditches, 50% imp, HSG D
4.212	83	Weighted Average
4.024		95.53% Pervious Area
0.188		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0118	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.3	544	0.0174	2.12		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
10.3	644	Total			

Subcatchment 102: 102



Summary for Subcatchment 103: 103

[47] Hint: Peak is 240% of capacity of segment #3

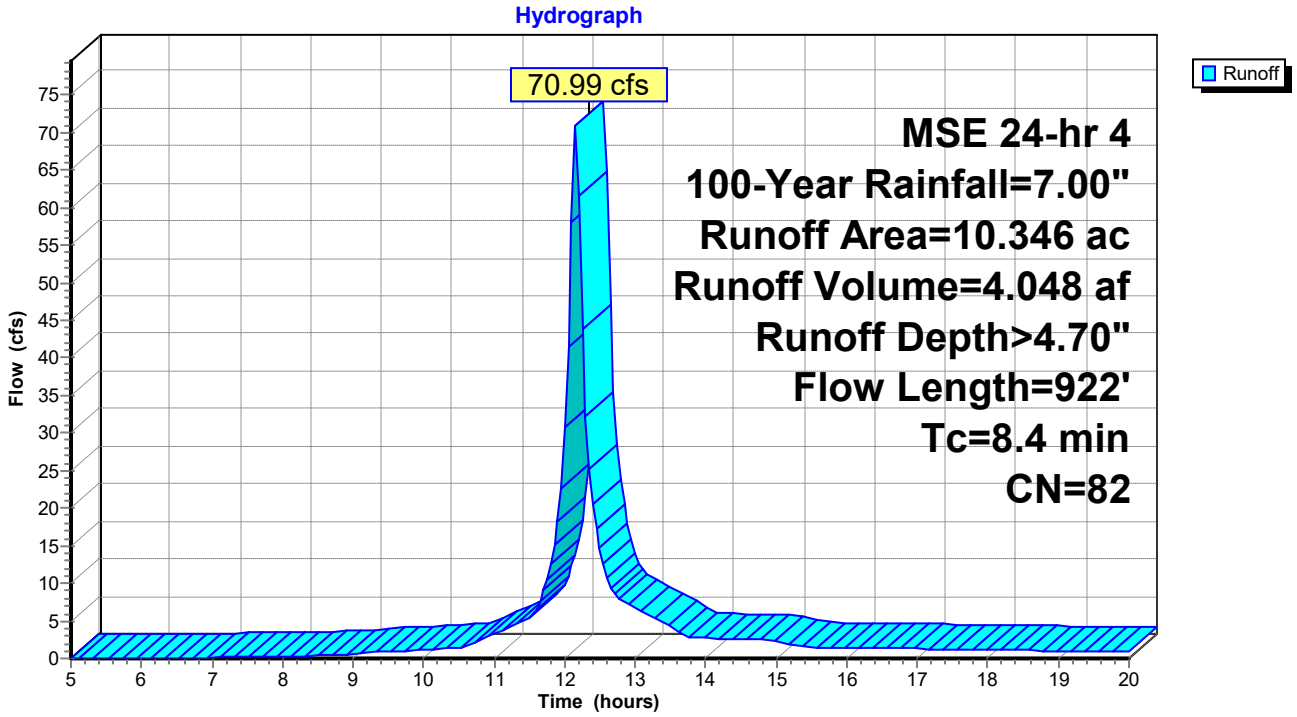
Runoff = 70.99 cfs @ 12.15 hrs, Volume= 4.048 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
10.228	82	Farmsteads, HSG C
0.069	86	Farmsteads, HSG D
0.049	82	Farmsteads, HSG C
0.000	86	Farmsteads, HSG D
0.000	86	Farmsteads, HSG D
10.346	82	Weighted Average
10.346		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	96	0.0341	0.42		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.7	493	0.0195	2.25		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.9	333	0.0250	5.92	29.60	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
8.4	922	Total			

Subcatchment 103: 103



Summary for Subcatchment 104: 104

[47] Hint: Peak is 400% of capacity of segment #3

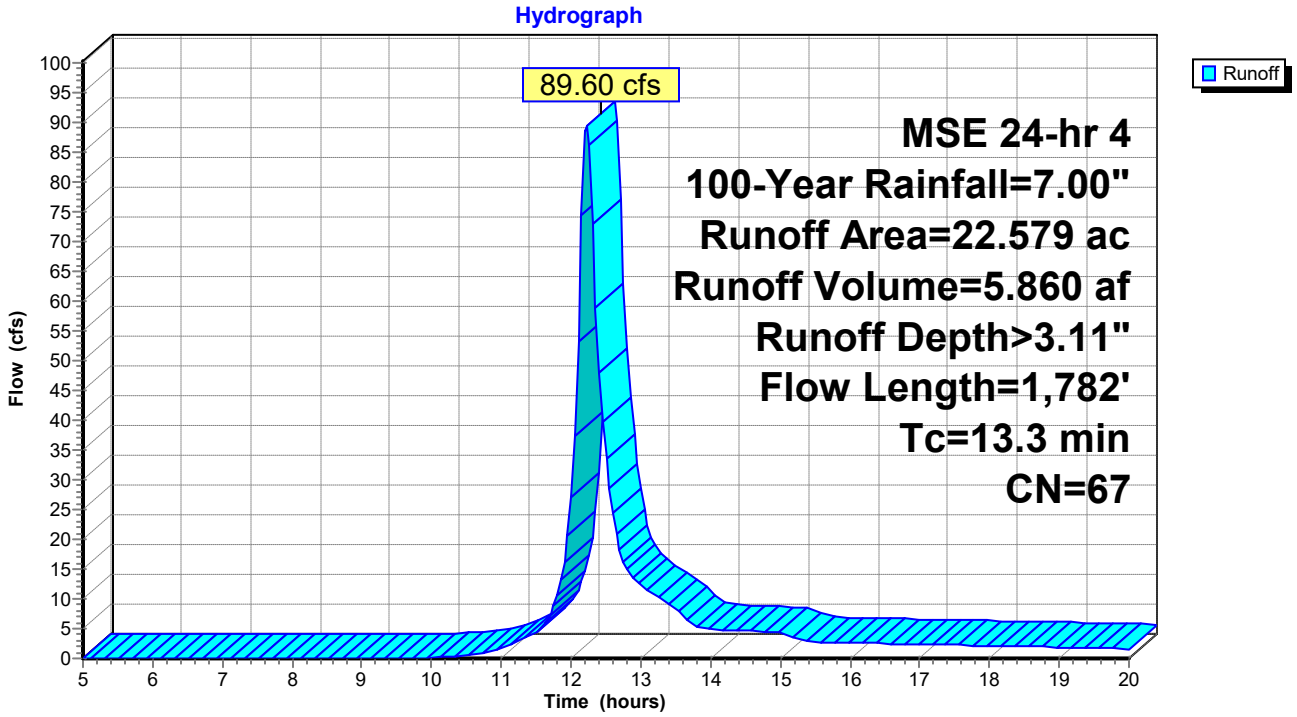
Runoff = 89.60 cfs @ 12.22 hrs, Volume= 5.860 af, Depth> 3.11"
Routed to Link 12L : 12L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.950	80	Pasture/grassland/range, good, HSG D
6.379	39	Pasture/grassland/range, good, HSG A
5.585	74	Pasture/grassland/range, good, HSG C
0.939	80	Pasture/grassland/range, good, HSG D
7.725	80	Pasture/grassland/range, good, HSG D
22.579	67	Weighted Average
22.579		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	100	0.0493	0.49		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
7.2	946	0.0185	2.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.7	736	0.0143	4.48	22.39	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
13.3	1,782	Total			

Subcatchment 104: 104



Summary for Subcatchment 105: 105

[47] Hint: Peak is 325% of capacity of segment #3

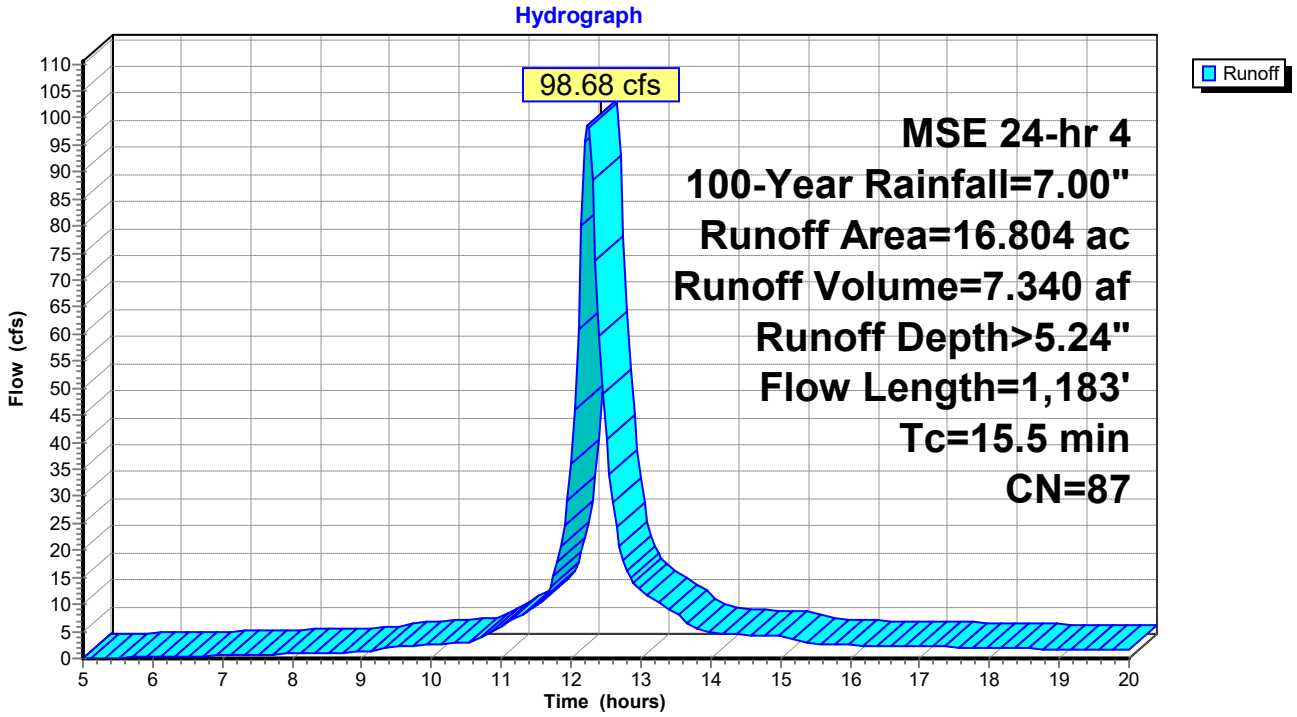
Runoff = 98.68 cfs @ 12.24 hrs, Volume= 7.340 af, Depth> 5.24"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.375	89	Row crops, straight row, good, HSG D
1.749	89	Row crops, straight row, good, HSG D
8.674	89	Row crops, straight row, good, HSG D
0.049	77	Woods, Good, HSG D
0.022	70	Woods, Good, HSG C
2.026	77	Woods, Good, HSG D
0.909	77	Woods, Good, HSG D
16.804	87	Weighted Average
16.804		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.3	475	0.0085	1.48		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.7	608	0.0263	6.07	30.36	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.5	1,183	Total			

Subcatchment 105: 105



Summary for Subcatchment 106: 106

[47] Hint: Peak is 289% of capacity of segment #3

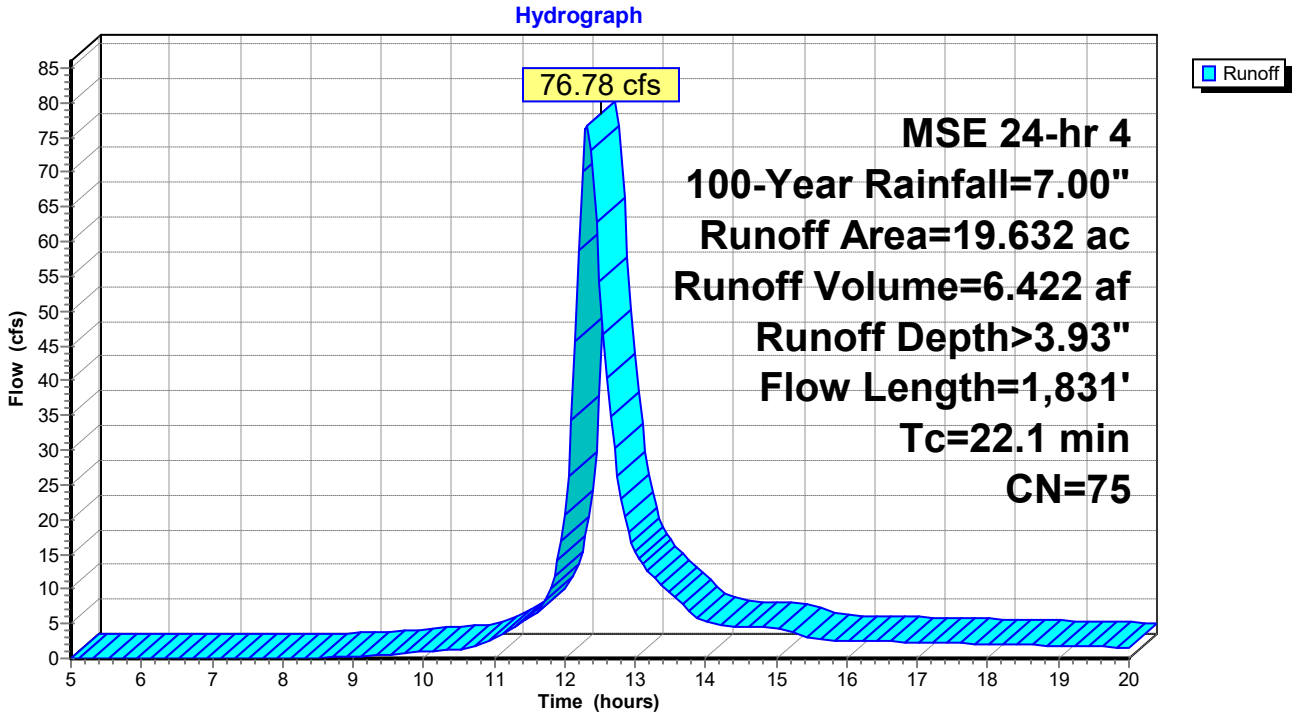
Runoff = 76.78 cfs @ 12.32 hrs, Volume= 6.422 af, Depth> 3.93"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.039	30	Woods, Good, HSG A
7.546	77	Woods, Good, HSG D
0.437	77	Woods, Good, HSG D
0.917	30	Woods, Good, HSG A
2.850	77	Woods, Good, HSG D
0.012	77	Woods, Good, HSG D
2.355	77	Woods, Good, HSG D
0.013	77	Woods, Good, HSG D
0.870	77	Woods, Good, HSG D
1.102	89	Row crops, straight row, good, HSG D
1.589	89	Row crops, straight row, good, HSG D
0.903	89	Row crops, straight row, good, HSG D
19.632	75	Weighted Average
19.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0143	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
14.1	961	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.4	770	0.0201	5.31	26.54	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
22.1	1,831	Total			

Subcatchment 106: 106



Summary for Subcatchment 107: 107

[47] Hint: Peak is 1395% of capacity of segment #3

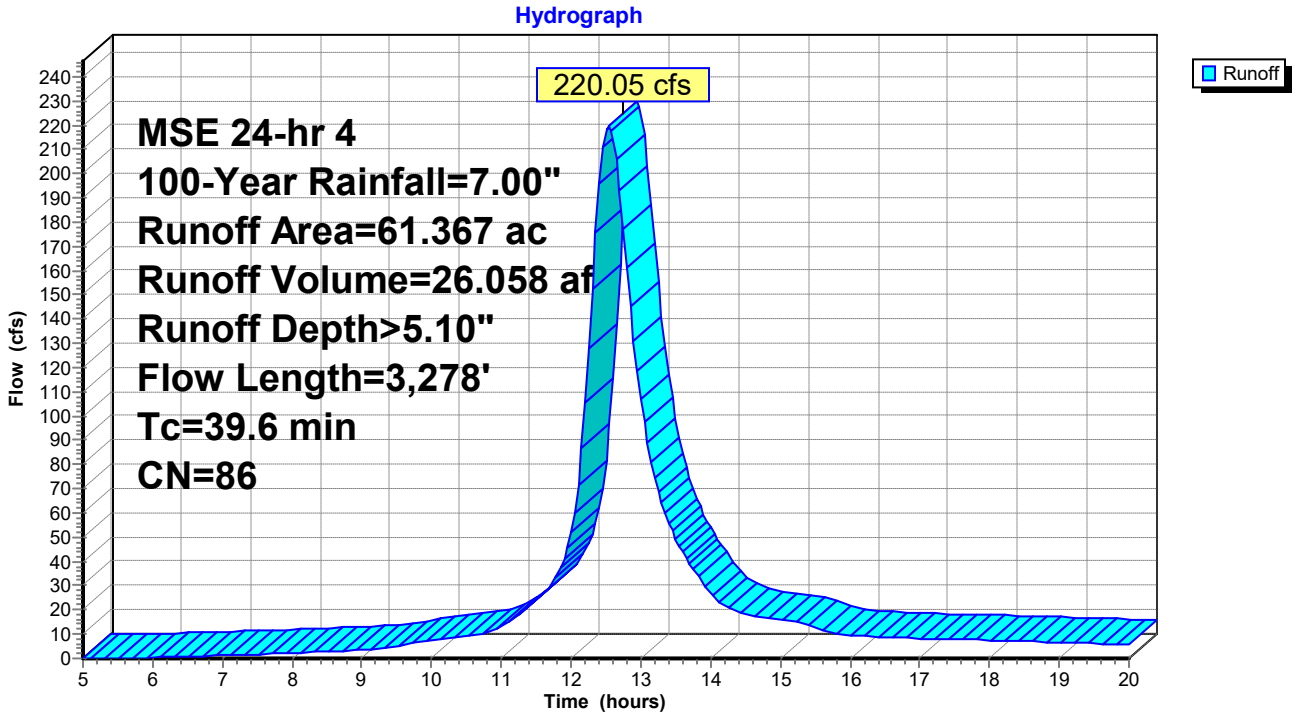
Runoff = 220.05 cfs @ 12.54 hrs, Volume= 26.058 af, Depth> 5.10"
Routed to Pond 7P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.761	89	Row crops, straight row, good, HSG D
34.615	85	Row crops, straight row, good, HSG C
2.015	89	Row crops, straight row, good, HSG D
2.416	89	Row crops, straight row, good, HSG D
5.178	89	Row crops, straight row, good, HSG D
6.964	89	Row crops, straight row, good, HSG D
0.136	89	Row crops, straight row, good, HSG D
0.209	89	Row crops, straight row, good, HSG D
1.435	92	Paved roads w/open ditches, 50% imp, HSG C
0.224	93	Paved roads w/open ditches, 50% imp, HSG D
0.085	93	Paved roads w/open ditches, 50% imp, HSG D
0.138	85	Row crops, straight row, good, HSG C
0.311	89	Row crops, straight row, good, HSG D
3.768	82	Farmsteads, HSG C
0.695	86	Farmsteads, HSG D
1.405	82	Farmsteads, HSG C
0.010	85	Row crops, straight row, good, HSG C
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.000	92	Paved roads w/open ditches, 50% imp, HSG C
0.001	82	Farmsteads, HSG C
61.367	86	Weighted Average
60.495		98.58% Pervious Area
0.872		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0033	0.17		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
17.3	850	0.0026	0.82		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
12.3	2,328	0.0071	3.16	15.78	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
39.6	3,278	Total			

Subcatchment 107: 107



Summary for Subcatchment 108: 108

[47] Hint: Peak is 2284% of capacity of segment #3

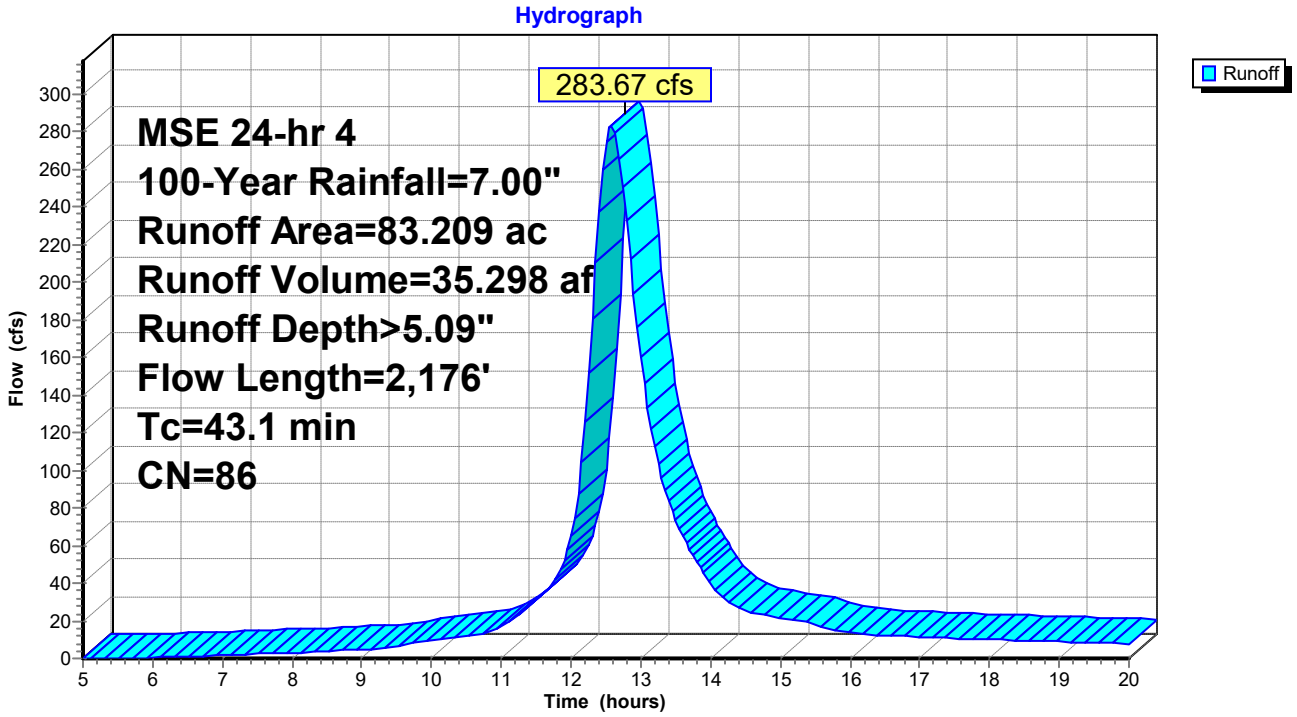
Runoff = 283.67 cfs @ 12.58 hrs, Volume= 35.298 af, Depth> 5.09"
Routed to Reach 4R : Drainage Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
5.022	89	Row crops, straight row, good, HSG D
0.063	89	Row crops, straight row, good, HSG D
3.900	89	Row crops, straight row, good, HSG D
0.745	89	Row crops, straight row, good, HSG D
0.001	85	Row crops, straight row, good, HSG C
9.379	85	Row crops, straight row, good, HSG C
9.706	85	Row crops, straight row, good, HSG C
0.000	89	Row crops, straight row, good, HSG D
36.028	89	Row crops, straight row, good, HSG D
6.286	89	Row crops, straight row, good, HSG D
1.133	89	Row crops, straight row, good, HSG D
1.834	30	Woods, Good, HSG A
3.733	77	Woods, Good, HSG D
2.504	77	Woods, Good, HSG D
2.875	82	Farmsteads, HSG C
0.001	82	Farmsteads, HSG C
83.209	86	Weighted Average
83.209		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	83	0.1259	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
28.9	1,557	0.0031	0.90		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.6	536	0.0044	2.48	12.42	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
43.1	2,176	Total			

Subcatchment 108: 108



Summary for Subcatchment 109: 109

[47] Hint: Peak is 371% of capacity of segment #3

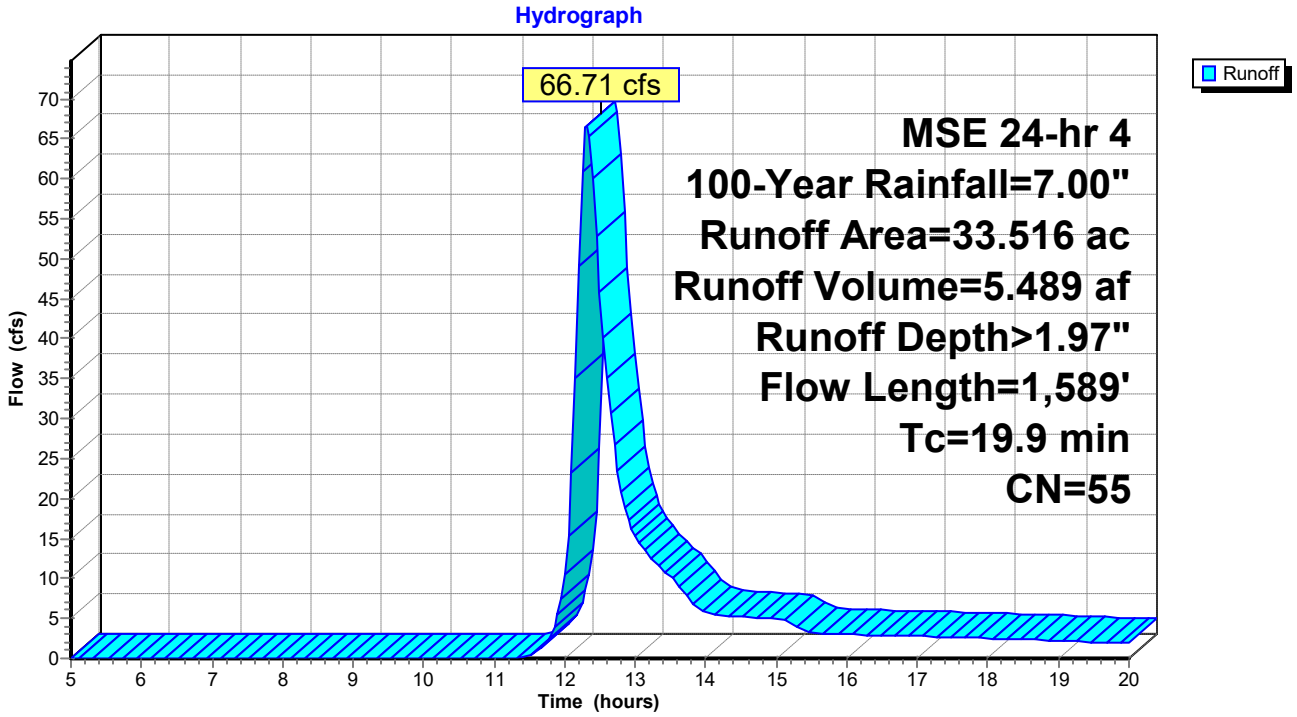
Runoff = 66.71 cfs @ 12.32 hrs, Volume= 5.489 af, Depth> 1.97"
Routed to Pond 3P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
11.589	39	Pasture/grassland/range, good, HSG A
7.123	61	Pasture/grassland/range, good, HSG B
2.798	80	Pasture/grassland/range, good, HSG D
0.001	74	Pasture/grassland/range, good, HSG C
0.167	39	Pasture/grassland/range, good, HSG A
0.962	83	Paved roads w/open ditches, 50% imp, HSG A
0.000	67	Row crops, straight row, good, HSG A
2.567	67	Row crops, straight row, good, HSG A
0.000	67	Row crops, straight row, good, HSG A
0.001	67	Row crops, straight row, good, HSG A
3.251	59	Farmsteads, HSG A
0.432	59	Farmsteads, HSG A
1.148	59	Farmsteads, HSG A
1.919	59	Farmsteads, HSG A
1.557	59	Farmsteads, HSG A
33.516	55	Weighted Average
33.035		98.56% Pervious Area
0.481		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	100	0.0123	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
13.4	1,353	0.0109	1.68		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.6	136	0.0092	3.59	17.96	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.9	1,589	Total			

Subcatchment 109: 109



Summary for Subcatchment 110: 110

[47] Hint: Peak is 1899% of capacity of segment #3

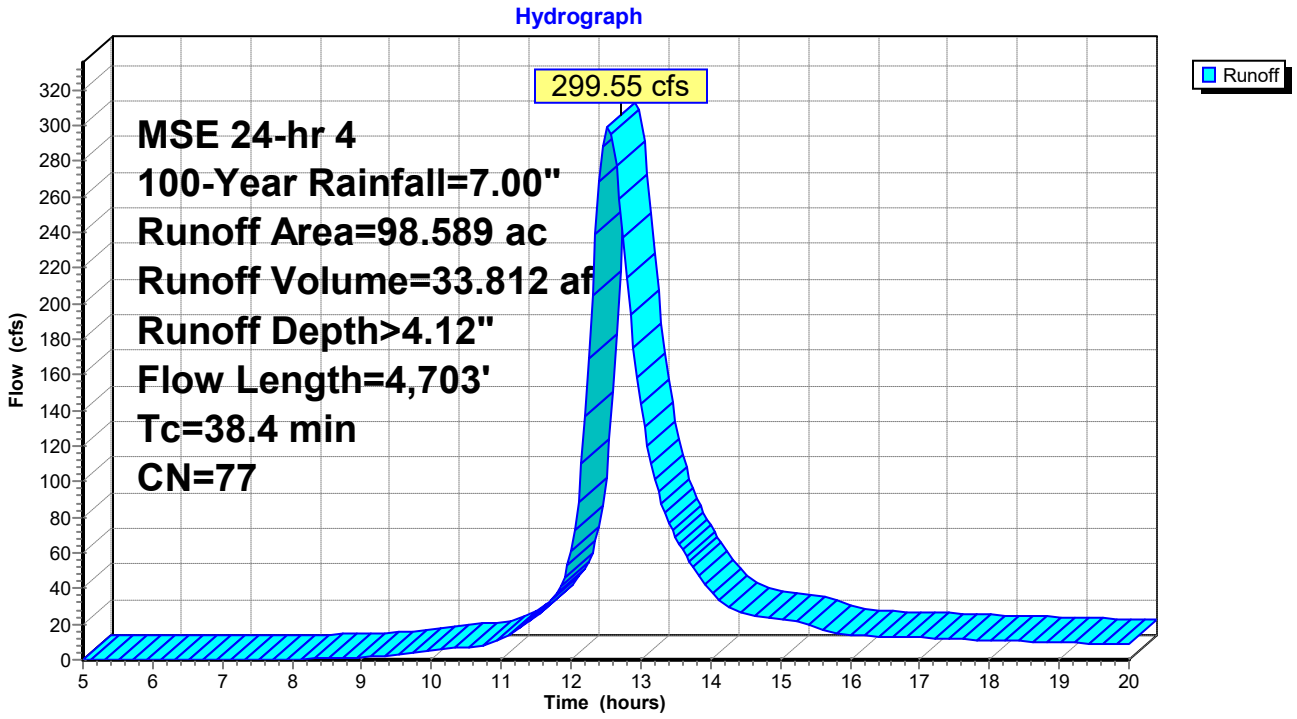
Runoff = 299.55 cfs @ 12.53 hrs, Volume= 33.812 af, Depth> 4.12"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.299	85	Row crops, straight row, good, HSG C
14.174	89	Row crops, straight row, good, HSG D
11.170	89	Row crops, straight row, good, HSG D
5.733	85	Row crops, straight row, good, HSG C
11.904	67	Row crops, straight row, good, HSG A
13.678	85	Row crops, straight row, good, HSG C
0.108	83	Paved roads w/open ditches, 50% imp, HSG A
1.006	83	Paved roads w/open ditches, 50% imp, HSG A
0.094	59	Farmsteads, HSG A
15.058	59	Farmsteads, HSG A
5.320	85	Row crops, straight row, good, HSG C
0.008	85	Row crops, straight row, good, HSG C
0.007	85	Row crops, straight row, good, HSG C
0.031	85	Row crops, straight row, good, HSG C
0.038	85	Row crops, straight row, good, HSG C
0.107	85	Row crops, straight row, good, HSG C
1.641	85	Row crops, straight row, good, HSG C
0.149	89	Row crops, straight row, good, HSG D
1.409	92	Paved roads w/open ditches, 50% imp, HSG C
0.169	93	Paved roads w/open ditches, 50% imp, HSG D
2.944	74	Pasture/grassland/range, good, HSG C
0.311	80	Pasture/grassland/range, good, HSG D
4.633	74	Pasture/grassland/range, good, HSG C
0.070	39	Pasture/grassland/range, good, HSG A
4.651	80	Pasture/grassland/range, good, HSG D
0.012	74	Pasture/grassland/range, good, HSG C
2.844	39	Pasture/grassland/range, good, HSG A
0.006	89	Row crops, straight row, good, HSG D
0.001	89	Row crops, straight row, good, HSG D
0.002	85	Row crops, straight row, good, HSG C
0.011	85	Row crops, straight row, good, HSG C
0.001	89	Row crops, straight row, good, HSG D
0.004	93	Paved roads w/open ditches, 50% imp, HSG D
98.589	77	Weighted Average
97.241		98.63% Pervious Area
1.348		1.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0125	0.12		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
2.0	375	0.0393	3.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
22.3	4,228	0.0071	3.16	15.78	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
38.4	4,703	Total			

Subcatchment 110: 110



Summary for Subcatchment 111: 111

[47] Hint: Peak is 434% of capacity of segment #3

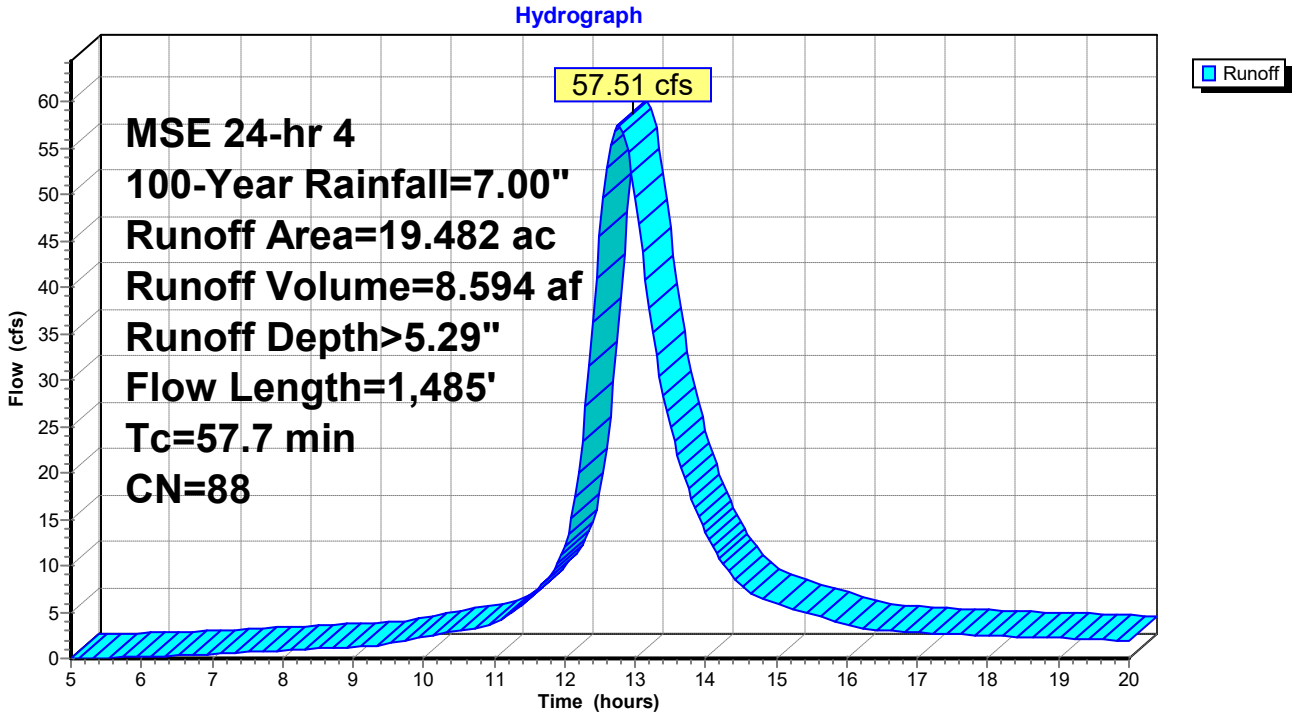
Runoff = 57.51 cfs @ 12.76 hrs, Volume= 8.594 af, Depth> 5.29"
Routed to Link 6L : 6L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
9.708	86	Farmsteads, HSG D
9.136	89	Row crops, straight row, good, HSG D
0.638	93	Paved roads w/open ditches, 50% imp, HSG D
19.482	88	Weighted Average
19.163		98.36% Pervious Area
0.319		1.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.7	100	0.0050	0.04		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
11.5	1,142	0.0105	1.65		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	243	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
57.7	1,485	Total			

Subcatchment 111: 111



Summary for Subcatchment 112: 112

[47] Hint: Peak is 2049% of capacity of segment #3

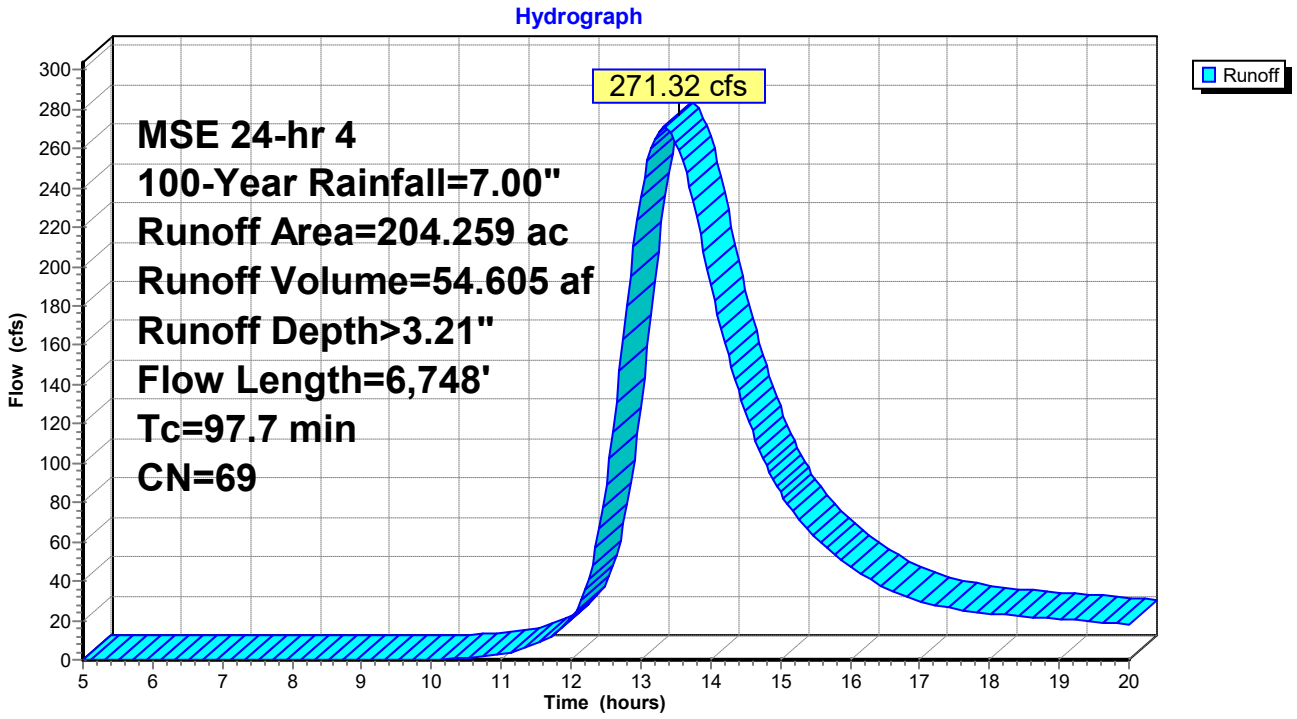
Runoff = 271.32 cfs @ 13.35 hrs, Volume= 54.605 af, Depth> 3.21"
Routed to Link 9L : 9L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.215	30	Woods, Good, HSG A
22.374	30	Woods, Good, HSG A
16.666	77	Woods, Good, HSG D
0.000	77	Woods, Good, HSG D
0.000	77	Woods, Good, HSG D
8.761	77	Woods, Good, HSG D
30.412	77	Woods, Good, HSG D
0.313	30	Woods, Good, HSG A
1.485	30	Woods, Good, HSG A
0.460	83	Paved roads w/open ditches, 50% imp, HSG A
0.646	93	Paved roads w/open ditches, 50% imp, HSG D
0.119	93	Paved roads w/open ditches, 50% imp, HSG D
8.699	86	Farmsteads, HSG D
7.918	59	Farmsteads, HSG A
3.600	86	Farmsteads, HSG D
6.146	86	Farmsteads, HSG D
0.401	30	Woods, Good, HSG A
6.651	77	Woods, Good, HSG D
0.032	77	Woods, Good, HSG D
12.472	77	Woods, Good, HSG D
11.911	77	Woods, Good, HSG D
18.655	77	Woods, Good, HSG D
3.205	80	Pasture/grassland/range, good, HSG D
1.725	80	Pasture/grassland/range, good, HSG D
4.565	80	Pasture/grassland/range, good, HSG D
1.505	83	Paved roads w/open ditches, 50% imp, HSG A
2.465	93	Paved roads w/open ditches, 50% imp, HSG D
0.954	83	Paved roads w/open ditches, 50% imp, HSG A
4.859	30	Woods, Good, HSG A
0.002	77	Woods, Good, HSG D
13.799	77	Woods, Good, HSG D
1.342	30	Woods, Good, HSG A
0.012	30	Woods, Good, HSG A
0.149	93	Paved roads w/open ditches, 50% imp, HSG D
3.483	86	Farmsteads, HSG D
0.835	93	Paved roads w/open ditches, 50% imp, HSG D
0.626	83	Paved roads w/open ditches, 50% imp, HSG A
0.463	93	Paved roads w/open ditches, 50% imp, HSG D
0.268	93	Paved roads w/open ditches, 50% imp, HSG D
0.001	86	Farmsteads, HSG D
0.019	77	Woods, Good, HSG D
0.046	77	Woods, Good, HSG D
204.259	69	Weighted Average
200.015		97.92% Pervious Area
4.245		2.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.2	91	0.0087	0.05		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
39.6	2,704	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
24.9	3,953	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
97.7	6,748	Total			

Subcatchment 112: 112



Summary for Subcatchment 113: 113

[47] Hint: Peak is 3068% of capacity of segment #3

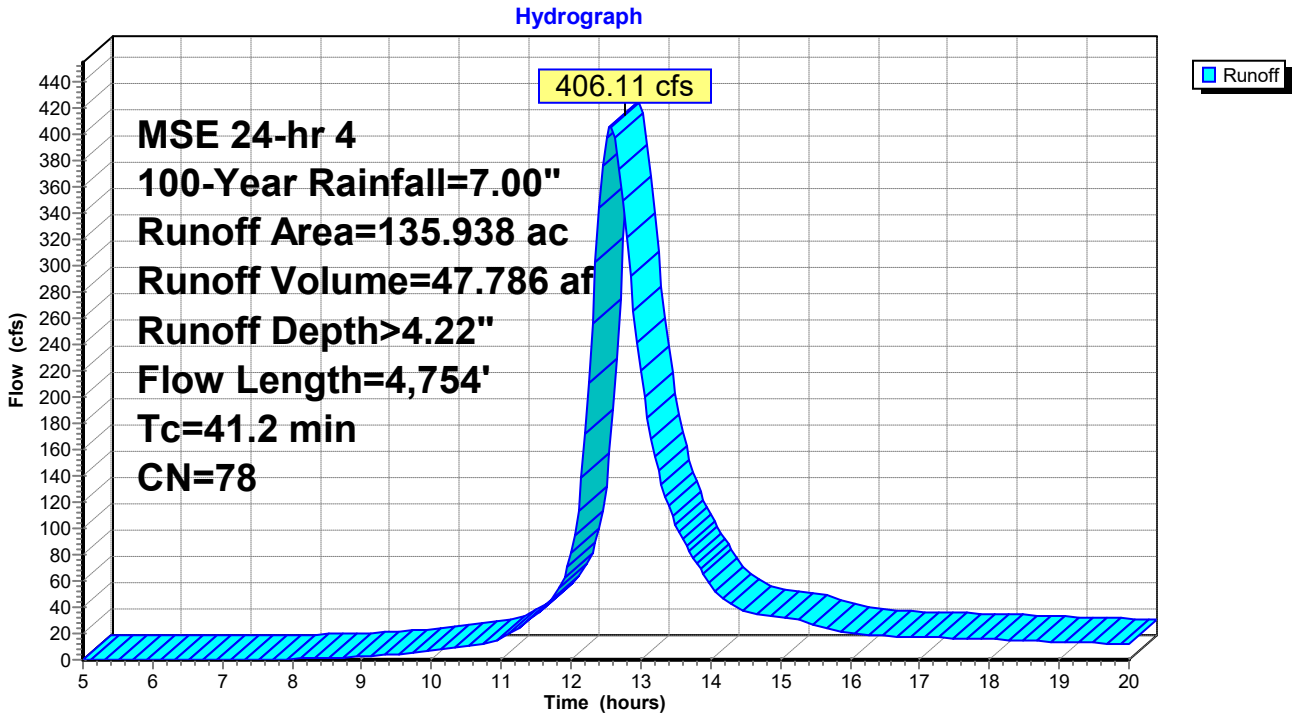
Runoff = 406.11 cfs @ 12.57 hrs, Volume= 47.786 af, Depth> 4.22"
Routed to Pond 12P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
38.486	74	Pasture/grassland/range, good, HSG C
6.022	80	Pasture/grassland/range, good, HSG D
3.891	61	Pasture/grassland/range, good, HSG B
5.590	80	Pasture/grassland/range, good, HSG D
15.234	80	Pasture/grassland/range, good, HSG D
1.391	86	Farmsteads, HSG D
0.844	86	Farmsteads, HSG D
0.150	80	Pasture/grassland/range, good, HSG D
25.010	80	Pasture/grassland/range, good, HSG D
0.082	80	Pasture/grassland/range, good, HSG D
5.089	80	Pasture/grassland/range, good, HSG D
0.046	89	Paved roads w/open ditches, 50% imp, HSG B
0.161	93	Paved roads w/open ditches, 50% imp, HSG D
0.072	89	Paved roads w/open ditches, 50% imp, HSG B
0.229	93	Paved roads w/open ditches, 50% imp, HSG D
0.222	93	Paved roads w/open ditches, 50% imp, HSG D
0.045	93	Paved roads w/open ditches, 50% imp, HSG D
0.183	93	Paved roads w/open ditches, 50% imp, HSG D
0.022	93	Paved roads w/open ditches, 50% imp, HSG D
1.237	93	Paved roads w/open ditches, 50% imp, HSG D
0.123	93	Paved roads w/open ditches, 50% imp, HSG D
1.456	93	Paved roads w/open ditches, 50% imp, HSG D
1.451	39	Pasture/grassland/range, good, HSG A
2.333	80	Pasture/grassland/range, good, HSG D
0.235	80	Pasture/grassland/range, good, HSG D
0.055	80	Pasture/grassland/range, good, HSG D
0.368	80	Pasture/grassland/range, good, HSG D
1.017	80	Pasture/grassland/range, good, HSG D
2.495	82	Farmsteads, HSG C
0.253	86	Farmsteads, HSG D
3.240	86	Farmsteads, HSG D
3.808	86	Farmsteads, HSG D
2.099	86	Farmsteads, HSG D
2.929	86	Farmsteads, HSG D
10.069	77	Woods, Good, HSG D
135.938	78	Weighted Average
134.040		98.60% Pervious Area
1.898		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	91	0.0165	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
16.7	1,551	0.0092	1.54		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.6	3,112	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.2	4,754	Total			

Subcatchment 113: 113



Summary for Subcatchment 114: 114

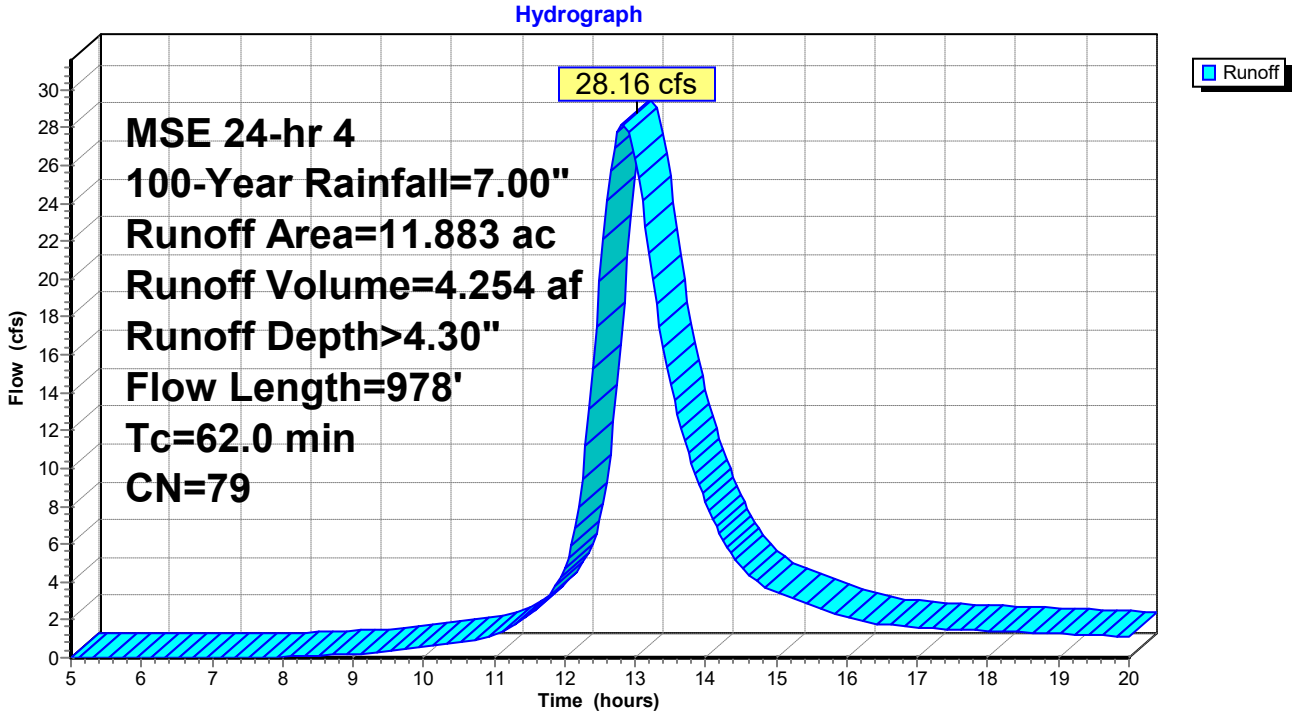
Runoff = 28.16 cfs @ 12.83 hrs, Volume= 4.254 af, Depth> 4.30"
Routed to Link 8L : 8L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.566	77	Woods, Good, HSG D
4.884	77	Woods, Good, HSG D
0.060	89	Row crops, straight row, good, HSG D
0.061	89	Row crops, straight row, good, HSG D
2.312	89	Row crops, straight row, good, HSG D
0.001	77	Woods, Good, HSG D
11.883	79	Weighted Average
11.883		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.7	96	0.0032	0.03		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
10.3	882	0.0079	1.43		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
62.0	978	Total			

Subcatchment 114: 114



Summary for Subcatchment 116: 116

[47] Hint: Peak is 3304% of capacity of segment #3

Runoff = 437.43 cfs @ 12.73 hrs, Volume= 62.789 af, Depth> 5.07"
Routed to Reach 7R : Ditch Channel

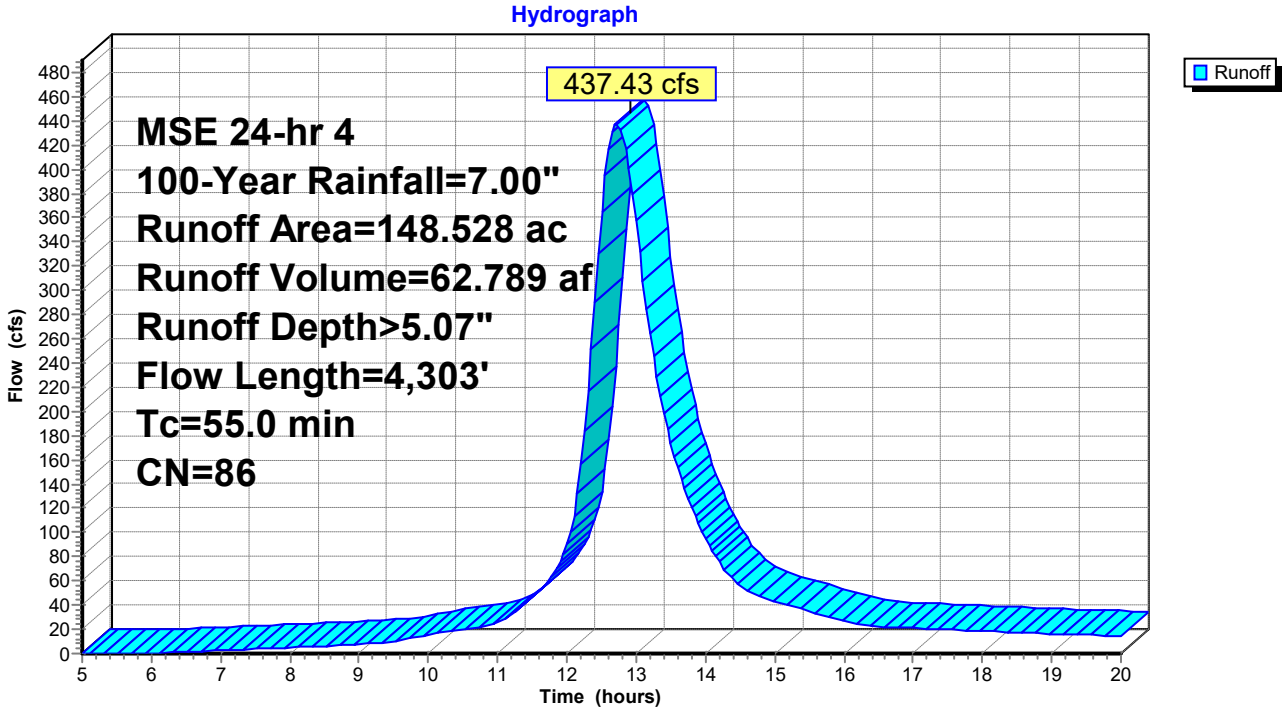
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
2.528	89	Row crops, straight row, good, HSG D
2.942	89	Row crops, straight row, good, HSG D
27.424	89	Row crops, straight row, good, HSG D
1.883	89	Row crops, straight row, good, HSG D
1.100	89	Row crops, straight row, good, HSG D
36.344	89	Row crops, straight row, good, HSG D
0.969	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
0.014	89	Row crops, straight row, good, HSG D
19.826	89	Row crops, straight row, good, HSG D
2.205	89	Row crops, straight row, good, HSG D
2.195	89	Row crops, straight row, good, HSG D
0.099	89	Row crops, straight row, good, HSG D
0.001	93	Paved roads w/open ditches, 50% imp, HSG D
0.030	93	Paved roads w/open ditches, 50% imp, HSG D
0.253	92	Paved roads w/open ditches, 50% imp, HSG C
0.501	93	Paved roads w/open ditches, 50% imp, HSG D
0.261	93	Paved roads w/open ditches, 50% imp, HSG D
0.010	93	Paved roads w/open ditches, 50% imp, HSG D
0.231	93	Paved roads w/open ditches, 50% imp, HSG D
0.027	93	Paved roads w/open ditches, 50% imp, HSG D
0.059	93	Paved roads w/open ditches, 50% imp, HSG D
0.079	93	Paved roads w/open ditches, 50% imp, HSG D
0.370	92	Paved roads w/open ditches, 50% imp, HSG C
0.485	93	Paved roads w/open ditches, 50% imp, HSG D
0.083	93	Paved roads w/open ditches, 50% imp, HSG D
0.054	86	Farmsteads, HSG D
0.396	86	Farmsteads, HSG D
4.008	86	Farmsteads, HSG D
1.985	82	Farmsteads, HSG C
0.457	86	Farmsteads, HSG D
3.616	86	Farmsteads, HSG D
0.170	86	Farmsteads, HSG D
0.010	86	Farmsteads, HSG D
0.077	77	Woods, Good, HSG D
9.135	77	Woods, Good, HSG D
0.832	77	Woods, Good, HSG D
6.601	77	Woods, Good, HSG D
0.154	77	Woods, Good, HSG D
0.179	77	Woods, Good, HSG D
2.361	80	Pasture/grassland/range, good, HSG D
3.329	74	Pasture/grassland/range, good, HSG C
13.179	80	Pasture/grassland/range, good, HSG D
0.149	80	Pasture/grassland/range, good, HSG D
1.554	86	Farmsteads, HSG D
0.087	86	Farmsteads, HSG D
0.066	89	Row crops, straight row, good, HSG D
0.002	89	Row crops, straight row, good, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D

0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	92	Paved roads w/open ditches, 50% imp, HSG C
0.005	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.005	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	77	Woods, Good, HSG D
0.186	86	Farmsteads, HSG D
0.001	89	Row crops, straight row, good, HSG D
0.000	86	Farmsteads, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
148.528	86	Weighted Average
147.324		99.19% Pervious Area
1.204		0.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
27.2	3,021	0.0132	1.85		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.4	1,182	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
55.0	4,303	Total			

Subcatchment 116: 116



Summary for Subcatchment 184: 184

[47] Hint: Peak is 118% of capacity of segment #3

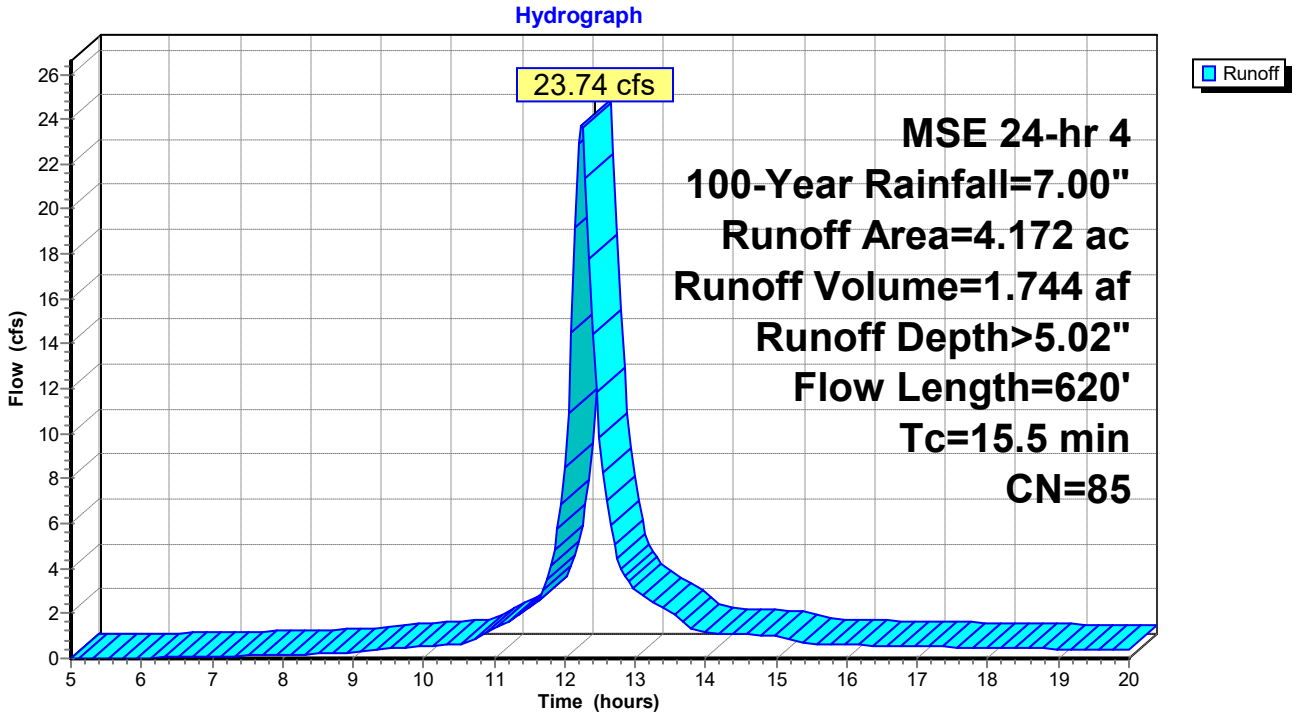
Runoff = 23.74 cfs @ 12.24 hrs, Volume= 1.744 af, Depth> 5.02"
Routed to Pond 2P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.112	89	Row crops, straight row, good, HSG D
0.529	78	Row crops, straight row, good, HSG B
0.359	67	Row crops, straight row, good, HSG A
1.212	89	Row crops, straight row, good, HSG D
0.029	78	Row crops, straight row, good, HSG B
0.089	67	Row crops, straight row, good, HSG A
1.723	89	Row crops, straight row, good, HSG D
0.028	83	Paved roads w/open ditches, 50% imp, HSG A
0.090	93	Paved roads w/open ditches, 50% imp, HSG D
0.001	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
4.172	85	Weighted Average
4.112		98.58% Pervious Area
0.059		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0169	0.13		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
1.5	170	0.0139	1.90		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	350	0.0115	4.02	20.08	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.5	620	Total			

Subcatchment 184: 184



Summary for Subcatchment 185: 185

[47] Hint: Peak is 269% of capacity of segment #3

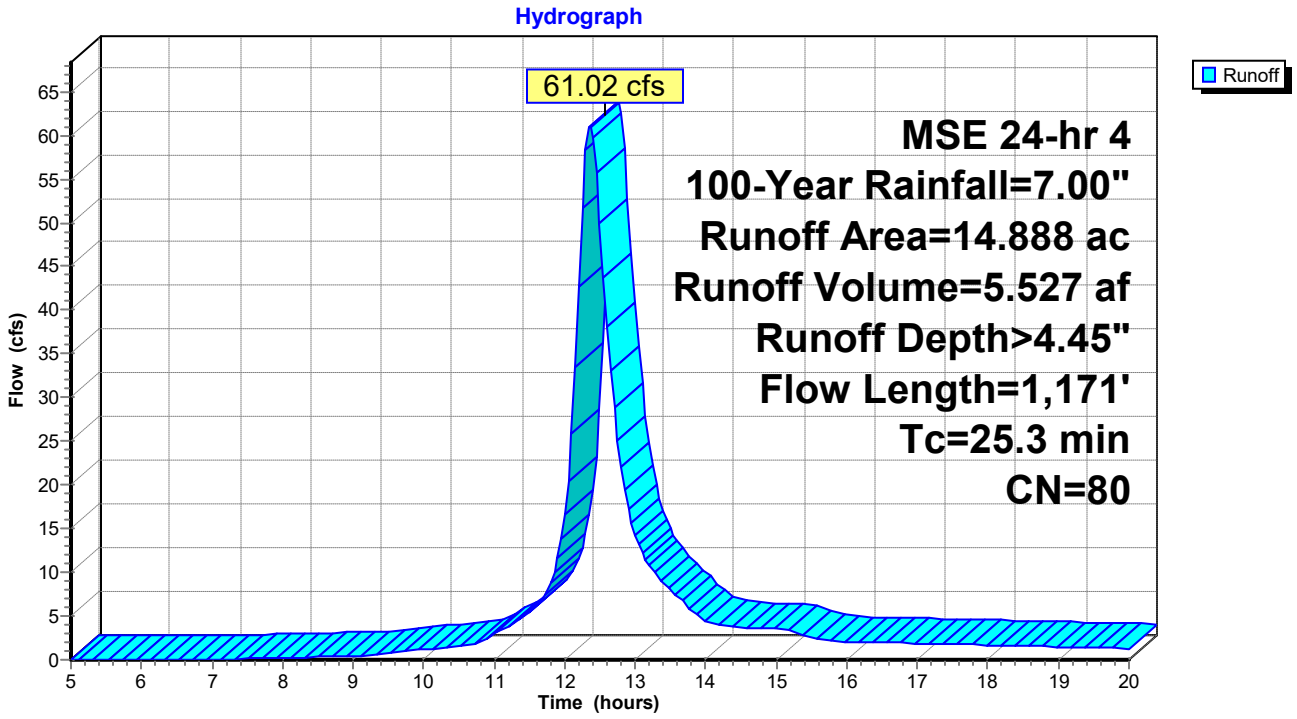
Runoff = 61.02 cfs @ 12.36 hrs, Volume= 5.527 af, Depth> 4.45"
Routed to Pond 1P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.007	77	Woods, Good, HSG D
5.333	77	Woods, Good, HSG D
1.000	77	Woods, Good, HSG D
1.437	70	Woods, Good, HSG C
0.060	70	Woods, Good, HSG C
0.721	77	Woods, Good, HSG D
0.517	77	Woods, Good, HSG D
0.558	86	Farmsteads, HSG D
0.072	86	Farmsteads, HSG D
0.993	82	Farmsteads, HSG C
0.214	86	Farmsteads, HSG D
0.001	86	Farmsteads, HSG D
1.856	86	Farmsteads, HSG D
0.500	86	Farmsteads, HSG D
0.213	86	Farmsteads, HSG D
0.331	93	Paved roads w/open ditches, 50% imp, HSG D
0.102	93	Paved roads w/open ditches, 50% imp, HSG D
0.151	93	Paved roads w/open ditches, 50% imp, HSG D
0.470	93	Paved roads w/open ditches, 50% imp, HSG D
0.085	93	Paved roads w/open ditches, 50% imp, HSG D
0.111	93	Paved roads w/open ditches, 50% imp, HSG D
0.091	89	Row crops, straight row, good, HSG D
0.040	89	Row crops, straight row, good, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.006	89	Row crops, straight row, good, HSG D
0.001	89	Row crops, straight row, good, HSG D
0.002	70	Woods, Good, HSG C
0.011	70	Woods, Good, HSG C
0.001	77	Woods, Good, HSG D
0.004	93	Paved roads w/open ditches, 50% imp, HSG D
14.888	80	Weighted Average
14.261		95.79% Pervious Area
0.627		4.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
2.6	449	0.0331	2.93		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	622	0.0147	4.54	22.70	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.3	1,171	Total			

Subcatchment 185: 185



Summary for Subcatchment 186: 186

[47] Hint: Peak is 3937% of capacity of segment #3

Runoff = 603.33 cfs @ 12.58 hrs, Volume= 71.295 af, Depth> 4.00"
Routed to Link 14L : 14L

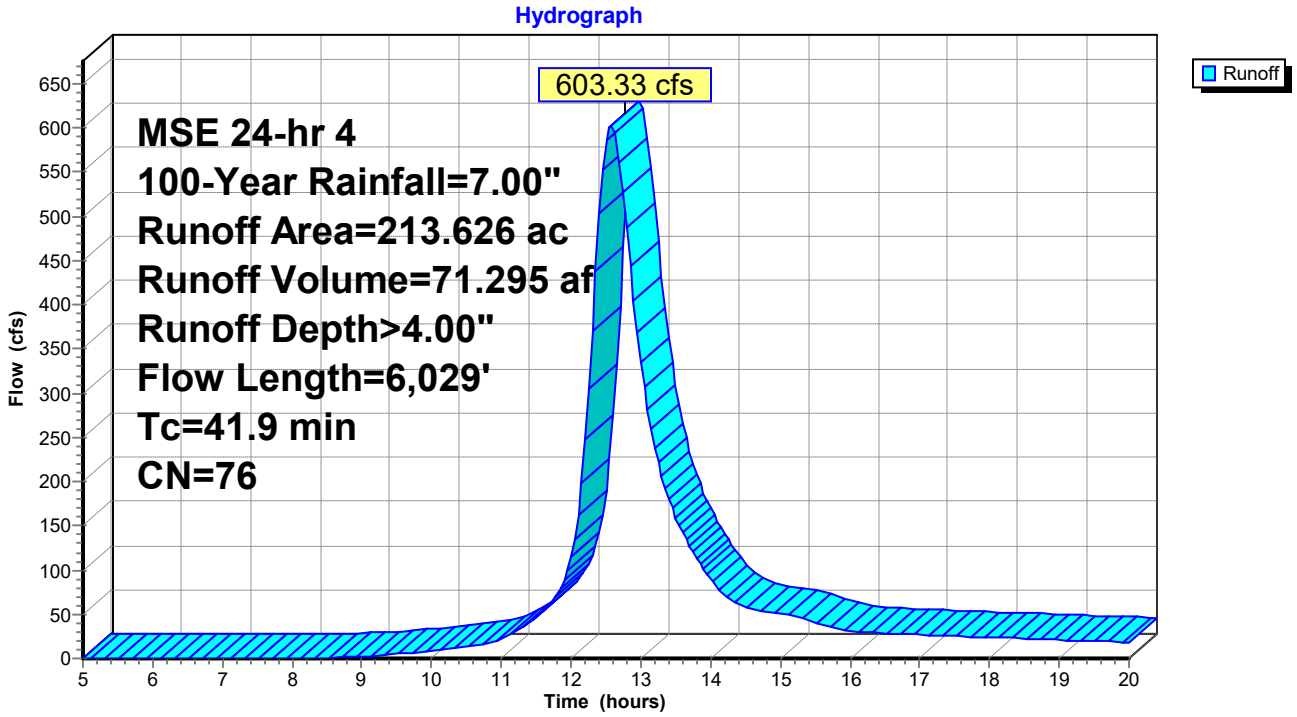
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.252	80	Pasture/grassland/range, good, HSG D
8.623	80	Pasture/grassland/range, good, HSG D
0.465	39	Pasture/grassland/range, good, HSG A
1.029	80	Pasture/grassland/range, good, HSG D
3.492	80	Pasture/grassland/range, good, HSG D
1.410	39	Pasture/grassland/range, good, HSG A
1.159	80	Pasture/grassland/range, good, HSG D
18.052	80	Pasture/grassland/range, good, HSG D
0.055	92	Paved roads w/open ditches, 50% imp, HSG C
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.327	93	Paved roads w/open ditches, 50% imp, HSG D
0.503	93	Paved roads w/open ditches, 50% imp, HSG D
0.065	93	Paved roads w/open ditches, 50% imp, HSG D
0.126	93	Paved roads w/open ditches, 50% imp, HSG D
0.291	92	Paved roads w/open ditches, 50% imp, HSG C
0.020	93	Paved roads w/open ditches, 50% imp, HSG D
0.223	93	Paved roads w/open ditches, 50% imp, HSG D
0.068	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	93	Paved roads w/open ditches, 50% imp, HSG D
2.701	80	Pasture/grassland/range, good, HSG D
3.135	39	Pasture/grassland/range, good, HSG A
5.283	80	Pasture/grassland/range, good, HSG D
0.499	80	Pasture/grassland/range, good, HSG D
9.730	80	Pasture/grassland/range, good, HSG D
14.181	80	Pasture/grassland/range, good, HSG D
6.566	39	Pasture/grassland/range, good, HSG A
3.117	80	Pasture/grassland/range, good, HSG D
2.184	80	Pasture/grassland/range, good, HSG D
22.350	80	Pasture/grassland/range, good, HSG D
0.987	93	Paved roads w/open ditches, 50% imp, HSG D
0.027	83	Paved roads w/open ditches, 50% imp, HSG A
0.118	93	Paved roads w/open ditches, 50% imp, HSG D
0.349	93	Paved roads w/open ditches, 50% imp, HSG D
0.327	83	Paved roads w/open ditches, 50% imp, HSG A
1.560	93	Paved roads w/open ditches, 50% imp, HSG D
1.214	86	Farmsteads, HSG D
2.519	86	Farmsteads, HSG D
0.125	86	Farmsteads, HSG D
0.401	77	Woods, Good, HSG D
0.229	77	Woods, Good, HSG D
0.038	89	Row crops, straight row, good, HSG D
0.070	89	Row crops, straight row, good, HSG D
0.663	67	Row crops, straight row, good, HSG A
0.090	89	Row crops, straight row, good, HSG D
0.939	89	Row crops, straight row, good, HSG D
2.721	89	Row crops, straight row, good, HSG D
7.021	67	Row crops, straight row, good, HSG A
1.070	89	Row crops, straight row, good, HSG D
1.199	67	Row crops, straight row, good, HSG A
11.733	89	Row crops, straight row, good, HSG D
3.167	89	Row crops, straight row, good, HSG D

1.125	89	Row crops, straight row, good, HSG D
0.025	89	Row crops, straight row, good, HSG D
1.625	85	Row crops, straight row, good, HSG C
24.948	89	Row crops, straight row, good, HSG D
7.287	89	Row crops, straight row, good, HSG D
1.324	89	Row crops, straight row, good, HSG D
0.419	30	Woods, Good, HSG A
2.389	77	Woods, Good, HSG D
11.213	30	Woods, Good, HSG A
0.008	77	Woods, Good, HSG D
1.352	30	Woods, Good, HSG A
1.887	30	Woods, Good, HSG A
1.426	86	Farmsteads, HSG D
2.820	86	Farmsteads, HSG D
1.323	59	Farmsteads, HSG A
0.136	86	Farmsteads, HSG D
2.885	59	Farmsteads, HSG A
0.553	86	Farmsteads, HSG D
3.338	86	Farmsteads, HSG D
1.974	86	Farmsteads, HSG D
0.011	80	Pasture/grassland/range, good, HSG D
0.029	80	Pasture/grassland/range, good, HSG D
0.018	80	Pasture/grassland/range, good, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	92	Paved roads w/open ditches, 50% imp, HSG C
0.005	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.007	93	Paved roads w/open ditches, 50% imp, HSG D
0.007	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.005	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
0.000	93	Paved roads w/open ditches, 50% imp, HSG D
213.626	76	Weighted Average
211.083		98.81% Pervious Area
2.543		1.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0458	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
7.7	1,176	0.0250	2.55		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
25.8	4,753	0.0067	3.06	15.32	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.9	6,029	Total			

Subcatchment 186: 186



Summary for Subcatchment 187: 187

[47] Hint: Peak is 1216% of capacity of segment #3

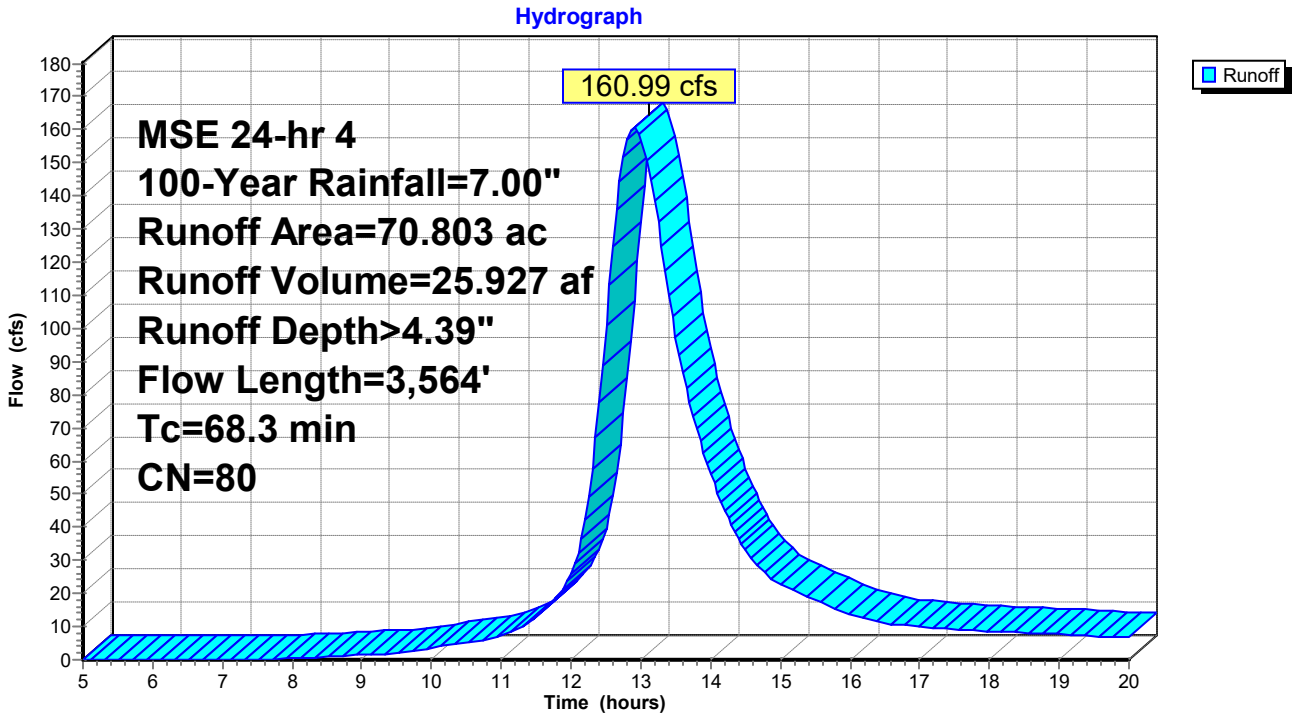
Runoff = 160.99 cfs @ 12.92 hrs, Volume= 25.927 af, Depth> 4.39"
Routed to Link 9L : 9L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	5.567	89	Row crops, straight row, good, HSG D
	4.819	78	Row crops, straight row, good, HSG B
	3.607	89	Row crops, straight row, good, HSG D
	13.956	89	Row crops, straight row, good, HSG D
	1.219	85	Row crops, straight row, good, HSG C
	5.993	89	Row crops, straight row, good, HSG D
*	0.325	0	Paved; open ditches, 50% imp, HSG D
*	0.118	0	Paved; open ditches, 50% imp, HSG B
*	0.046	0	Paved; open ditches, 50% imp, HSG B
*	0.010	0	Paved; open ditches, 50% imp, HSG D
*	0.334	0	Paved; open ditches, 50% imp, HSG C
*	0.129	0	Paved; open ditches, 50% imp, HSG D
*	0.040	0	Paved; open ditches, 50% imp, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG D
*	0.519	0	Paved; open ditches, 50% imp, HSG D
*	0.315	0	Paved; open ditches, 50% imp, HSG B
*	0.324	0	Paved; open ditches, 50% imp, HSG B
*	0.601	0	Paved; open ditches, 50% imp, HSG D
*	0.834	0	Paved; open ditches, 50% imp, HSG C
	1.836	80	Pasture/grassland/range, good, HSG D
	12.661	80	Pasture/grassland/range, good, HSG D
	0.415	80	Pasture/grassland/range, good, HSG D
	5.157	74	Pasture/grassland/range, good, HSG C
	7.053	89	Row crops, straight row, good, HSG D
	1.849	89	Row crops, straight row, good, HSG D
	0.002	89	Row crops, straight row, good, HSG D
	0.019	89	Row crops, straight row, good, HSG D
	0.046	89	Row crops, straight row, good, HSG D
	0.585	61	Pasture/grassland/range, good, HSG B
	0.201	89	Row crops, straight row, good, HSG D
	2.219	89	Row crops, straight row, good, HSG D
	70.803	80	Weighted Average
	69.004		97.46% Pervious Area
	1.799		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7	99	0.0042	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
43.5	2,969	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.1	496	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
68.3	3,564	Total			

Subcatchment 187: 187



Summary for Subcatchment 188: 188

[47] Hint: Peak is 893% of capacity of segment #3

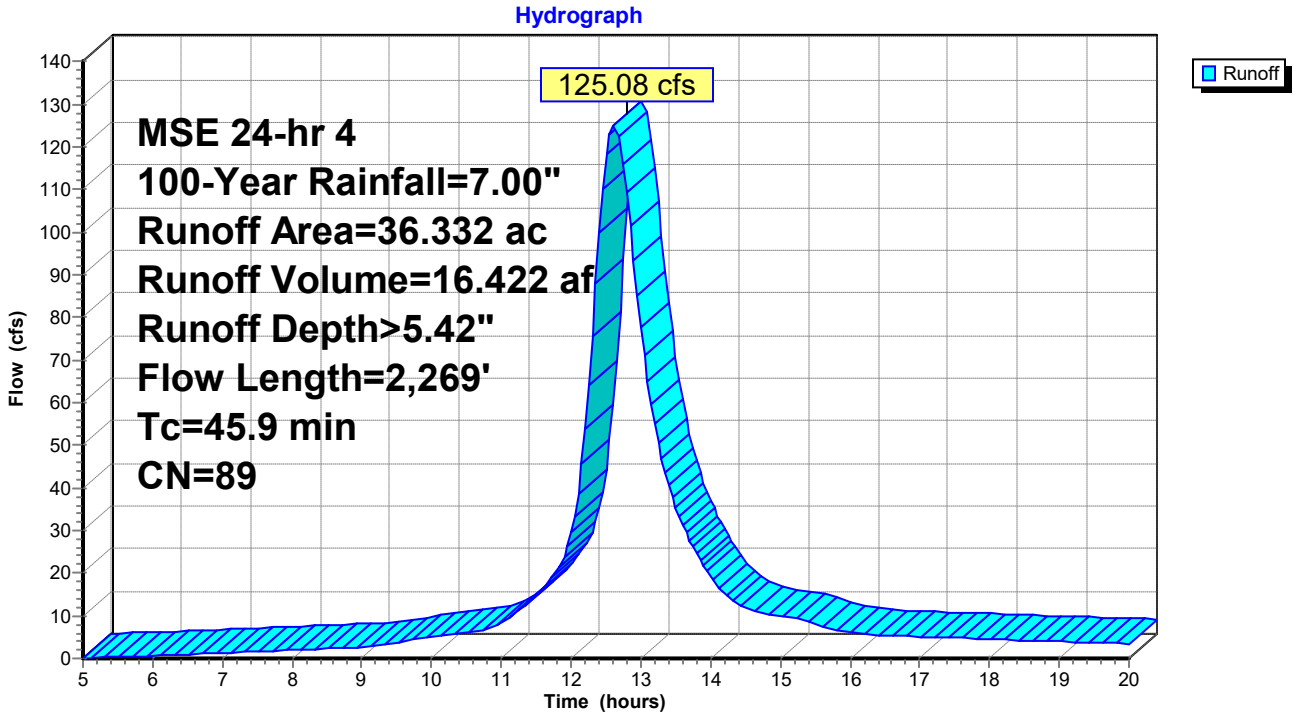
Runoff = 125.08 cfs @ 12.61 hrs, Volume= 16.422 af, Depth> 5.42"
Routed to Link 8L : 8L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
8.098	89	Row crops, straight row, good, HSG D
12.428	89	Row crops, straight row, good, HSG D
13.013	89	Row crops, straight row, good, HSG D
2.743	89	Row crops, straight row, good, HSG D
0.008	89	Row crops, straight row, good, HSG D
0.041	93	Paved roads w/open ditches, 50% imp, HSG D
36.332	89	Weighted Average
36.311		99.94% Pervious Area
0.020		0.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	99	0.0072	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
26.9	1,926	0.0055	1.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	244	0.0056	2.80	14.01	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
45.9	2,269	Total			

Subcatchment 188: 188



Summary for Subcatchment 189: 189

[47] Hint: Peak is 461% of capacity of segment #3

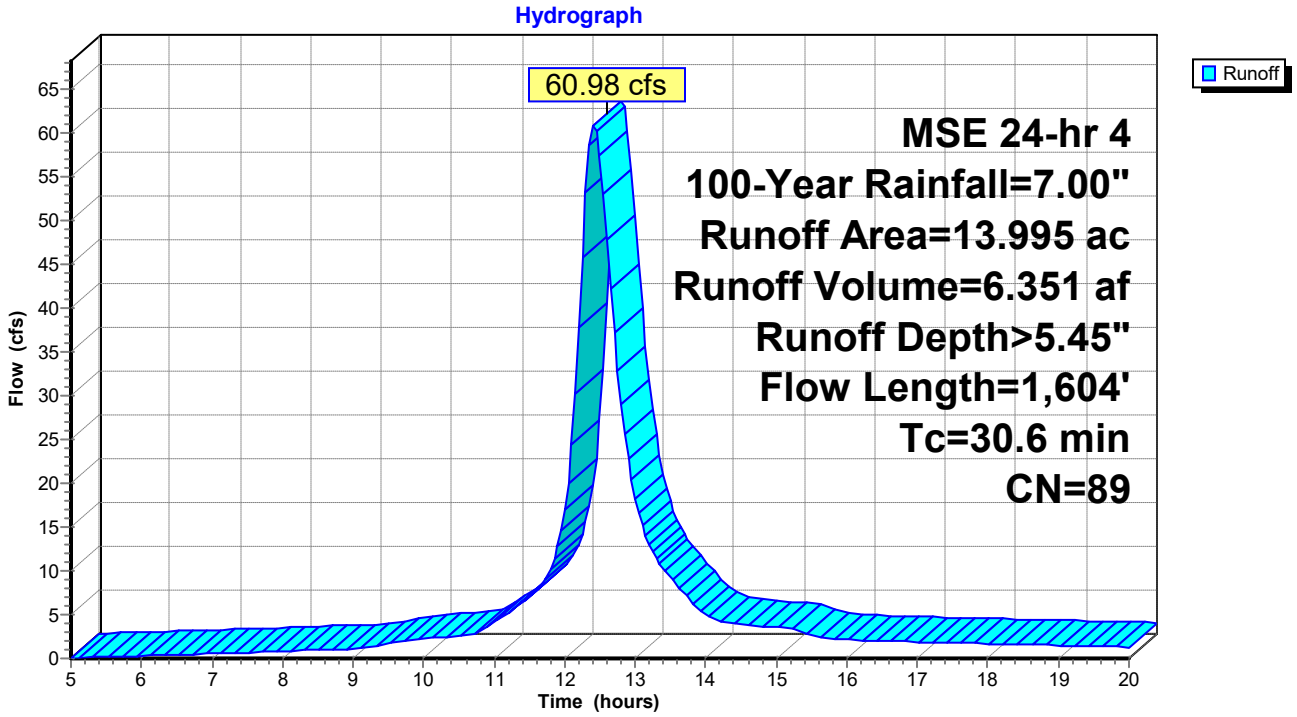
Runoff = 60.98 cfs @ 12.41 hrs, Volume= 6.351 af, Depth> 5.45"
Routed to Link 7L : 7L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
5.336	89	Row crops, straight row, good, HSG D
5.377	89	Row crops, straight row, good, HSG D
3.083	89	Row crops, straight row, good, HSG D
0.198	89	Row crops, straight row, good, HSG D
13.995	89	Weighted Average
13.995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	100	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
11.9	1,093	0.0090	1.53		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.6	411	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
30.6	1,604	Total			

Subcatchment 189: 189



Summary for Subcatchment 190: 190

[47] Hint: Peak is 844% of capacity of segment #3

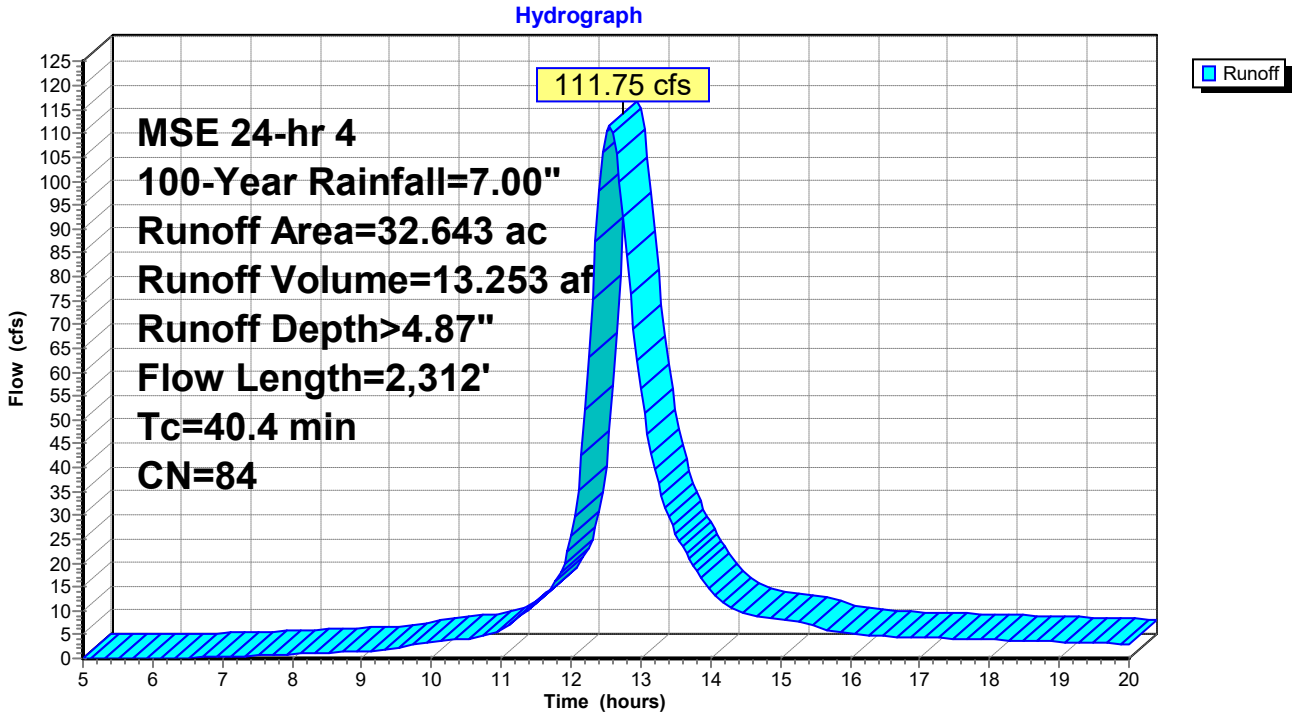
Runoff = 111.75 cfs @ 12.55 hrs, Volume= 13.253 af, Depth> 4.87"
Routed to Link 6L : 6L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.304	89	Row crops, straight row, good, HSG D
3.188	89	Row crops, straight row, good, HSG D
13.196	89	Row crops, straight row, good, HSG D
0.051	89	Row crops, straight row, good, HSG D
8.394	77	Woods, Good, HSG D
1.730	77	Woods, Good, HSG D
1.122	77	Woods, Good, HSG D
0.174	30	Woods, Good, HSG A
0.484	77	Woods, Good, HSG D
32.643	84	Weighted Average
32.643		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	100	0.0179	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
25.0	1,711	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.2	501	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
40.4	2,312	Total			

Subcatchment 190: 190



Summary for Subcatchment 195: 195

[47] Hint: Peak is 798% of capacity of segment #3

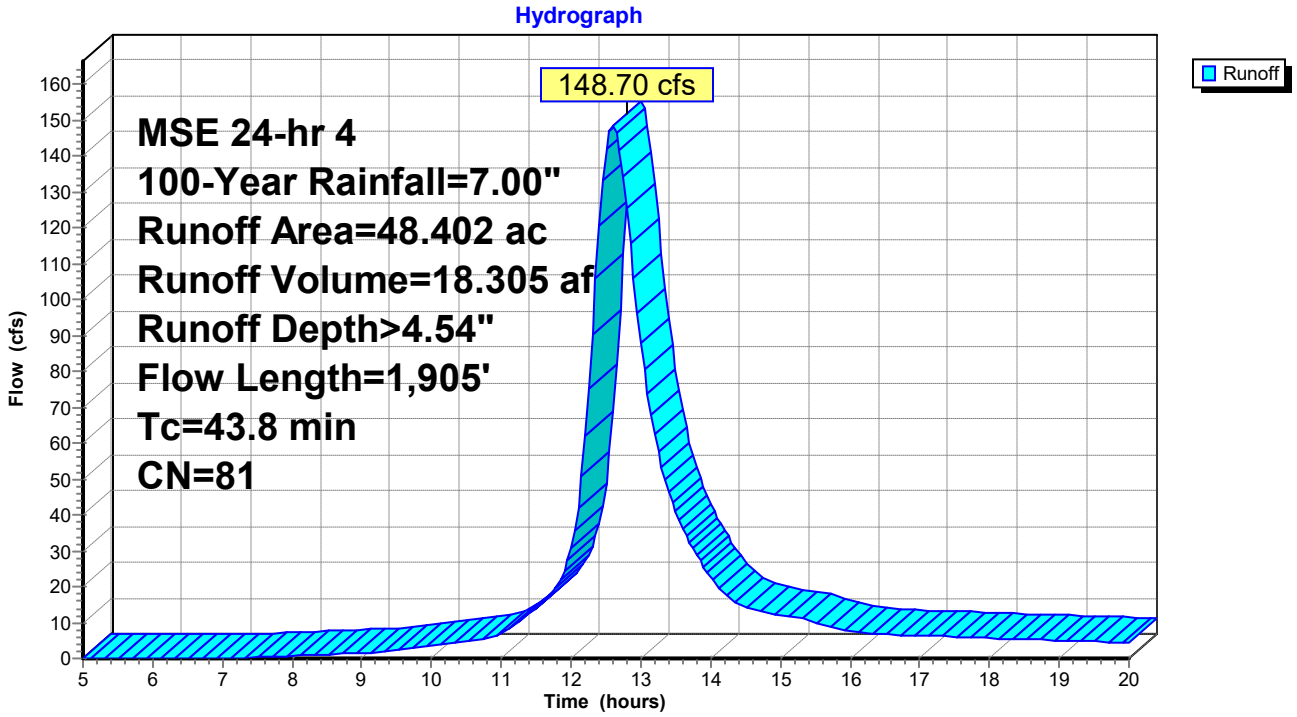
Runoff = 148.70 cfs @ 12.60 hrs, Volume= 18.305 af, Depth> 4.54"
Routed to Link 10L : 10L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.955	89	Row crops, straight row, good, HSG D
0.000	89	Row crops, straight row, good, HSG D
19.601	78	Row crops, straight row, good, HSG B
6.957	89	Row crops, straight row, good, HSG D
0.166	85	Row crops, straight row, good, HSG C
1.554	85	Row crops, straight row, good, HSG C
0.010	89	Paved roads w/open ditches, 50% imp, HSG B
0.142	93	Paved roads w/open ditches, 50% imp, HSG D
0.002	93	Paved roads w/open ditches, 50% imp, HSG D
0.048	93	Paved roads w/open ditches, 50% imp, HSG D
0.851	86	Farmsteads, HSG D
0.014	86	Farmsteads, HSG D
4.404	74	Farmsteads, HSG B
3.200	82	Farmsteads, HSG C
0.319	82	Farmsteads, HSG C
0.001	80	Pasture/grassland/range, good, HSG D
4.297	80	Pasture/grassland/range, good, HSG D
2.881	74	Pasture/grassland/range, good, HSG C
48.402	81	Weighted Average
48.301		99.79% Pervious Area
0.101		0.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
22.0	1,500	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.4	305	0.0099	3.73	18.63	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
43.8	1,905	Total			

Subcatchment 195: 195



Summary for Subcatchment 198: 198

[47] Hint: Peak is 2192% of capacity of segment #3

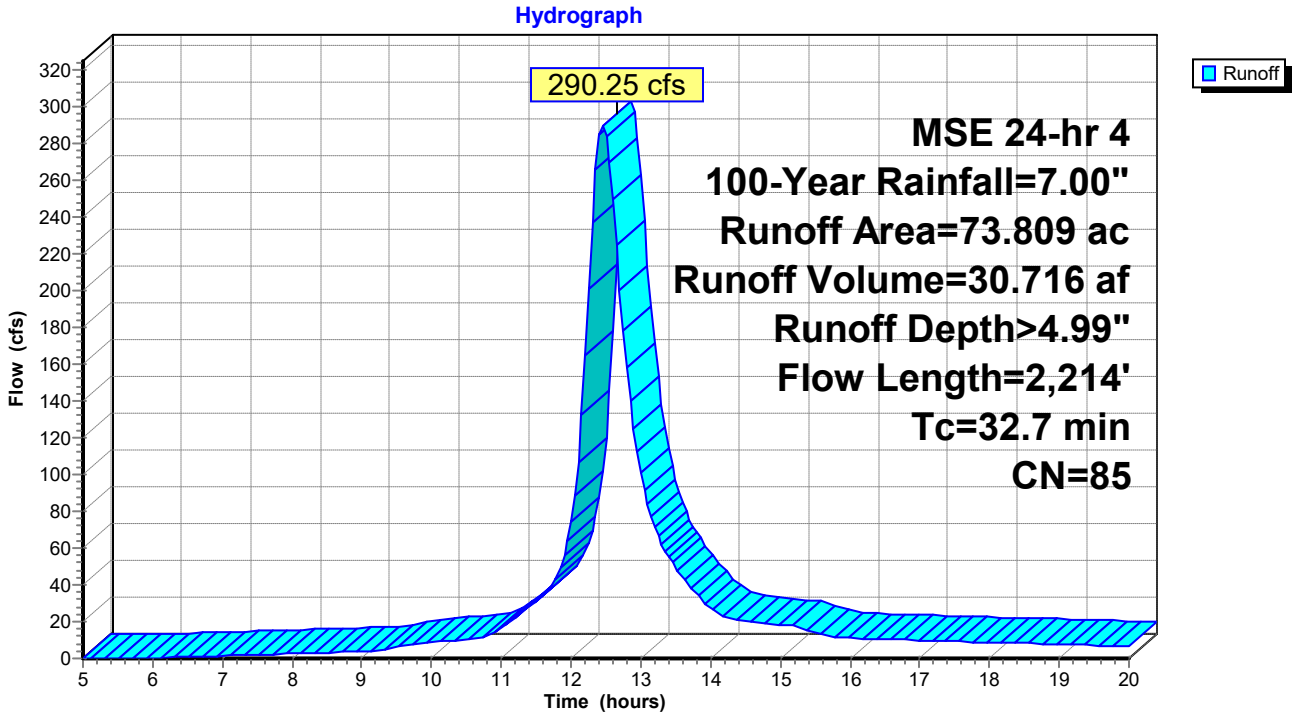
Runoff = 290.25 cfs @ 12.45 hrs, Volume= 30.716 af, Depth> 4.99"
Routed to Link 5L : 5L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
12.292	89	Row crops, straight row, good, HSG D
12.444	67	Row crops, straight row, good, HSG A
8.295	89	Row crops, straight row, good, HSG D
0.452	67	Row crops, straight row, good, HSG A
3.589	89	Row crops, straight row, good, HSG D
0.079	83	Paved roads w/open ditches, 50% imp, HSG A
0.414	93	Paved roads w/open ditches, 50% imp, HSG D
22.791	89	Row crops, straight row, good, HSG D
2.761	89	Row crops, straight row, good, HSG D
9.262	89	Row crops, straight row, good, HSG D
0.017	93	Paved roads w/open ditches, 50% imp, HSG D
1.182	93	Paved roads w/open ditches, 50% imp, HSG D
0.230	93	Paved roads w/open ditches, 50% imp, HSG D
73.809	85	Weighted Average
72.848		98.70% Pervious Area
0.961		1.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0087	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
7.0	624	0.0086	1.49		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.4	1,490	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
32.7	2,214	Total			

Subcatchment 198: 198



Summary for Subcatchment 199: 199

[47] Hint: Peak is 3128% of capacity of segment #3

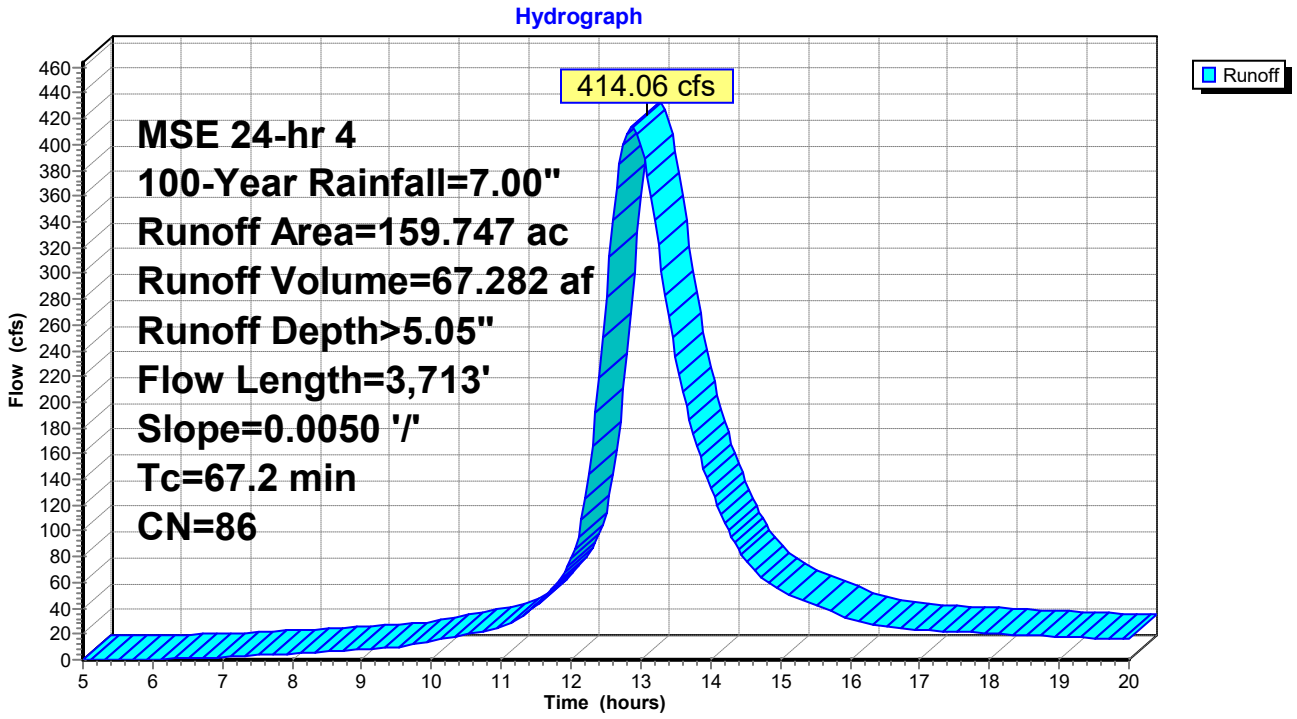
Runoff = 414.06 cfs @ 12.88 hrs, Volume= 67.282 af, Depth> 5.05"
Routed to Link 13L : 13L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
8.499	89	Row crops, straight row, good, HSG D
0.298	89	Row crops, straight row, good, HSG D
17.017	89	Row crops, straight row, good, HSG D
1.180	89	Row crops, straight row, good, HSG D
24.783	89	Row crops, straight row, good, HSG D
46.491	89	Row crops, straight row, good, HSG D
4.245	89	Row crops, straight row, good, HSG D
9.214	89	Row crops, straight row, good, HSG D
2.399	89	Row crops, straight row, good, HSG D
0.003	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	93	Paved roads w/open ditches, 50% imp, HSG D
0.103	93	Paved roads w/open ditches, 50% imp, HSG D
0.086	93	Paved roads w/open ditches, 50% imp, HSG D
0.102	89	Row crops, straight row, good, HSG D
8.291	89	Row crops, straight row, good, HSG D
0.563	89	Row crops, straight row, good, HSG D
7.979	67	Row crops, straight row, good, HSG A
1.274	89	Row crops, straight row, good, HSG D
0.372	93	Paved roads w/open ditches, 50% imp, HSG D
0.059	93	Paved roads w/open ditches, 50% imp, HSG D
0.674	93	Paved roads w/open ditches, 50% imp, HSG D
0.111	93	Paved roads w/open ditches, 50% imp, HSG D
0.095	77	Woods, Good, HSG D
1.136	77	Woods, Good, HSG D
1.065	80	Pasture/grassland/range, good, HSG D
1.704	39	Pasture/grassland/range, good, HSG A
0.068	80	Pasture/grassland/range, good, HSG D
0.002	80	Pasture/grassland/range, good, HSG D
7.701	80	Pasture/grassland/range, good, HSG D
0.001	77	Woods, Good, HSG D
6.683	77	Woods, Good, HSG D
1.641	77	Woods, Good, HSG D
5.120	86	Farmsteads, HSG D
0.066	89	Row crops, straight row, good, HSG D
0.002	86	Farmsteads, HSG D
0.065	89	Row crops, straight row, good, HSG D
0.112	89	Row crops, straight row, good, HSG D
0.176	89	Row crops, straight row, good, HSG D
0.176	86	Farmsteads, HSG D
0.002	77	Woods, Good, HSG D
0.186	86	Farmsteads, HSG D
0.001	89	Row crops, straight row, good, HSG D
0.001	86	Farmsteads, HSG D
0.000	89	Row crops, straight row, good, HSG D
0.000	86	Farmsteads, HSG D
159.747	86	Weighted Average
159.041		99.56% Pervious Area
0.706		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
42.2	2,884	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.6	729	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
67.2	3,713	Total			

Subcatchment 199: 199



Summary for Subcatchment 1877: 1877

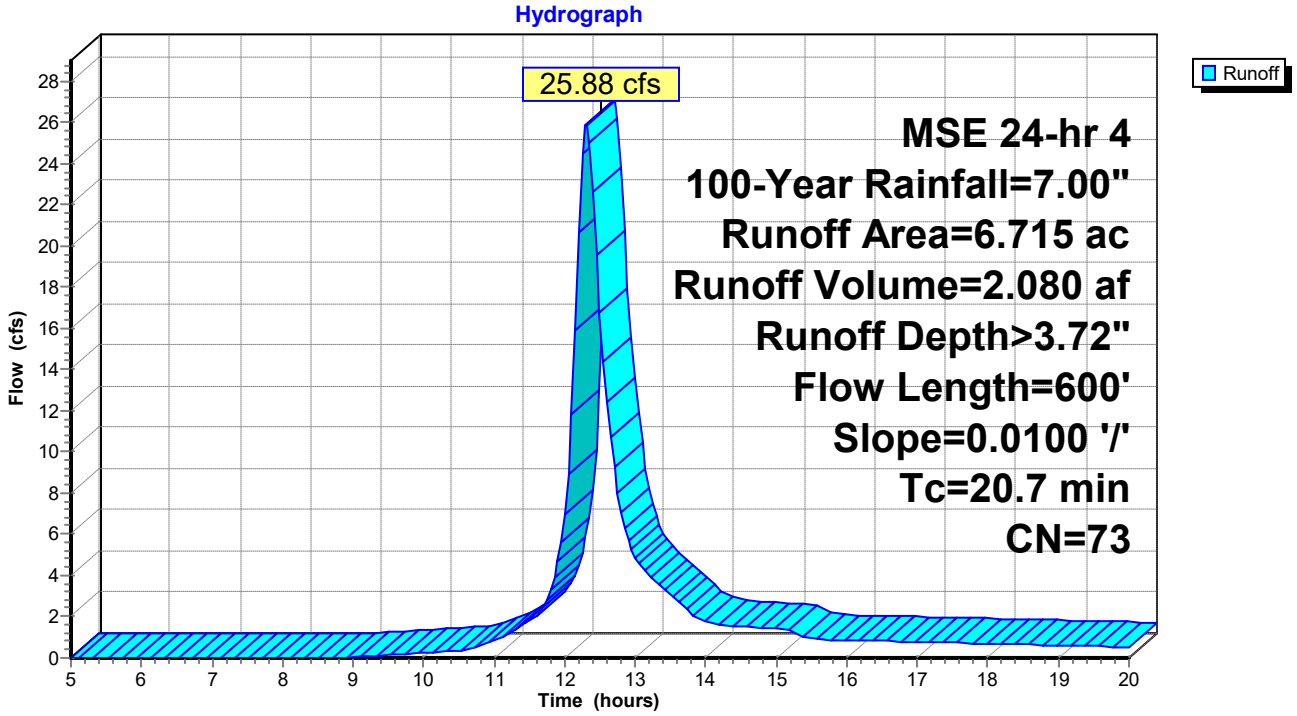
Runoff = 25.88 cfs @ 12.31 hrs, Volume= 2.080 af, Depth> 3.72"
Routed to Link 9L : 9L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.099	61	Pasture/grassland/range, good, HSG B
2.254	74	Pasture/grassland/range, good, HSG C
1.180	80	Pasture/grassland/range, good, HSG D
2.182	74	Pasture/grassland/range, good, HSG C
6.715	73	Weighted Average
6.715		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.5	100	0.0100	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
5.2	500	0.0100	1.61		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
20.7	600	Total			

Subcatchment 1877: 1877



Summary for Subcatchment 1878: 1878

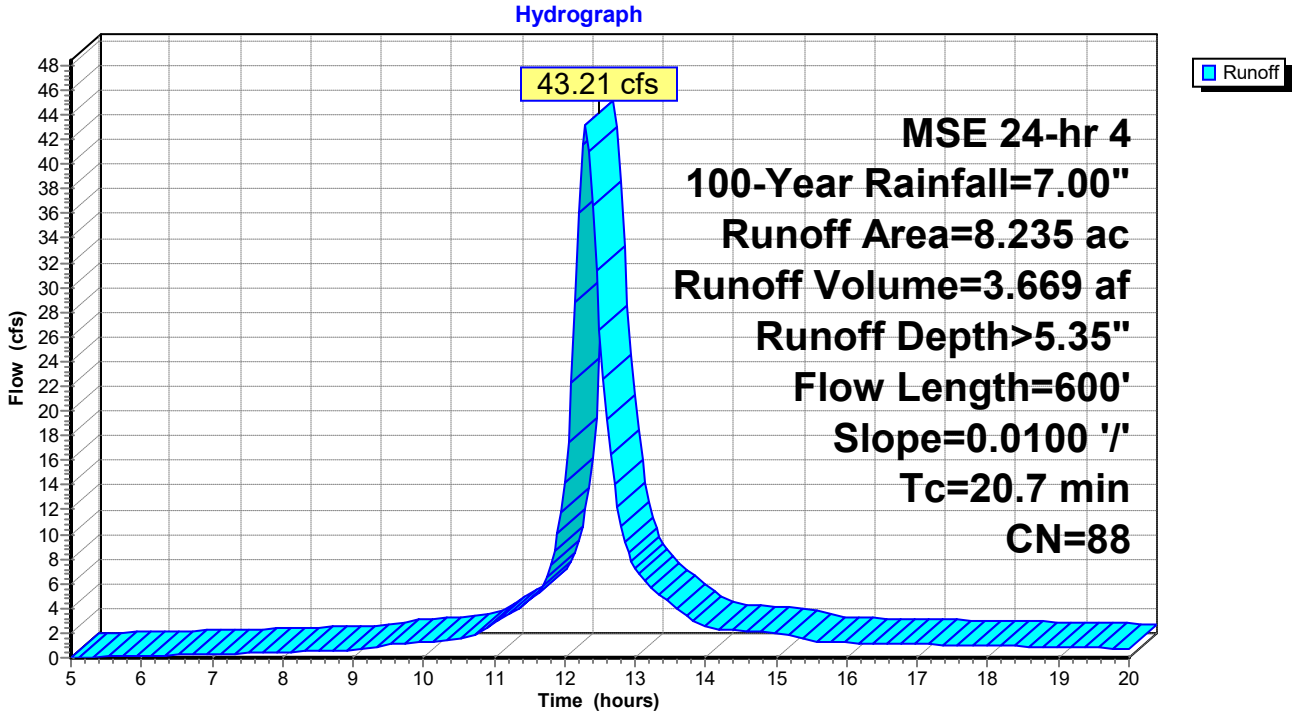
Runoff = 43.21 cfs @ 12.30 hrs, Volume= 3.669 af, Depth> 5.35"
Routed to Link 9L : 9L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.998	89	Row crops, straight row, good, HSG D
0.544	80	Pasture/grassland/range, good, HSG D
0.038	74	Pasture/grassland/range, good, HSG C
0.110	80	Pasture/grassland/range, good, HSG D
0.469	89	Row crops, straight row, good, HSG D
0.076	89	Row crops, straight row, good, HSG D
8.235	88	Weighted Average
8.235		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.5	100	0.0100	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
5.2	500	0.0100	1.61		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
20.7	600	Total			

Subcatchment 1878: 1878



Summary for Reach 1R: Ditch Channel

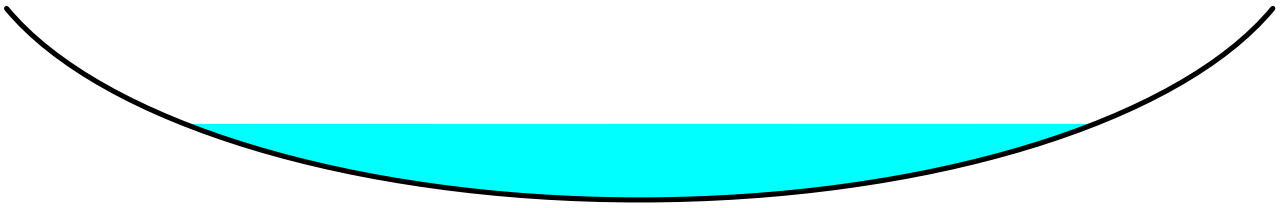
[65] Warning: Inlet elevation not specified

Inflow Area = 11.657 ac, 2.20% Impervious, Inflow Depth > 5.02" for 100-Year event
Inflow = 72.34 cfs @ 12.19 hrs, Volume= 4.879 af
Outflow = 53.59 cfs @ 12.29 hrs, Volume= 4.822 af, Atten= 26%, Lag= 6.1 min
Routed to Link 1L : 1L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.57 fps, Min. Travel Time= 11.7 min
Avg. Velocity = 1.27 fps, Avg. Travel Time= 32.7 min

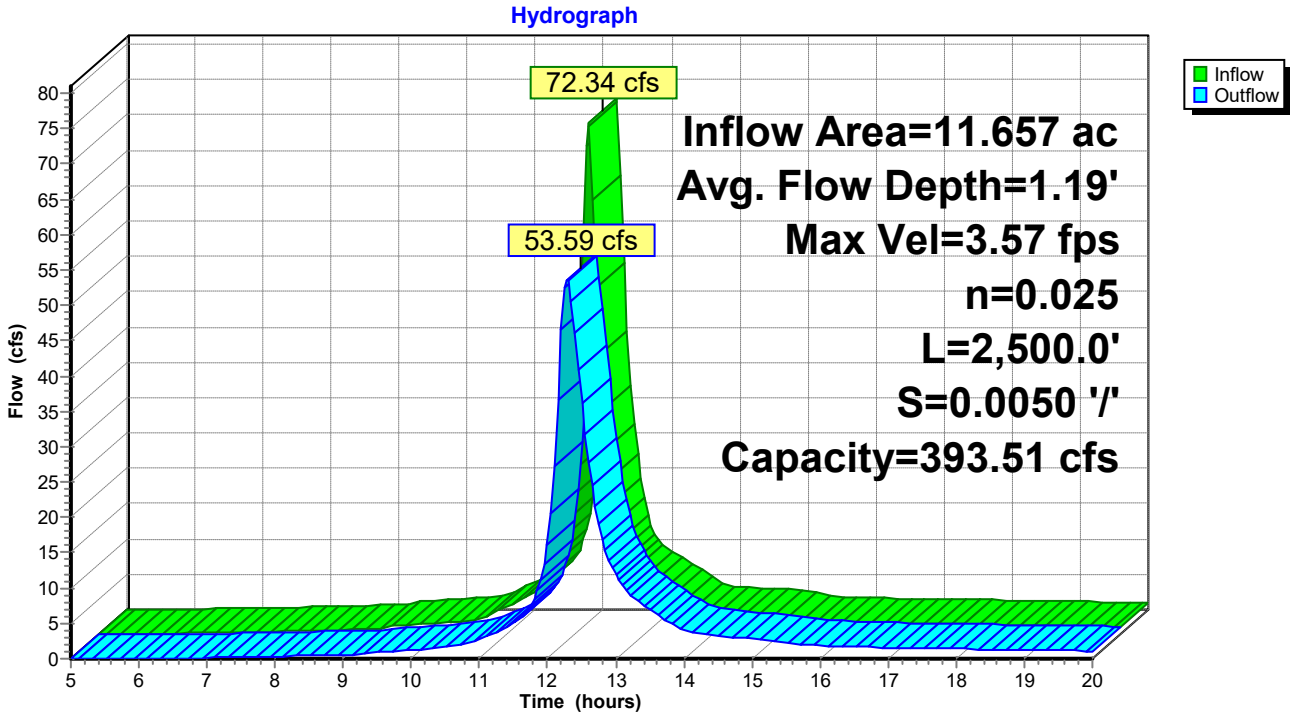
Peak Storage= 37,461 cf @ 12.29 hrs
Average Depth at Peak Storage= 1.19' , Surface Width= 18.89'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.51 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,500.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -12.50'



‡

Reach 1R: Ditch Channel



Summary for Reach 2R: Drainage Channel

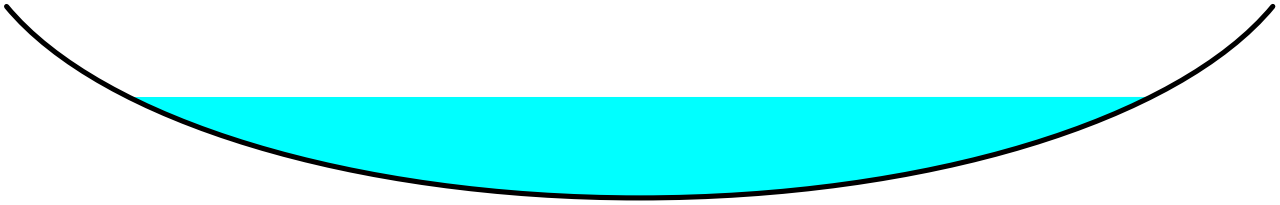
[65] Warning: Inlet elevation not specified
[80] Warning: Exceeded Pond 1P by 0.02' @ 6.35 hrs (0.00 cfs 0.000 af)

Inflow Area = 25.837 ac, 2.43% Impervious, Inflow Depth > 4.74" for 100-Year event
Inflow = 116.15 cfs @ 12.29 hrs, Volume= 10.206 af
Outflow = 99.12 cfs @ 12.41 hrs, Volume= 10.101 af, Atten= 15%, Lag= 7.2 min
Routed to Link 1L : 1L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.31 fps, Min. Travel Time= 10.4 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 28.7 min

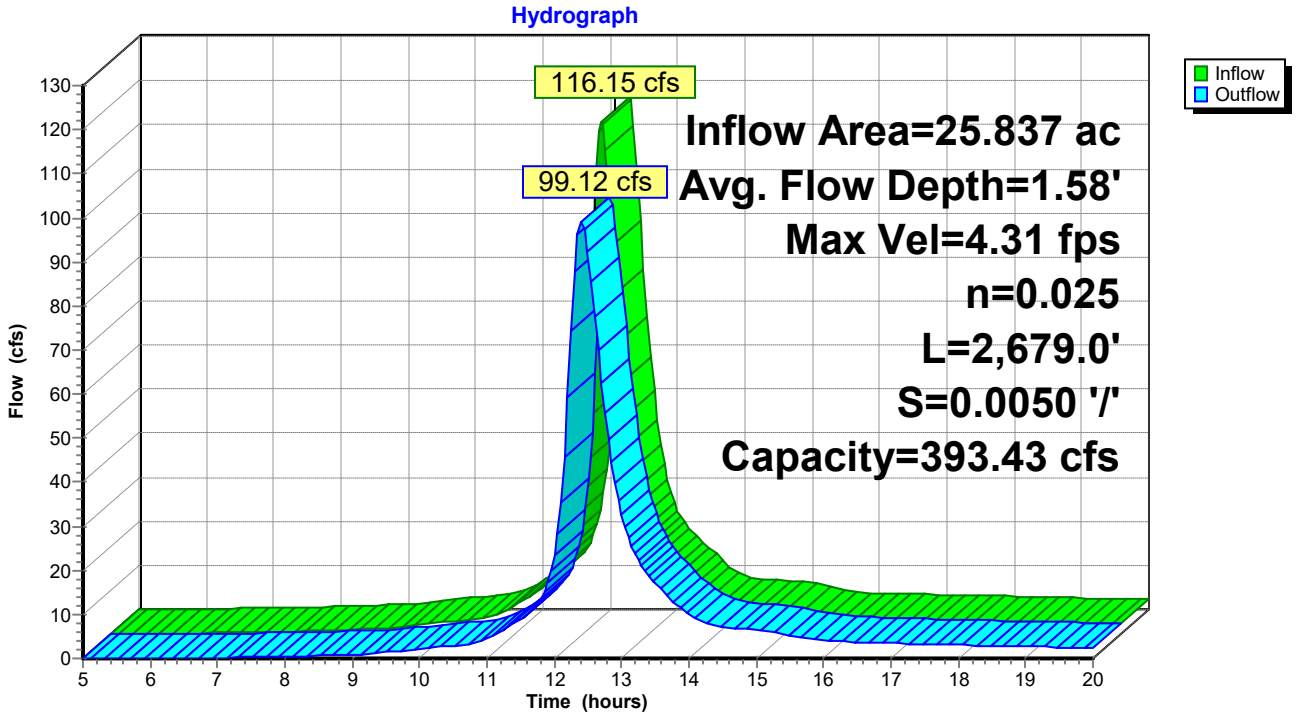
Peak Storage= 61,551 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.58' , Surface Width= 21.78'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.43 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,679.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -13.39'



‡

Reach 2R: Drainage Channel



Summary for Reach 3R: Drainage Ditch

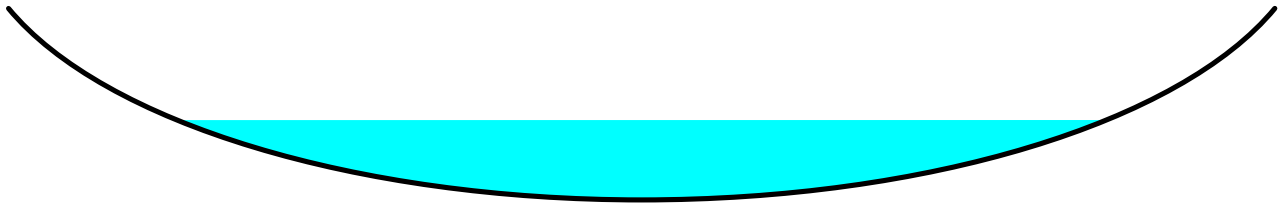
[65] Warning: Inlet elevation not specified

Inflow Area = 14.886 ac, 0.00% Impervious, Inflow Depth > 4.80" for 100-Year event
Inflow = 90.03 cfs @ 12.20 hrs, Volume= 5.954 af
Outflow = 59.83 cfs @ 12.32 hrs, Volume= 5.858 af, Atten= 34%, Lag= 7.3 min
Routed to Link 2L : 2L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.69 fps, Min. Travel Time= 16.1 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 43.4 min

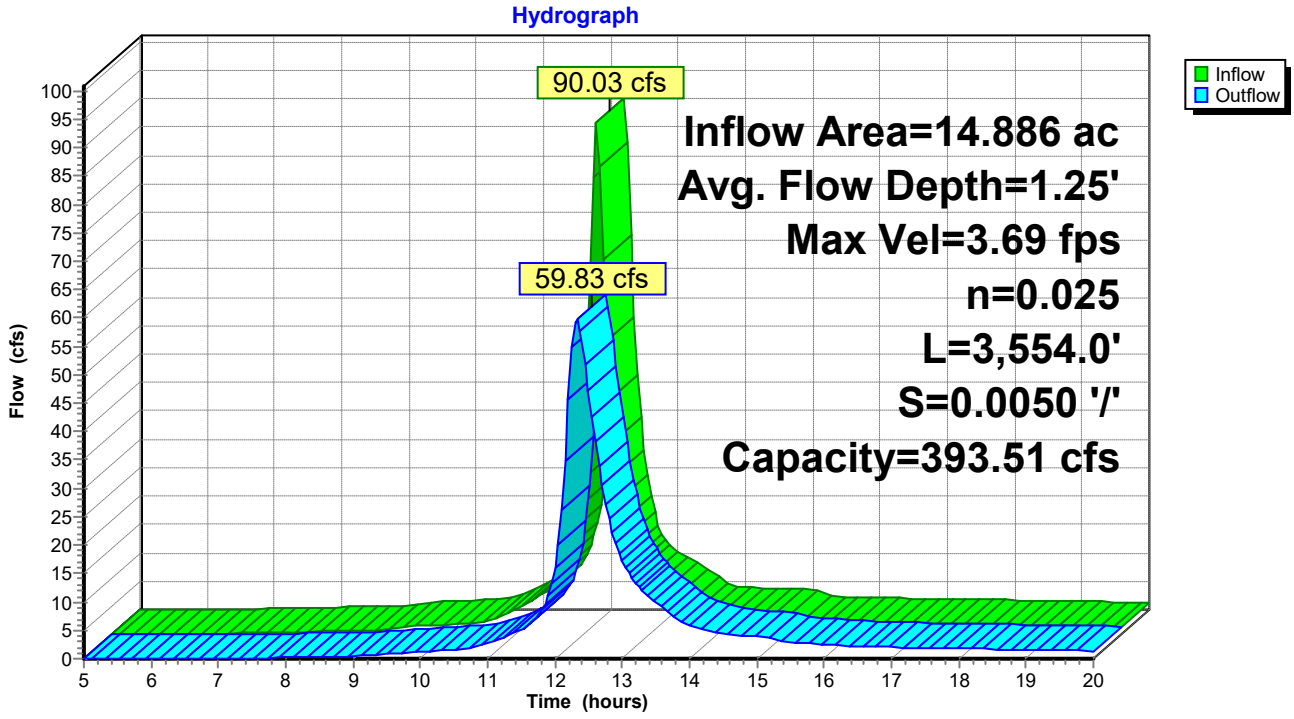
Peak Storage= 57,486 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.25' , Surface Width= 19.38'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.51 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,554.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -17.77'



‡

Reach 3R: Drainage Ditch



Summary for Reach 4R: Drainage Channel

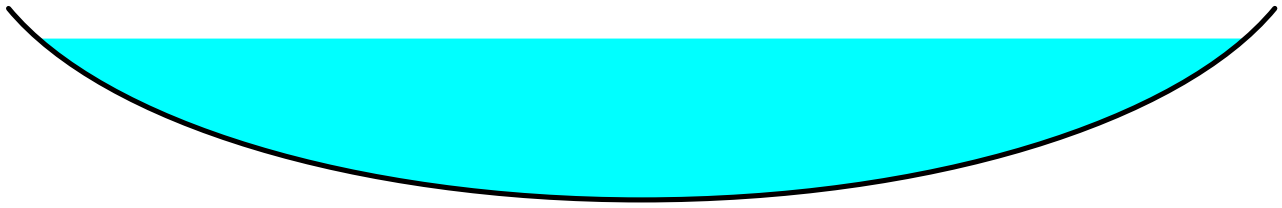
[65] Warning: Inlet elevation not specified

Inflow Area = 83.209 ac, 0.00% Impervious, Inflow Depth > 5.09" for 100-Year event
Inflow = 283.67 cfs @ 12.58 hrs, Volume= 35.298 af
Outflow = 272.77 cfs @ 12.67 hrs, Volume= 35.052 af, Atten= 4%, Lag= 5.5 min
Routed to Pond 6P : Culvert Crossing

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.87 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 19.1 min

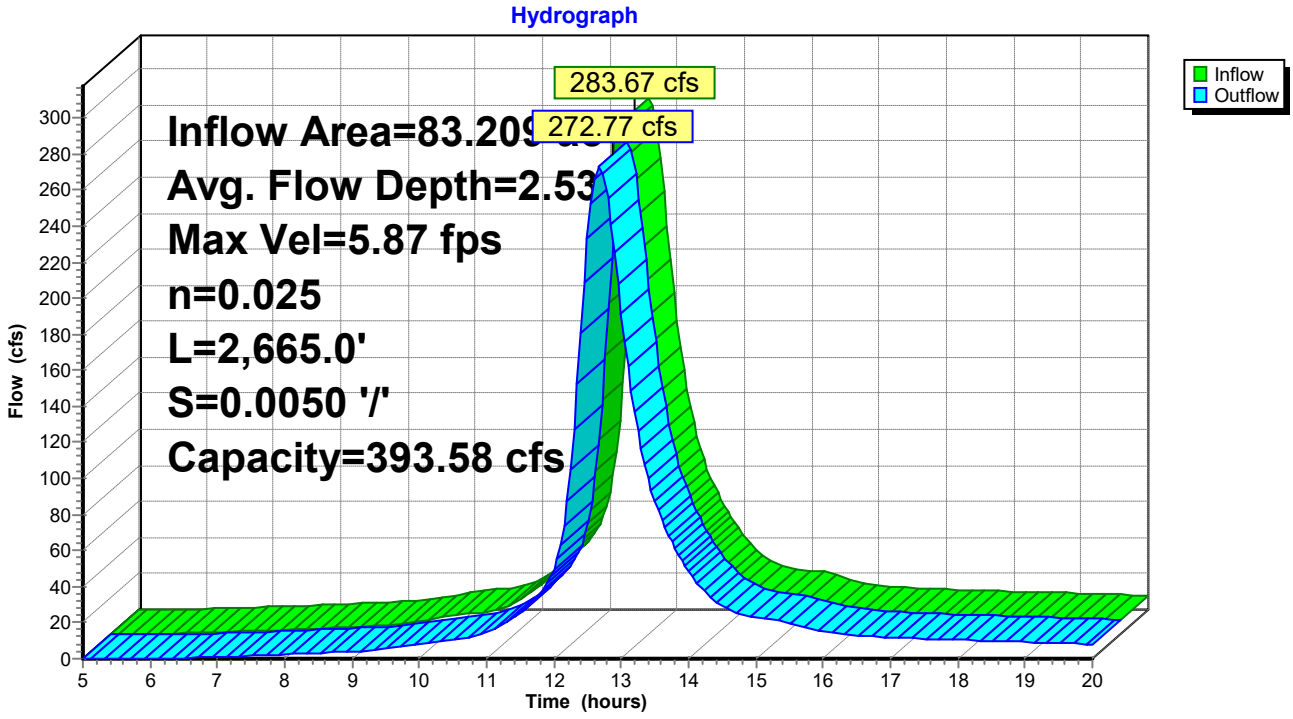
Peak Storage= 123,828 cf @ 12.67 hrs
Average Depth at Peak Storage= 2.53' , Surface Width= 27.55'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.58 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,665.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -13.33'



‡

Reach 4R: Drainage Channel



Summary for Reach 5R: Ditch Channel

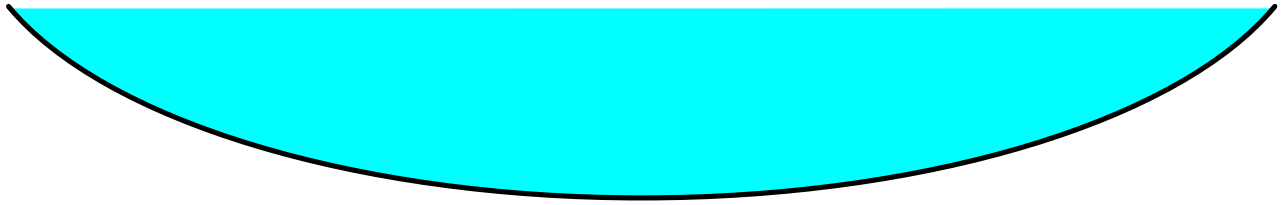
[65] Warning: Inlet elevation not specified
[55] Hint: Peak inflow is 103% of Manning's capacity

Inflow Area = 135.938 ac, 1.40% Impervious, Inflow Depth > 4.22" for 100-Year event
Inflow = 406.11 cfs @ 12.57 hrs, Volume= 47.786 af
Outflow = 384.69 cfs @ 12.67 hrs, Volume= 47.365 af, Atten= 5%, Lag= 6.3 min
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.51 fps, Min. Travel Time= 8.7 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 21.1 min

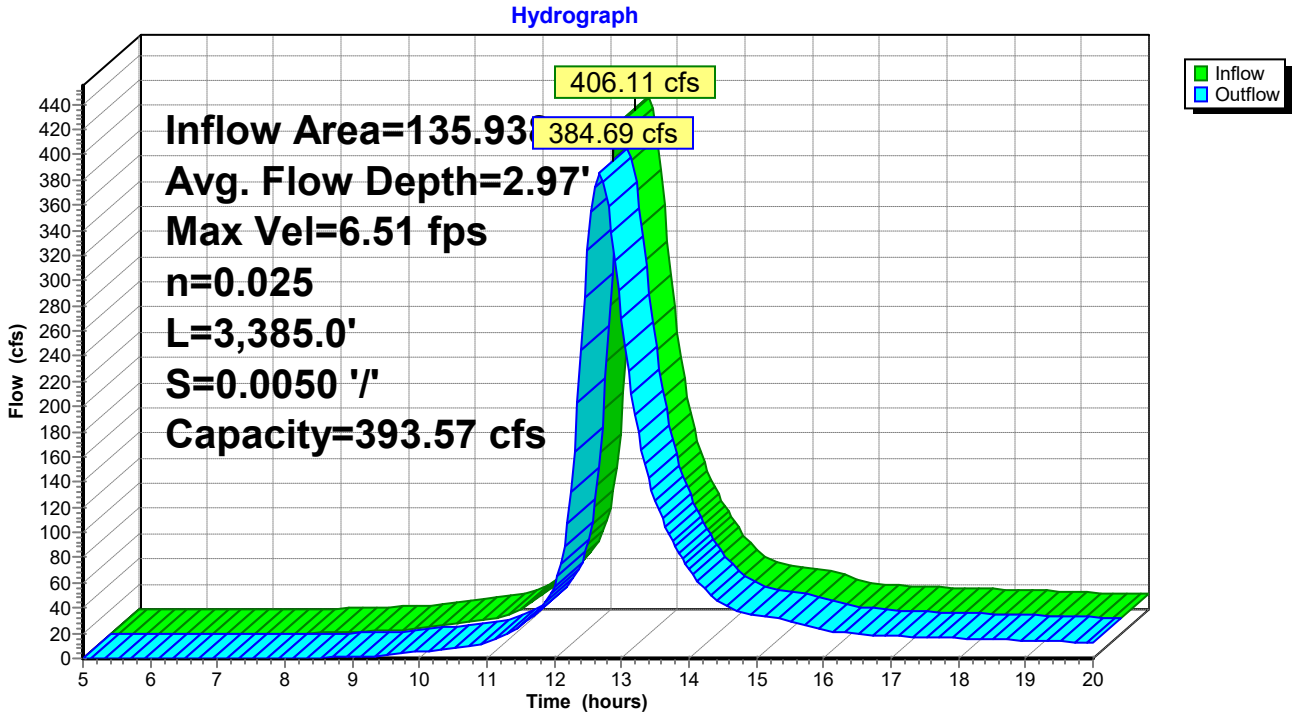
Peak Storage= 199,895 cf @ 12.67 hrs
Average Depth at Peak Storage= 2.97' , Surface Width= 29.84'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.57 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,385.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -16.93'



‡

Reach 5R: Ditch Channel



Summary for Reach 6R: Ditch Channel

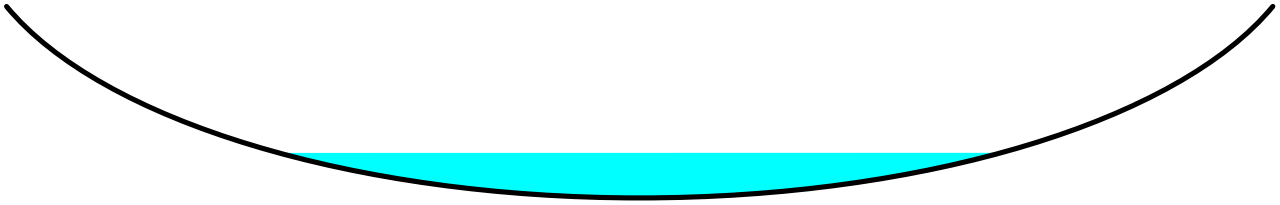
[65] Warning: Inlet elevation not specified
[82] Warning: Early inflow requires earlier time span

Inflow Area = 4.011 ac, 1.37% Impervious, Inflow Depth > 5.46" for 100-Year event
Inflow = 20.77 cfs @ 12.31 hrs, Volume= 1.824 af
Outflow = 17.48 cfs @ 12.42 hrs, Volume= 1.806 af, Atten= 16%, Lag= 6.9 min
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.53 fps, Min. Travel Time= 11.1 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 29.4 min

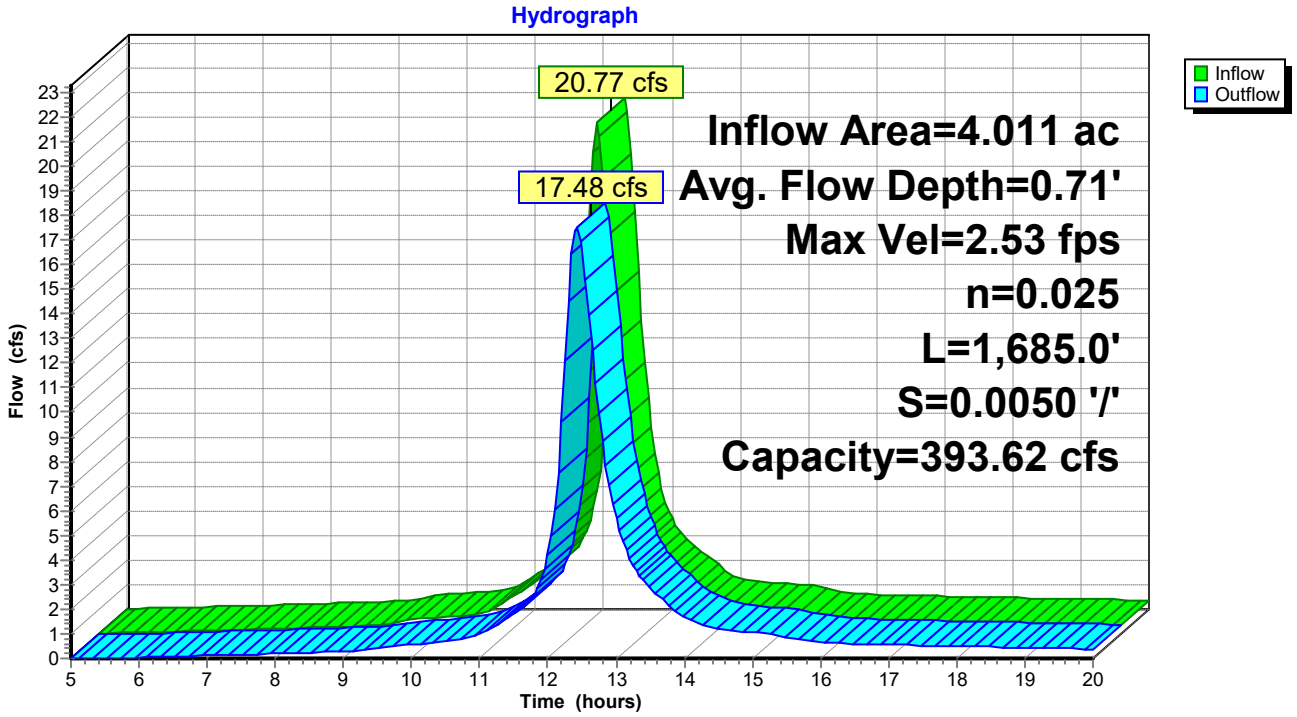
Peak Storage= 11,597 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.71' , Surface Width= 14.58'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.62 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 1,685.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -8.43'



‡

Reach 6R: Ditch Channel



Summary for Reach 7R: Ditch Channel

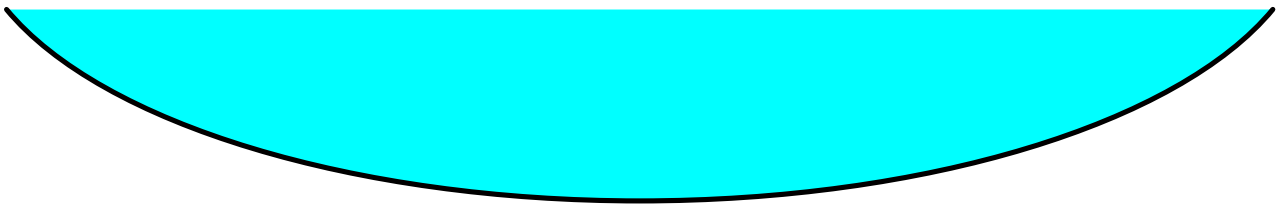
[65] Warning: Inlet elevation not specified
[91] Warning: Storage range exceeded by 0.11'
[55] Hint: Peak inflow is 111% of Manning's capacity

Inflow Area = 148.528 ac, 0.81% Impervious, Inflow Depth > 5.07" for 100-Year event
Inflow = 437.43 cfs @ 12.73 hrs, Volume= 62.789 af
Outflow = 423.10 cfs @ 12.83 hrs, Volume= 62.307 af, Atten= 3%, Lag= 6.1 min
Routed to Link 13L : 13L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.70 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 20.7 min

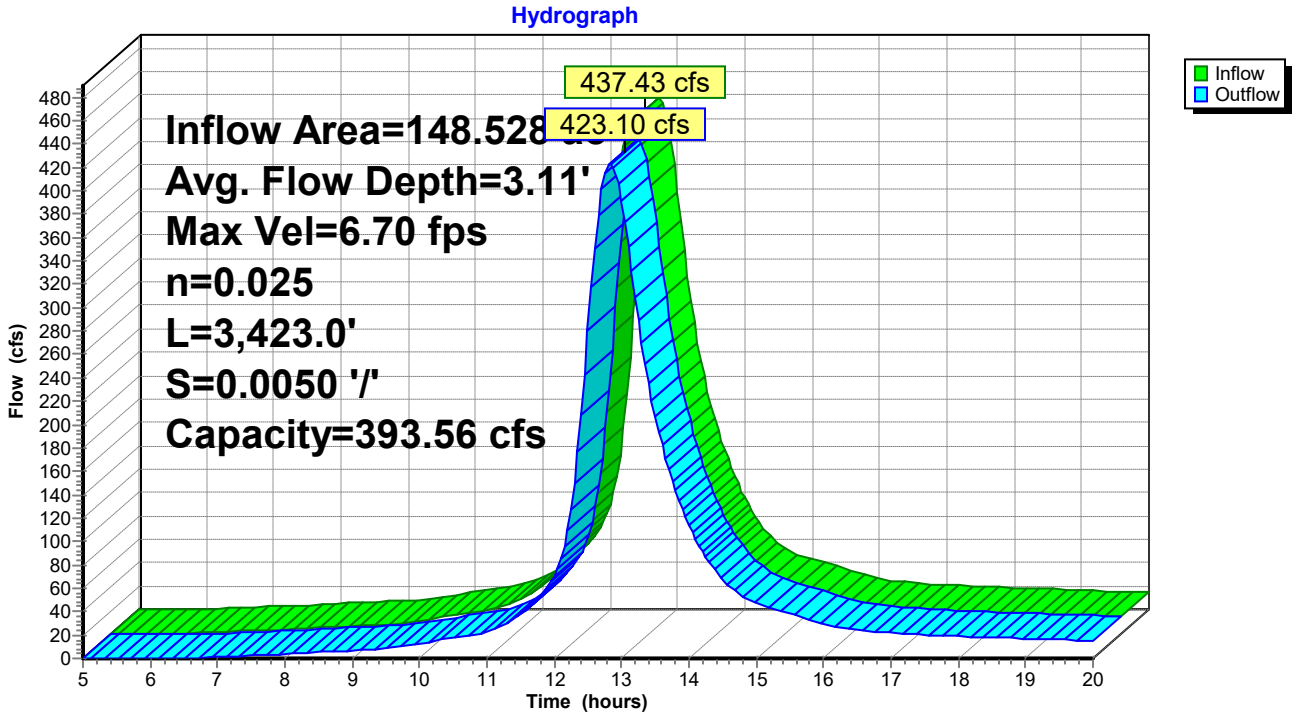
Peak Storage= 216,169 cf @ 12.83 hrs
Average Depth at Peak Storage= 3.11' , Surface Width= 30.52'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.56 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,423.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -17.12'



‡

Reach 7R: Ditch Channel



Summary for Pond 1P: Culvert Crossing

[57] Hint: Peaked at 30.35' (Flood elevation advised)

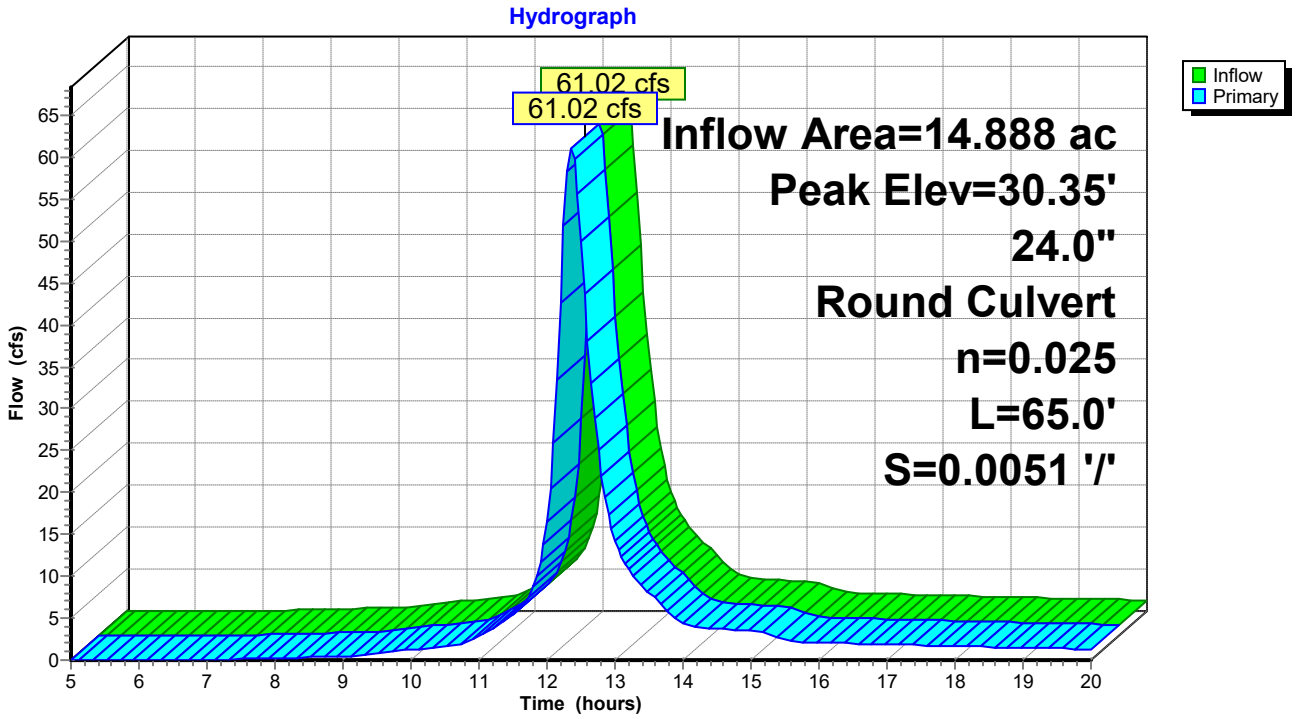
Inflow Area = 14.888 ac, 4.21% Impervious, Inflow Depth > 4.45" for 100-Year event
Inflow = 61.02 cfs @ 12.36 hrs, Volume= 5.527 af
Outflow = 61.02 cfs @ 12.36 hrs, Volume= 5.527 af, Atten= 0%, Lag= 0.0 min
Primary = 61.02 cfs @ 12.36 hrs, Volume= 5.527 af
Routed to Reach 2R : Drainage Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.35' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=60.74 cfs @ 12.36 hrs HW=30.09' TW=1.56' (Dynamic Tailwater)
1=Culvert (Barrel Controls 60.74 cfs @ 19.34 fps)

Pond 1P: Culvert Crossing



Summary for Pond 2P: Culvert Crossing

[57] Hint: Peaked at 6.01' (Flood elevation advised)

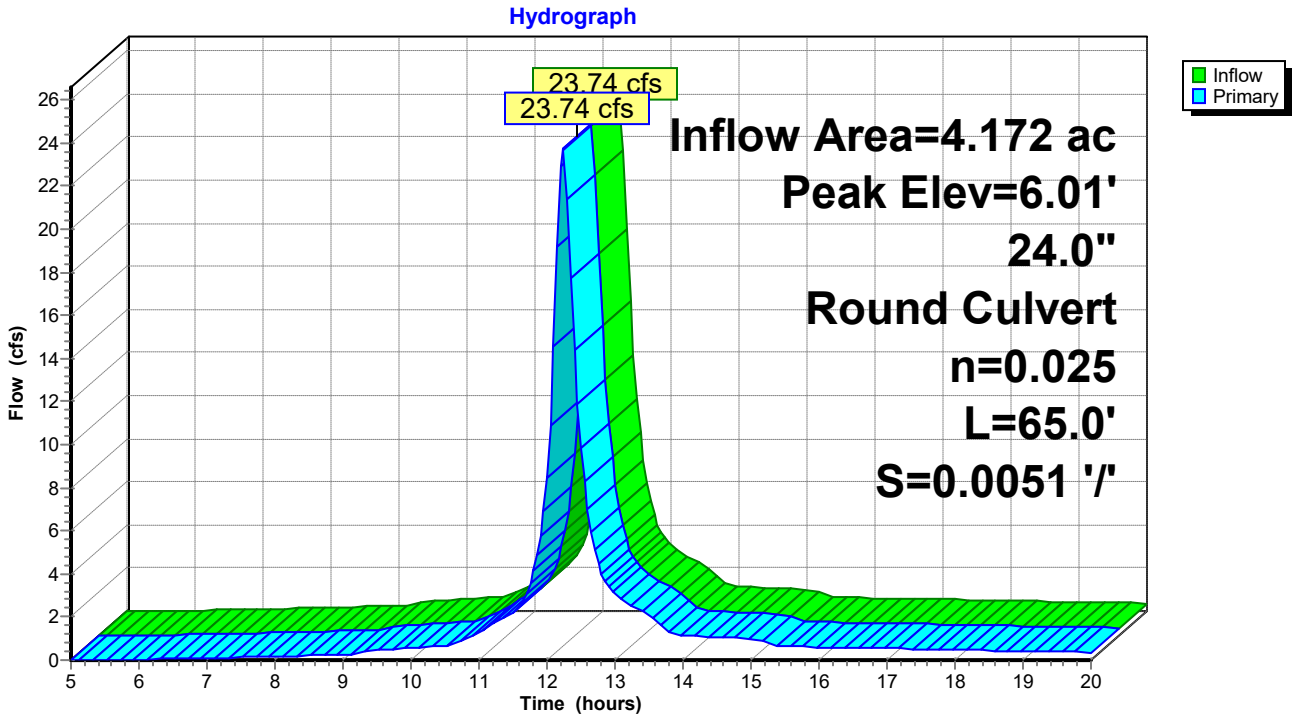
Inflow Area = 4.172 ac, 1.42% Impervious, Inflow Depth > 5.02" for 100-Year event
Inflow = 23.74 cfs @ 12.24 hrs, Volume= 1.744 af
Outflow = 23.74 cfs @ 12.24 hrs, Volume= 1.744 af, Atten= 0%, Lag= 0.0 min
Primary = 23.74 cfs @ 12.24 hrs, Volume= 1.744 af
Routed to Reach 1R : Ditch Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 6.01' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=23.45 cfs @ 12.24 hrs HW=5.90' TW=1.16' (Dynamic Tailwater)
1=Culvert (Barrel Controls 23.45 cfs @ 7.46 fps)

Pond 2P: Culvert Crossing



Summary for Pond 3P: Culvert Crossing

[57] Hint: Peaked at 35.92' (Flood elevation advised)

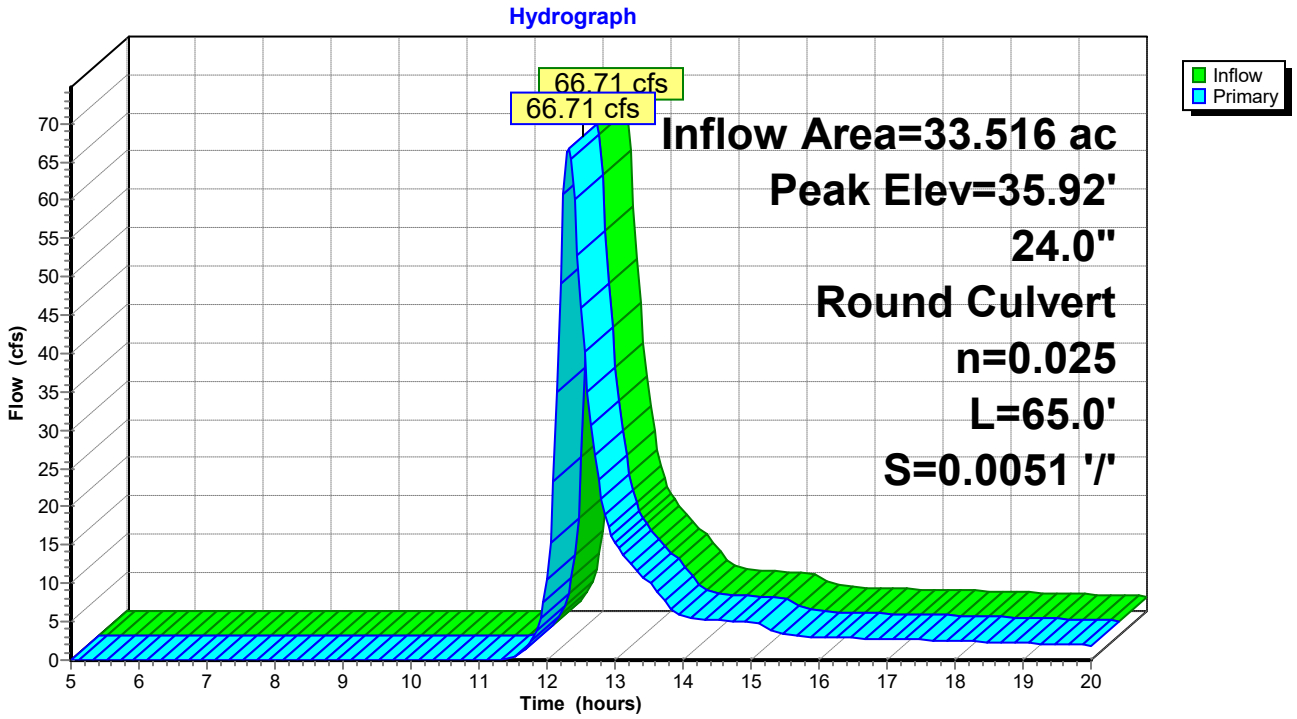
Inflow Area = 33.516 ac, 1.44% Impervious, Inflow Depth > 1.97" for 100-Year event
Inflow = 66.71 cfs @ 12.32 hrs, Volume= 5.489 af
Outflow = 66.71 cfs @ 12.32 hrs, Volume= 5.489 af, Atten= 0%, Lag= 0.0 min
Primary = 66.71 cfs @ 12.32 hrs, Volume= 5.489 af
Routed to Link 3L : 3L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 35.92' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=65.98 cfs @ 12.32 hrs HW=35.20' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 65.98 cfs @ 21.00 fps)

Pond 3P: Culvert Crossing



Summary for Pond 4P: Culvert Crossing

[57] Hint: Peaked at 267.25' (Flood elevation advised)

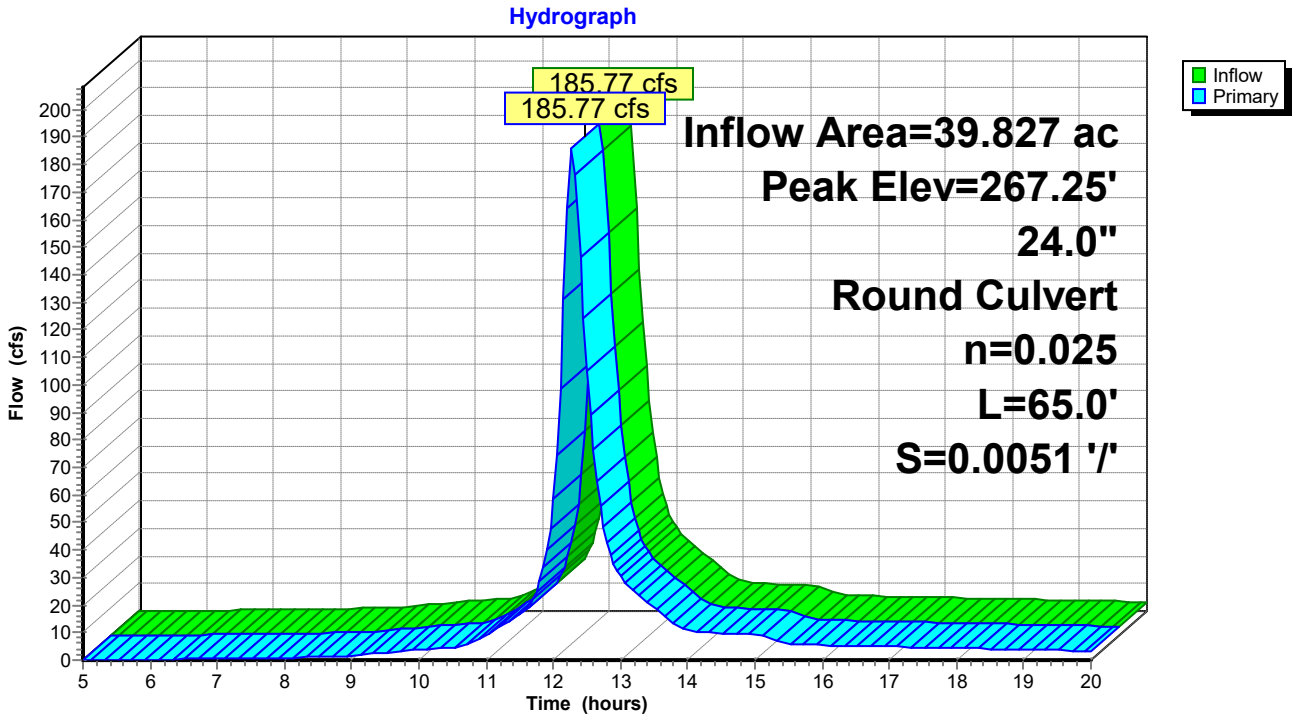
Inflow Area = 39.827 ac, 1.98% Impervious, Inflow Depth > 4.47" for 100-Year event
Inflow = 185.77 cfs @ 12.28 hrs, Volume= 14.844 af
Outflow = 185.77 cfs @ 12.28 hrs, Volume= 14.844 af, Atten= 0%, Lag= 0.0 min
Primary = 185.77 cfs @ 12.28 hrs, Volume= 14.844 af
Routed to Link 5L : 5L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 267.25' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=183.87 cfs @ 12.28 hrs HW=262.08' TW=0.00' (Dynamic Tailwater)
↳**1=Culvert** (Barrel Controls 183.87 cfs @ 58.53 fps)

Pond 4P: Culvert Crossing



Summary for Pond 5P: Culvert Crossing

[57] Hint: Peaked at 16.55' (Flood elevation advised)

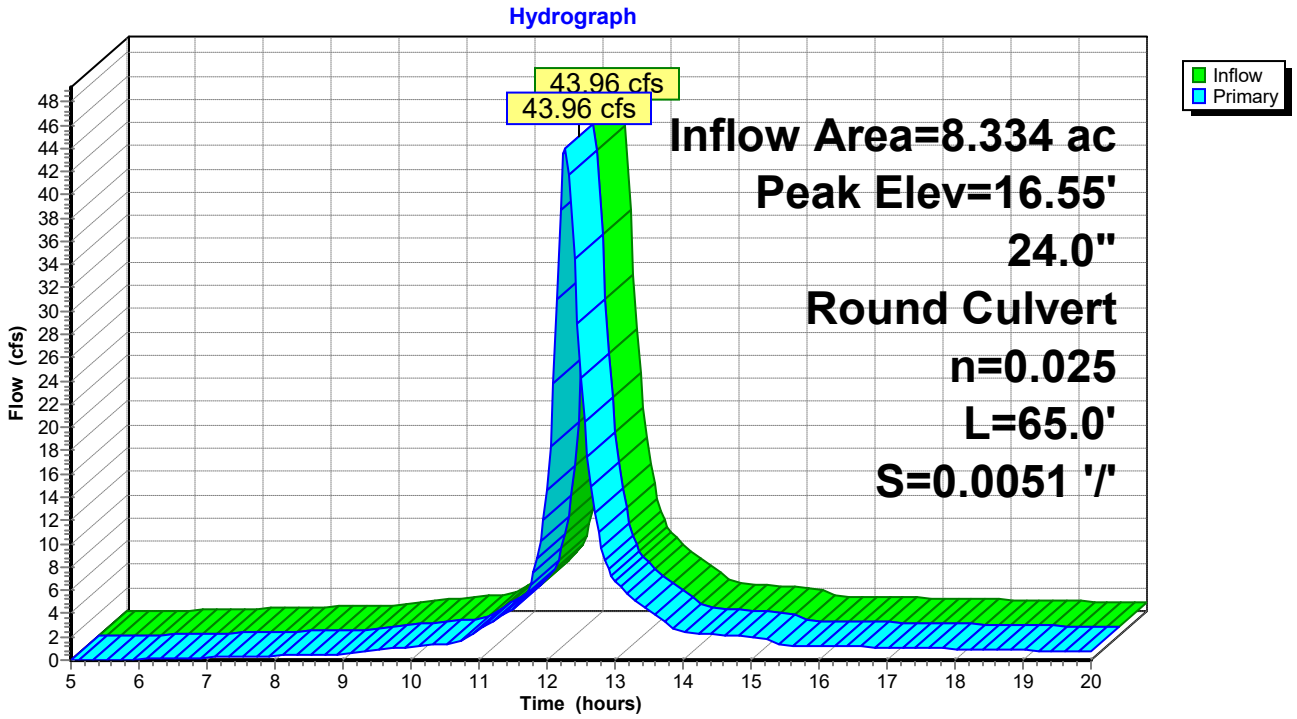
Inflow Area = 8.334 ac, 1.93% Impervious, Inflow Depth > 5.12" for 100-Year event
Inflow = 43.96 cfs @ 12.28 hrs, Volume= 3.559 af
Outflow = 43.96 cfs @ 12.28 hrs, Volume= 3.559 af, Atten= 0%, Lag= 0.0 min
Primary = 43.96 cfs @ 12.28 hrs, Volume= 3.559 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 16.55' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=43.51 cfs @ 12.28 hrs HW=16.25' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 43.51 cfs @ 13.85 fps)

Pond 5P: Culvert Crossing



Summary for Pond 6P: Culvert Crossing

[57] Hint: Peaked at 706.85' (Flood elevation advised)

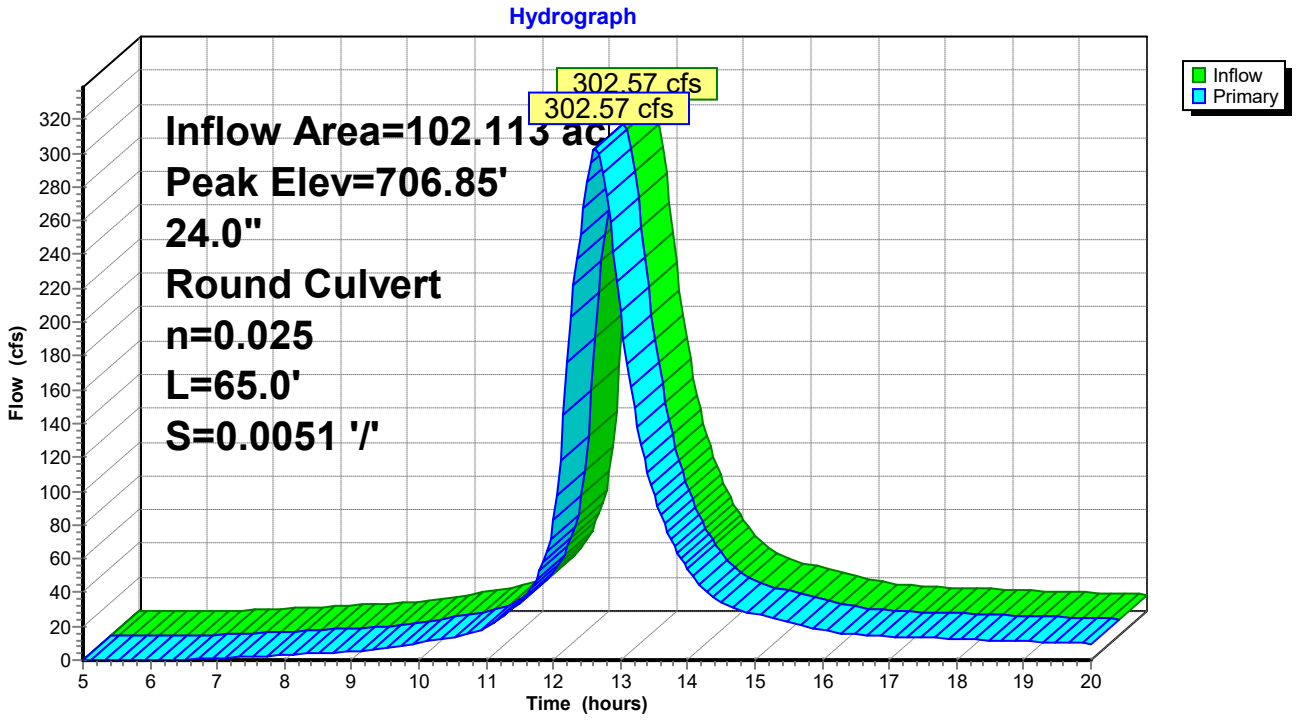
Inflow Area = 102.113 ac, 0.00% Impervious, Inflow Depth > 5.01" for 100-Year event
Inflow = 302.57 cfs @ 12.63 hrs, Volume= 42.603 af
Outflow = 302.57 cfs @ 12.63 hrs, Volume= 42.603 af, Atten= 0%, Lag= 0.0 min
Primary = 302.57 cfs @ 12.63 hrs, Volume= 42.603 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 706.85' @ 12.63 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=301.95 cfs @ 12.63 hrs HW=703.94' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 301.95 cfs @ 96.11 fps)

Pond 6P: Culvert Crossing



Summary for Pond 7P: Culvert Crossing

[57] Hint: Peaked at 374.65' (Flood elevation advised)

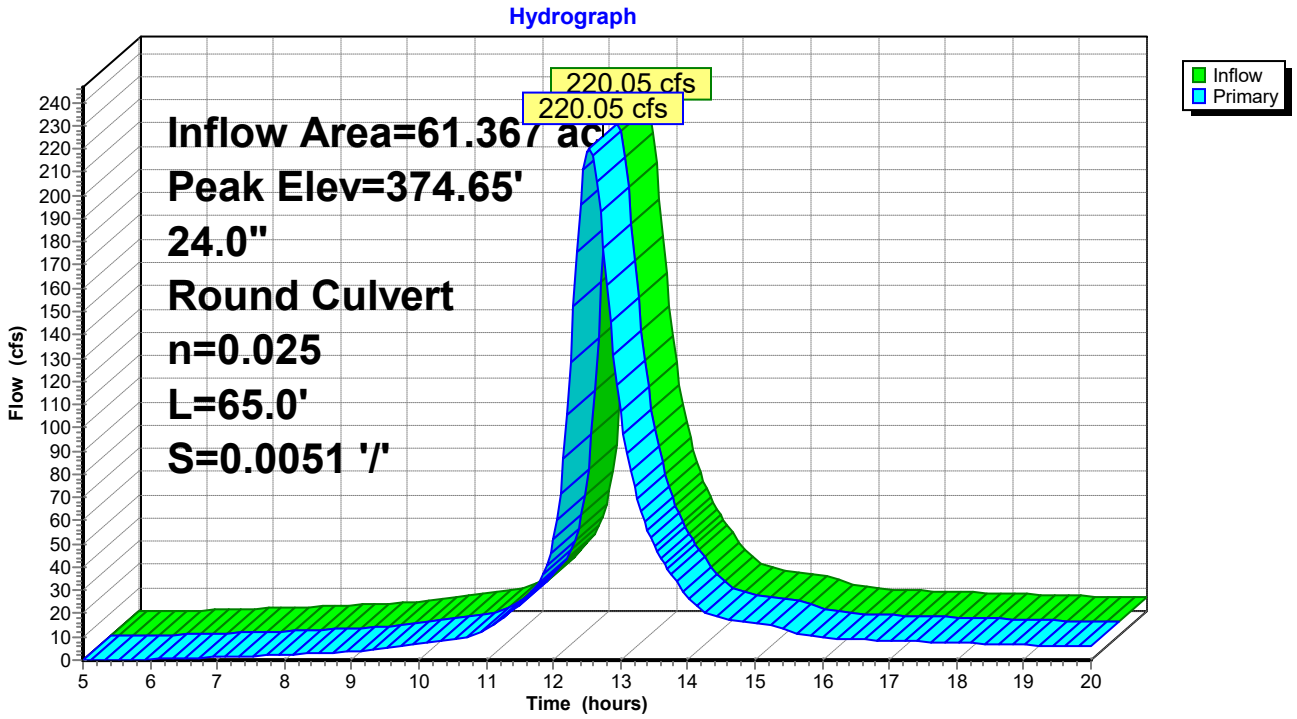
Inflow Area = 61.367 ac, 1.42% Impervious, Inflow Depth > 5.10" for 100-Year event
Inflow = 220.05 cfs @ 12.54 hrs, Volume= 26.058 af
Outflow = 220.05 cfs @ 12.54 hrs, Volume= 26.058 af, Atten= 0%, Lag= 0.0 min
Primary = 220.05 cfs @ 12.54 hrs, Volume= 26.058 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 374.65' @ 12.54 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=219.43 cfs @ 12.54 hrs HW=372.57' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 219.43 cfs @ 69.85 fps)

Pond 7P: Culvert Crossing



Summary for Pond 8P: Culvert Crossing

[57] Hint: Peaked at 79.75' (Flood elevation advised)

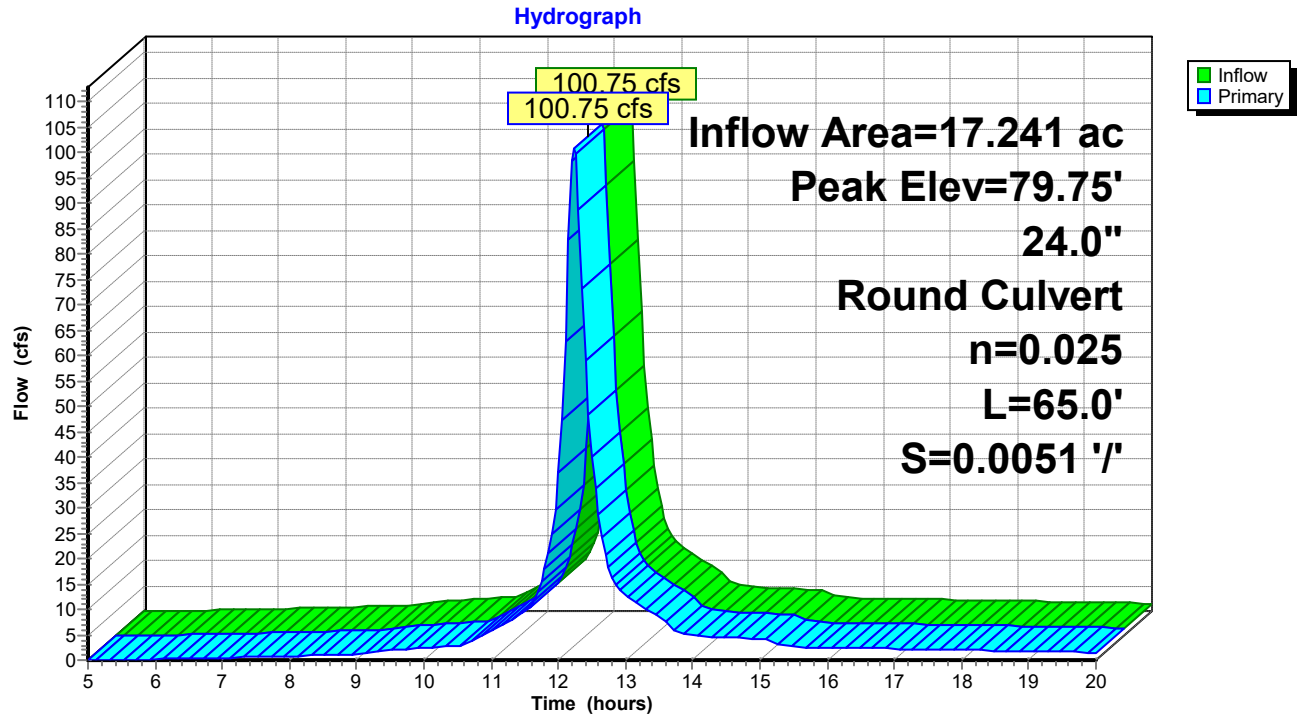
Inflow Area = 17.241 ac, 3.76% Impervious, Inflow Depth > 5.13" for 100-Year event
Inflow = 100.75 cfs @ 12.23 hrs, Volume= 7.370 af
Outflow = 100.75 cfs @ 12.23 hrs, Volume= 7.370 af, Atten= 0%, Lag= 0.0 min
Primary = 100.75 cfs @ 12.23 hrs, Volume= 7.370 af
Routed to Link 12L : 12L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.75' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=99.27 cfs @ 12.23 hrs HW=77.58' TW=0.00' (Dynamic Tailwater)
↳**1=Culvert** (Barrel Controls 99.27 cfs @ 31.60 fps)

Pond 8P: Culvert Crossing



Summary for Pond 9P: Culvert Crossing

[57] Hint: Peaked at 12.46' (Flood elevation advised)

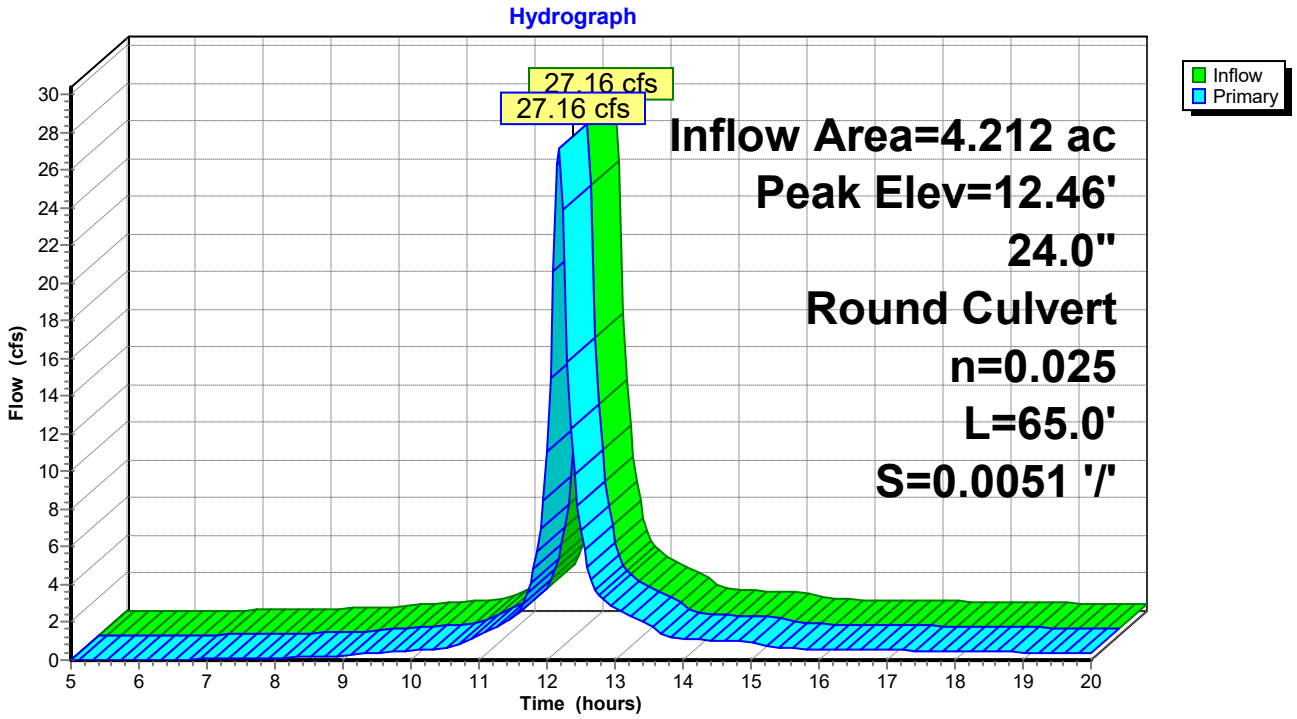
Inflow Area = 4.212 ac, 4.47% Impervious, Inflow Depth > 4.80" for 100-Year event
Inflow = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af
Outflow = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af, Atten= 0%, Lag= 0.0 min
Primary = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af
Routed to Pond 11P : Culvert Crossing

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 12.46' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=23.87 cfs @ 12.18 hrs HW=11.46' TW=7.07' (Dynamic Tailwater)
1=Culvert (Outlet Controls 23.87 cfs @ 7.60 fps)

Pond 9P: Culvert Crossing



Summary for Pond 10P: Culvert Crossing

[57] Hint: Peaked at 6.66' (Flood elevation advised)

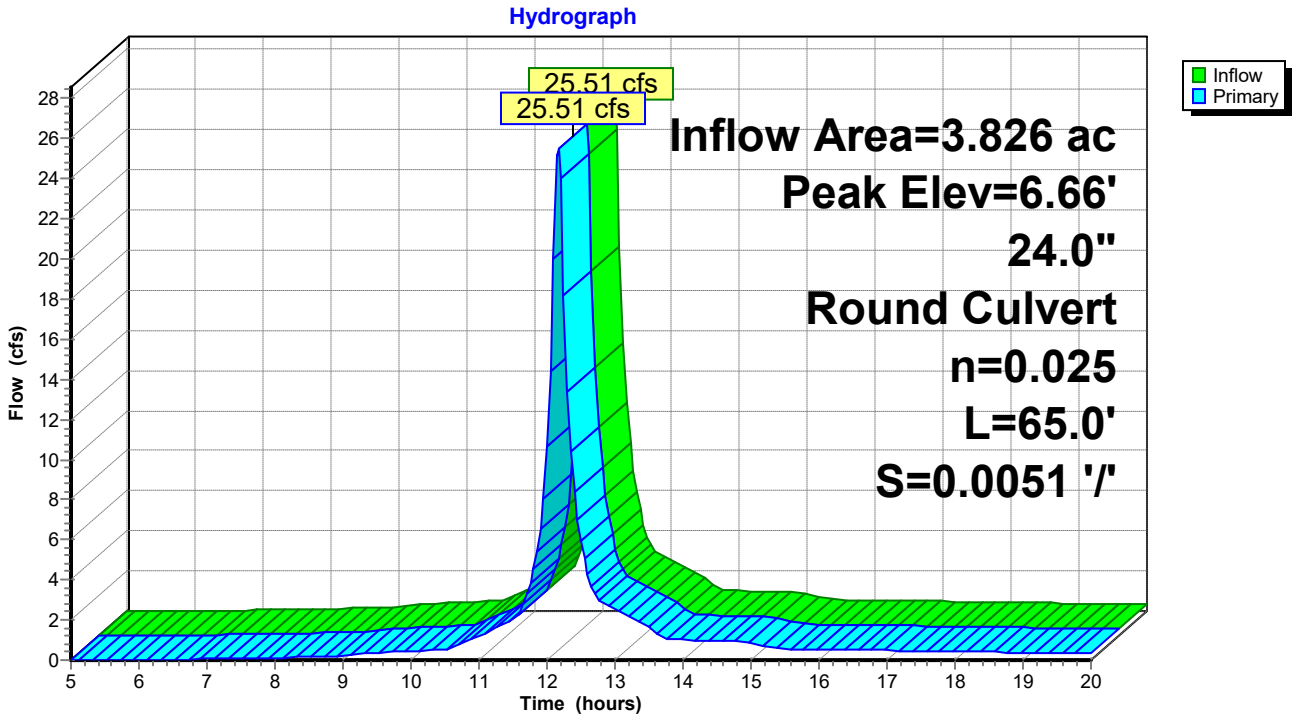
Inflow Area = 3.826 ac, 5.63% Impervious, Inflow Depth > 4.80" for 100-Year event
Inflow = 25.51 cfs @ 12.17 hrs, Volume= 1.532 af
Outflow = 25.51 cfs @ 12.17 hrs, Volume= 1.532 af, Atten= 0%, Lag= 0.0 min
Primary = 25.51 cfs @ 12.17 hrs, Volume= 1.532 af
Routed to Link 16L : 16L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 6.66' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=24.82 cfs @ 12.17 hrs HW=6.42' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 24.82 cfs @ 7.90 fps)

Pond 10P: Culvert Crossing



Summary for Pond 11P: Culvert Crossing

[57] Hint: Peaked at 7.32' (Flood elevation advised)

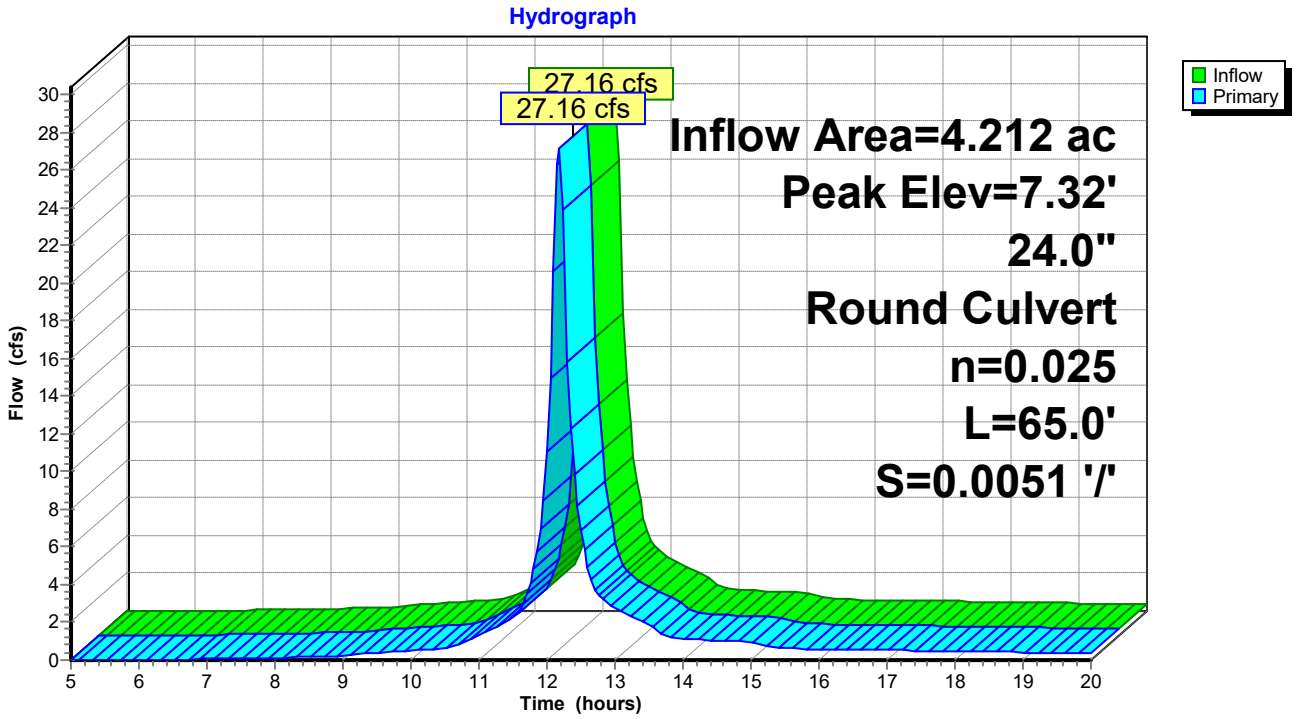
Inflow Area = 4.212 ac, 4.47% Impervious, Inflow Depth > 4.80" for 100-Year event
Inflow = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af
Outflow = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af, Atten= 0%, Lag= 0.0 min
Primary = 27.16 cfs @ 12.18 hrs, Volume= 1.686 af
Routed to Link 16L : 16L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 7.32' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=26.47 cfs @ 12.18 hrs HW=7.07' TW=0.00' (Dynamic Tailwater)
↳**1=Culvert** (Barrel Controls 26.47 cfs @ 8.43 fps)

Pond 11P: Culvert Crossing



Summary for Pond 12P: Culvert Crossing

[57] Hint: Peaked at 1,273.13' (Flood elevation advised)

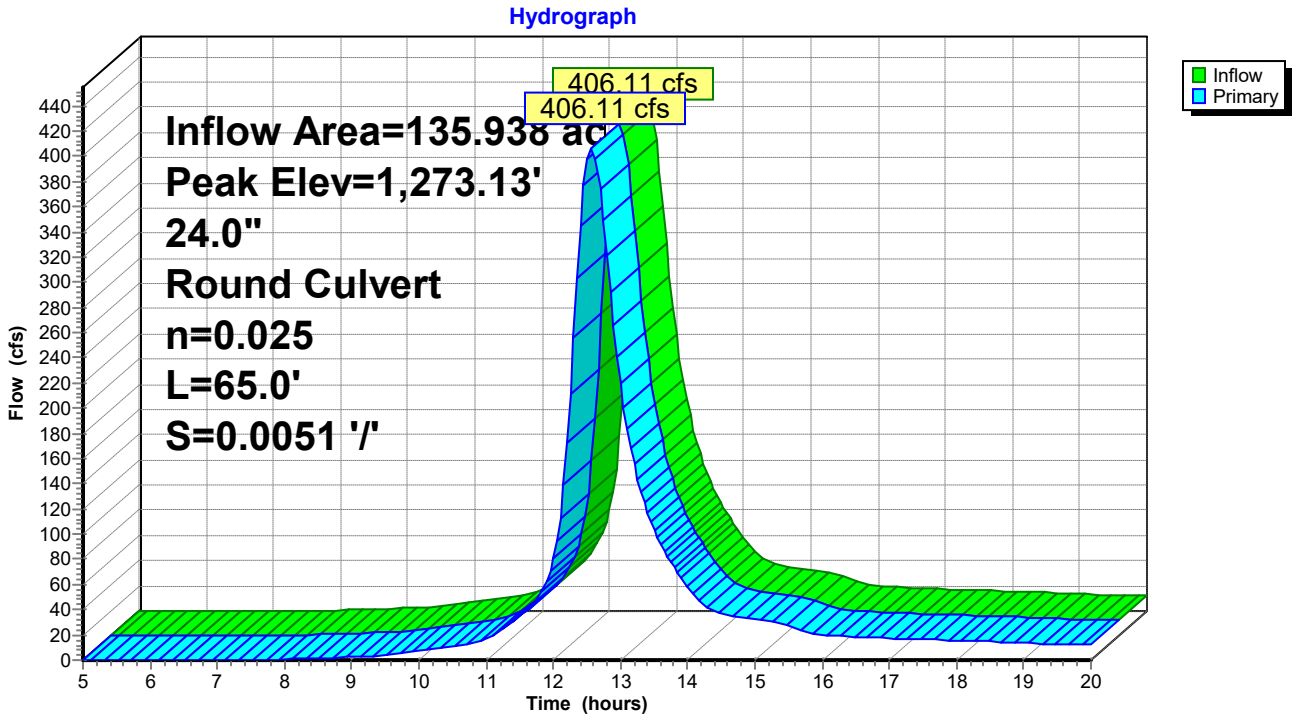
Inflow Area = 135.938 ac, 1.40% Impervious, Inflow Depth > 4.22" for 100-Year event
Inflow = 406.11 cfs @ 12.57 hrs, Volume= 47.786 af
Outflow = 406.11 cfs @ 12.57 hrs, Volume= 47.786 af, Atten= 0%, Lag= 0.0 min
Primary = 406.11 cfs @ 12.57 hrs, Volume= 47.786 af
Routed to Reach 5R : Ditch Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,273.13' @ 12.57 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=405.01 cfs @ 12.57 hrs HW=1,266.41' TW=2.88' (Dynamic Tailwater)
1=Culvert (Outlet Controls 405.01 cfs @ 128.92 fps)

Pond 12P: Culvert Crossing

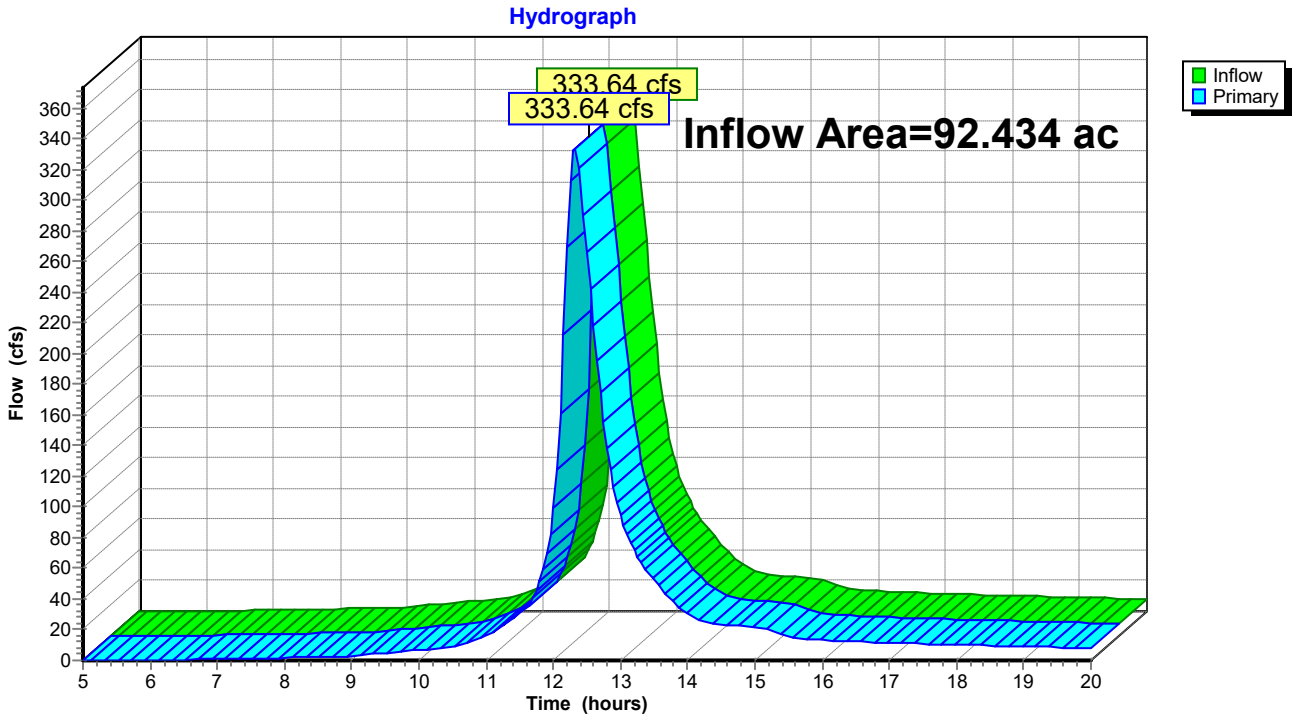


Summary for Link 1L: 1L

Inflow Area = 92.434 ac, 1.68% Impervious, Inflow Depth > 4.32" for 100-Year event
Inflow = 333.64 cfs @ 12.32 hrs, Volume= 33.264 af
Primary = 333.64 cfs @ 12.32 hrs, Volume= 33.264 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: 1L

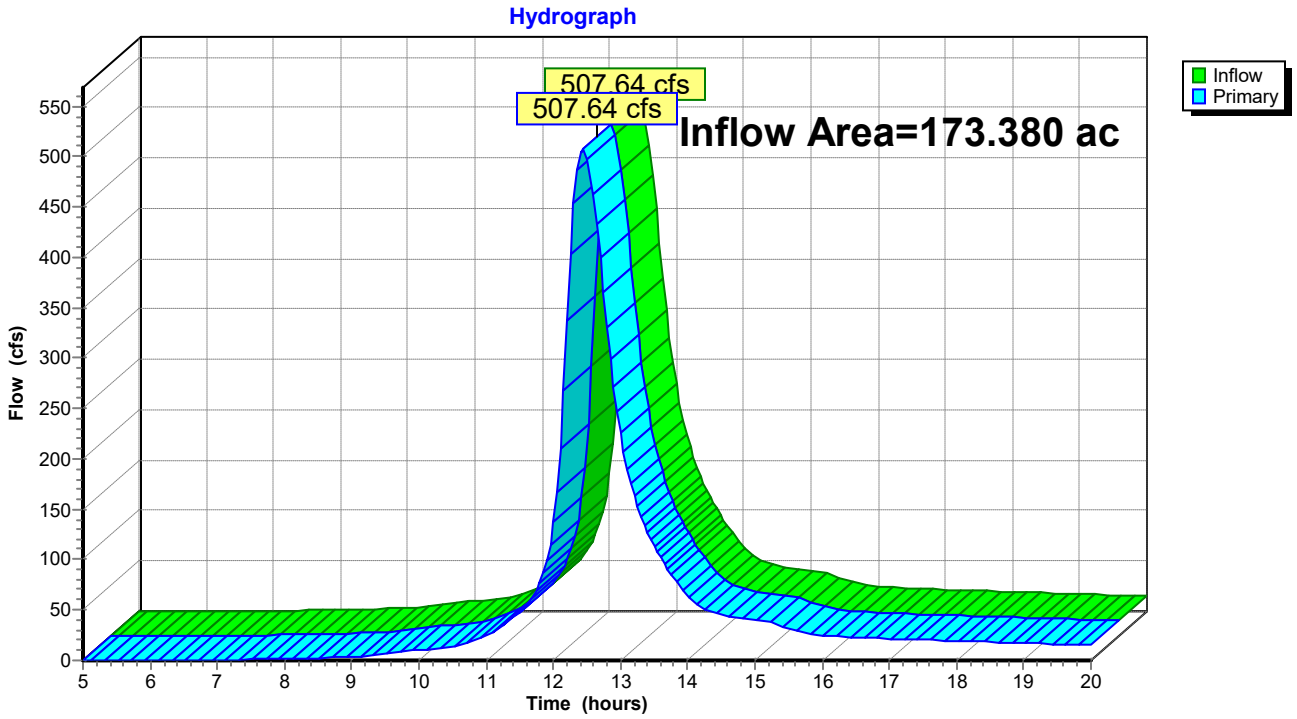


Summary for Link 2L: 2L

Inflow Area = 173.380 ac, 0.97% Impervious, Inflow Depth > 4.16" for 100-Year event
Inflow = 507.64 cfs @ 12.44 hrs, Volume= 60.083 af
Primary = 507.64 cfs @ 12.44 hrs, Volume= 60.083 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: 2L

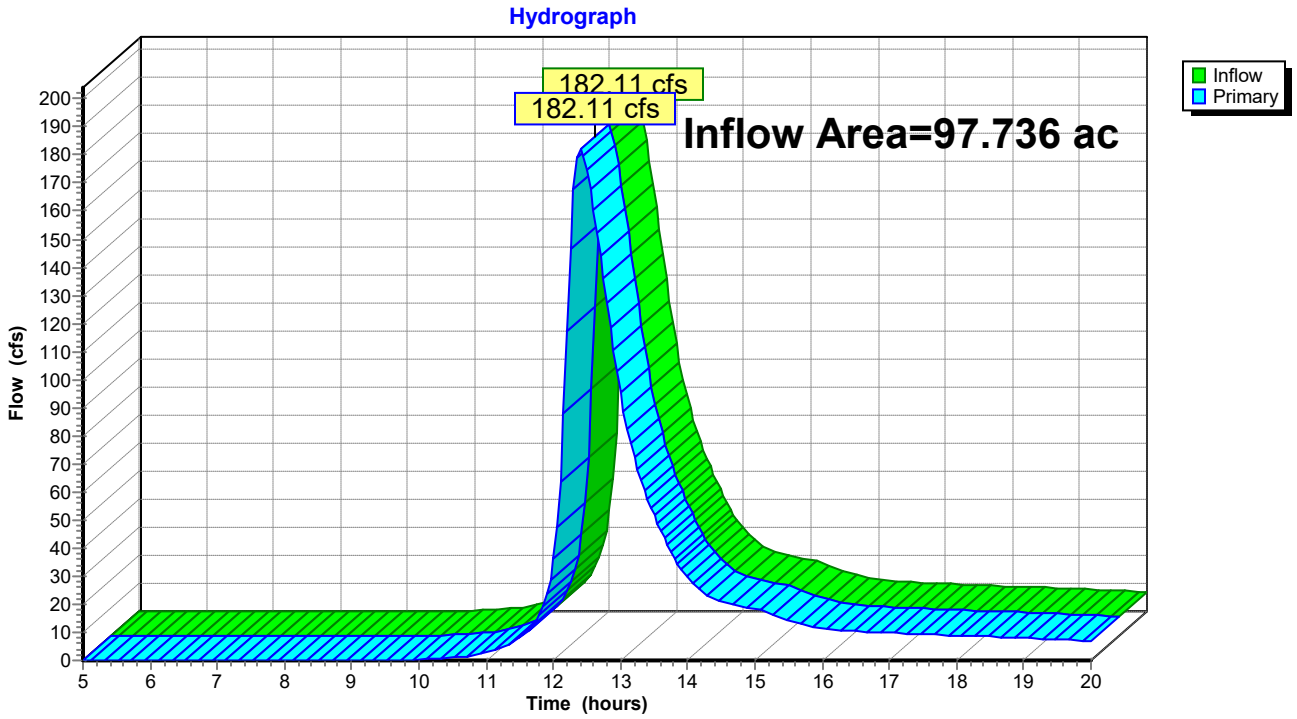


Summary for Link 3L: 3L

Inflow Area = 97.736 ac, 0.85% Impervious, Inflow Depth > 2.75" for 100-Year event
Inflow = 182.11 cfs @ 12.40 hrs, Volume= 22.360 af
Primary = 182.11 cfs @ 12.40 hrs, Volume= 22.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 3L: 3L

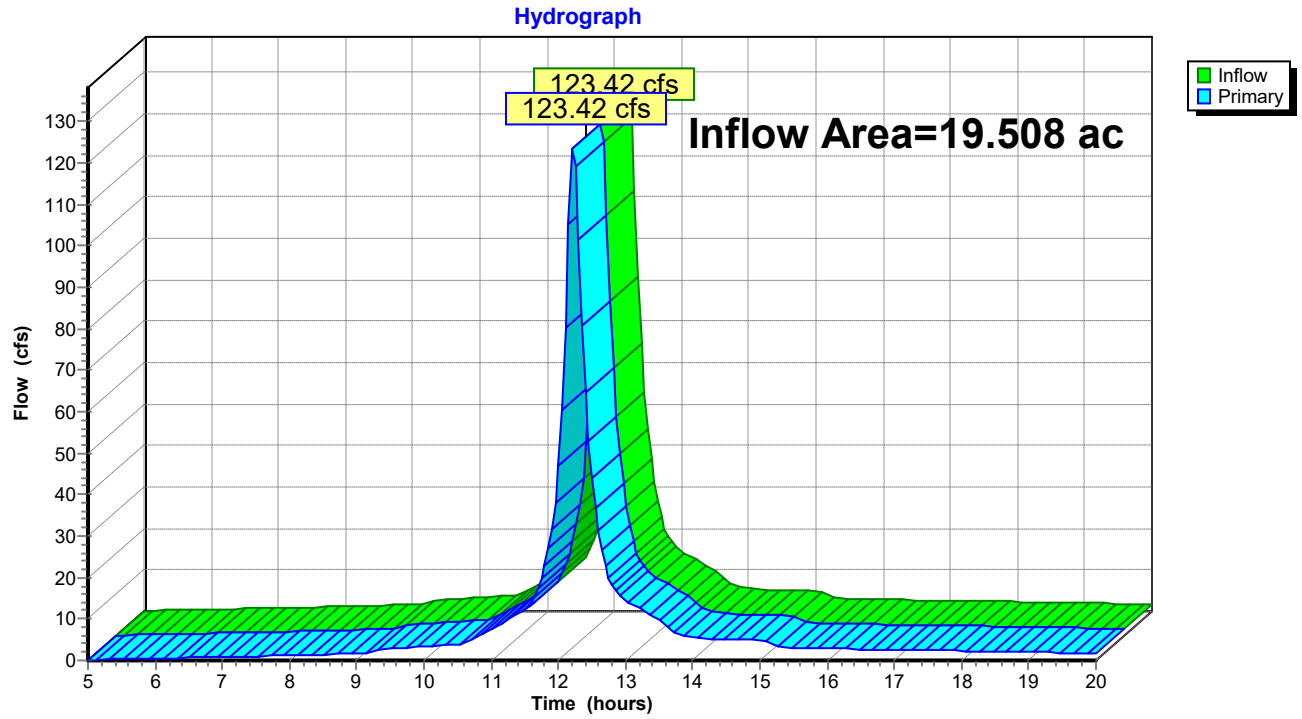


Summary for Link 4L: 4L

Inflow Area = 19.508 ac, 0.00% Impervious, Inflow Depth > 5.47" for 100-Year event
Inflow = 123.42 cfs @ 12.22 hrs, Volume= 8.889 af
Primary = 123.42 cfs @ 12.22 hrs, Volume= 8.889 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: 4L

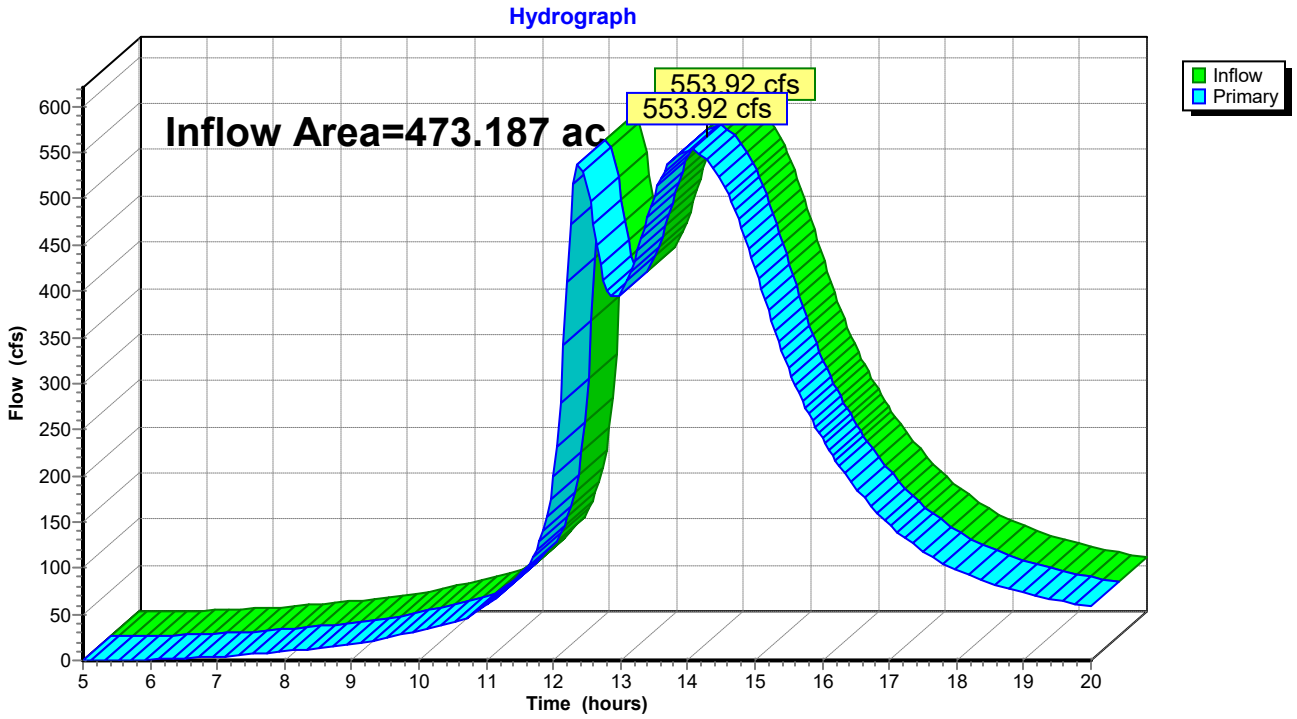


Summary for Link 5L: 5L

Inflow Area = 473.187 ac, 0.76% Impervious, Inflow Depth > 5.03" for 100-Year event
Inflow = 553.92 cfs @ 14.07 hrs, Volume= 198.179 af
Primary = 553.92 cfs @ 14.07 hrs, Volume= 198.179 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: 5L

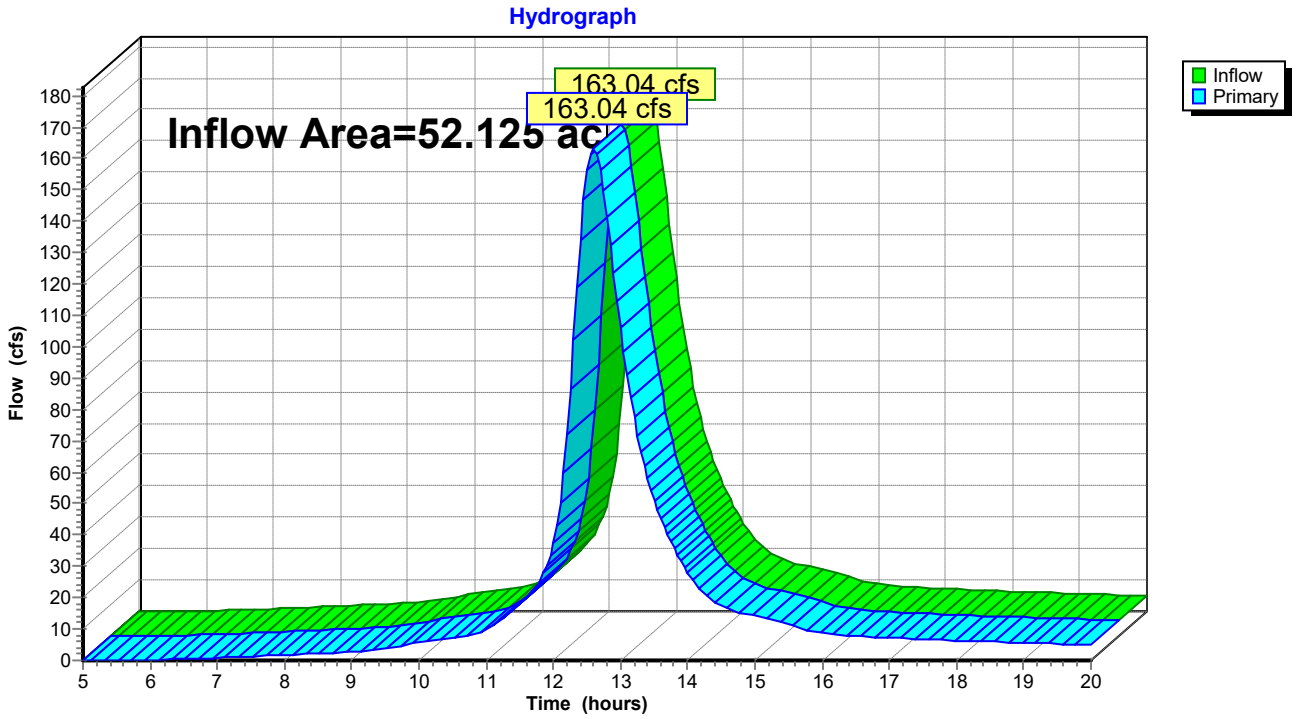


Summary for Link 6L: 6L

Inflow Area = 52.125 ac, 0.61% Impervious, Inflow Depth > 5.03" for 100-Year event
Inflow = 163.04 cfs @ 12.60 hrs, Volume= 21.847 af
Primary = 163.04 cfs @ 12.60 hrs, Volume= 21.847 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: 6L

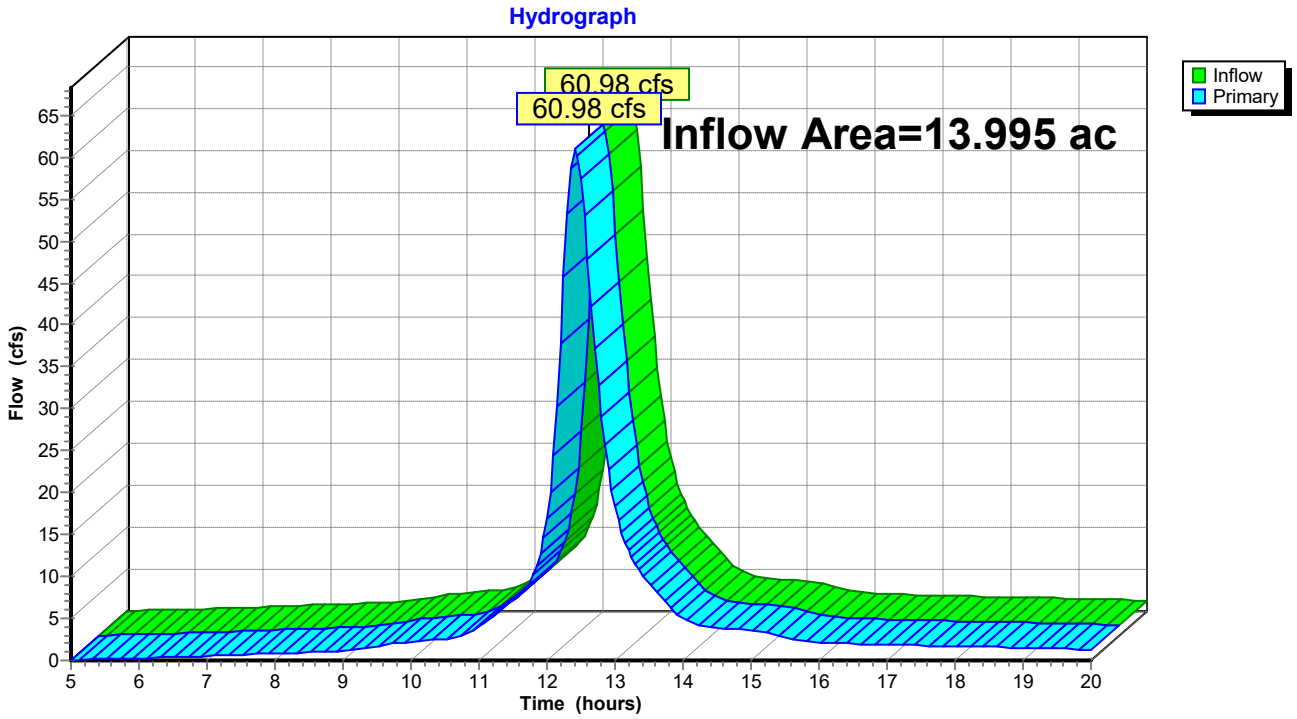


Summary for Link 7L: 7L

Inflow Area = 13.995 ac, 0.00% Impervious, Inflow Depth > 5.45" for 100-Year event
Inflow = 60.98 cfs @ 12.41 hrs, Volume= 6.351 af
Primary = 60.98 cfs @ 12.41 hrs, Volume= 6.351 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 7L: 7L

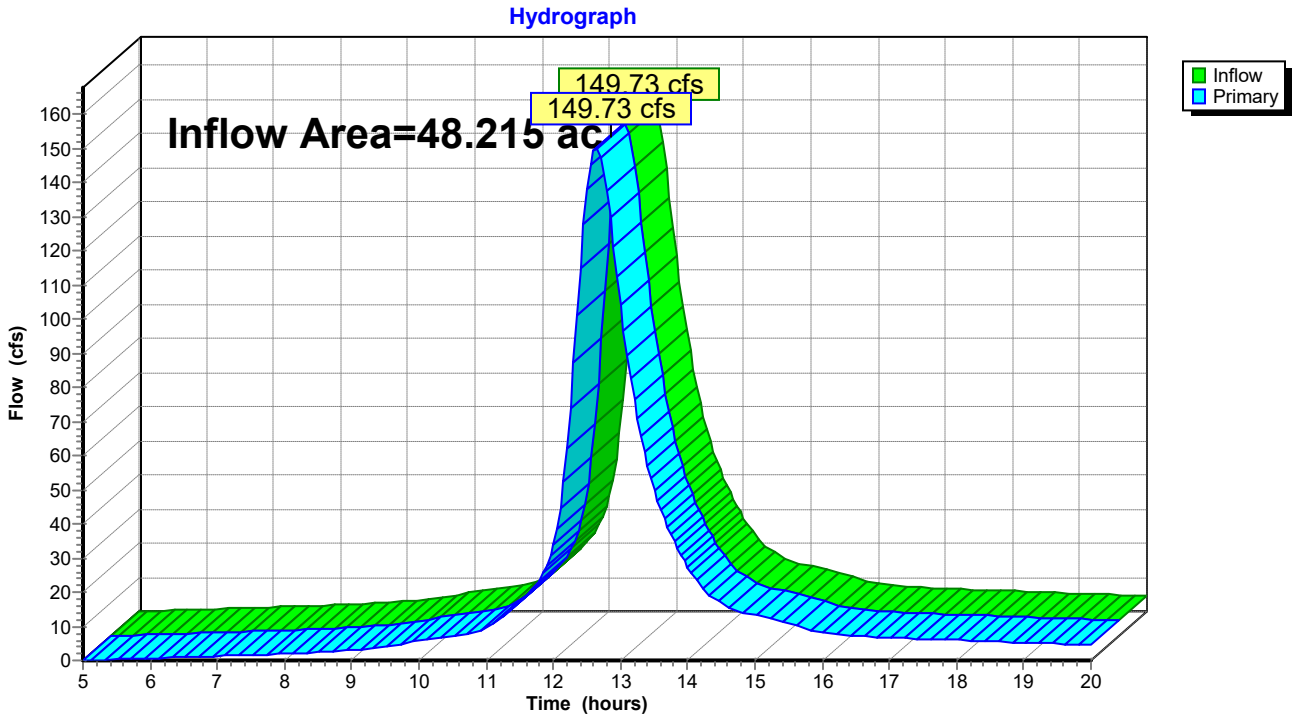


Summary for Link 8L: 8L

Inflow Area = 48.215 ac, 0.04% Impervious, Inflow Depth > 5.15" for 100-Year event
Inflow = 149.73 cfs @ 12.64 hrs, Volume= 20.676 af
Primary = 149.73 cfs @ 12.64 hrs, Volume= 20.676 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 8L: 8L

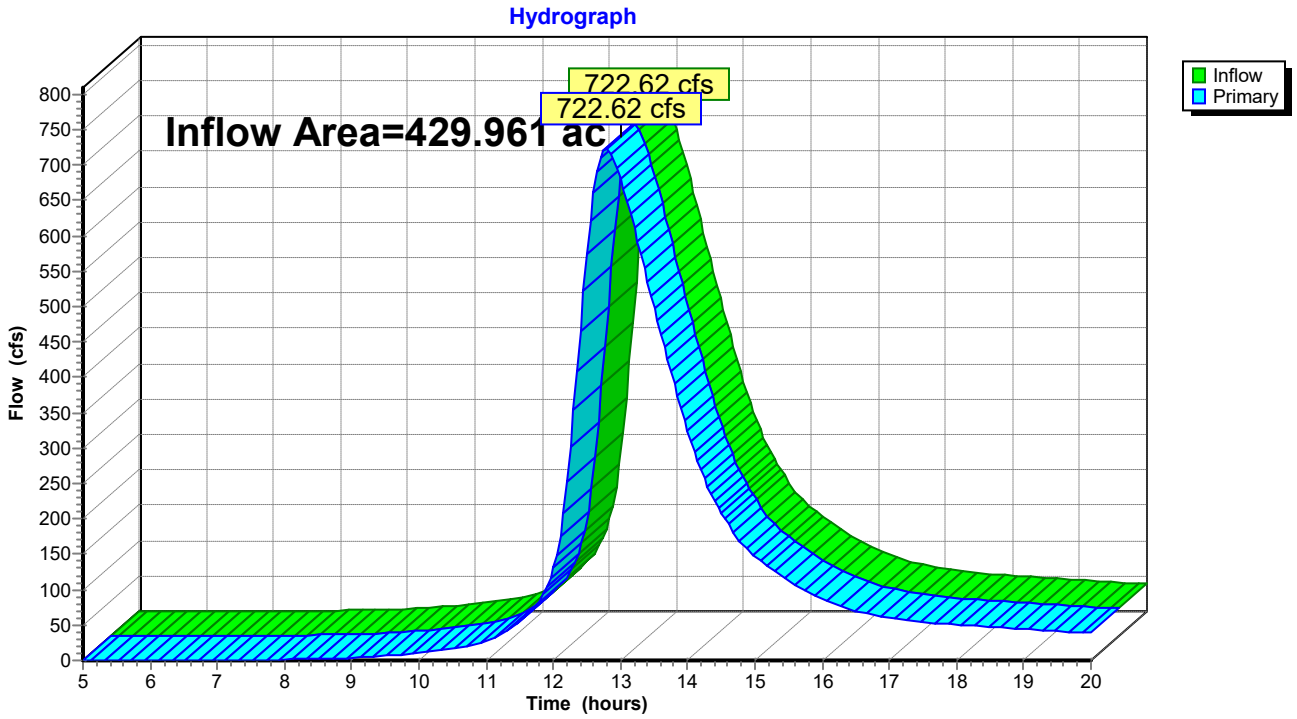


Summary for Link 9L: 9L

Inflow Area = 429.961 ac, 1.86% Impervious, Inflow Depth > 3.78" for 100-Year event
Inflow = 722.62 cfs @ 12.79 hrs, Volume= 135.453 af
Primary = 722.62 cfs @ 12.79 hrs, Volume= 135.453 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 9L: 9L

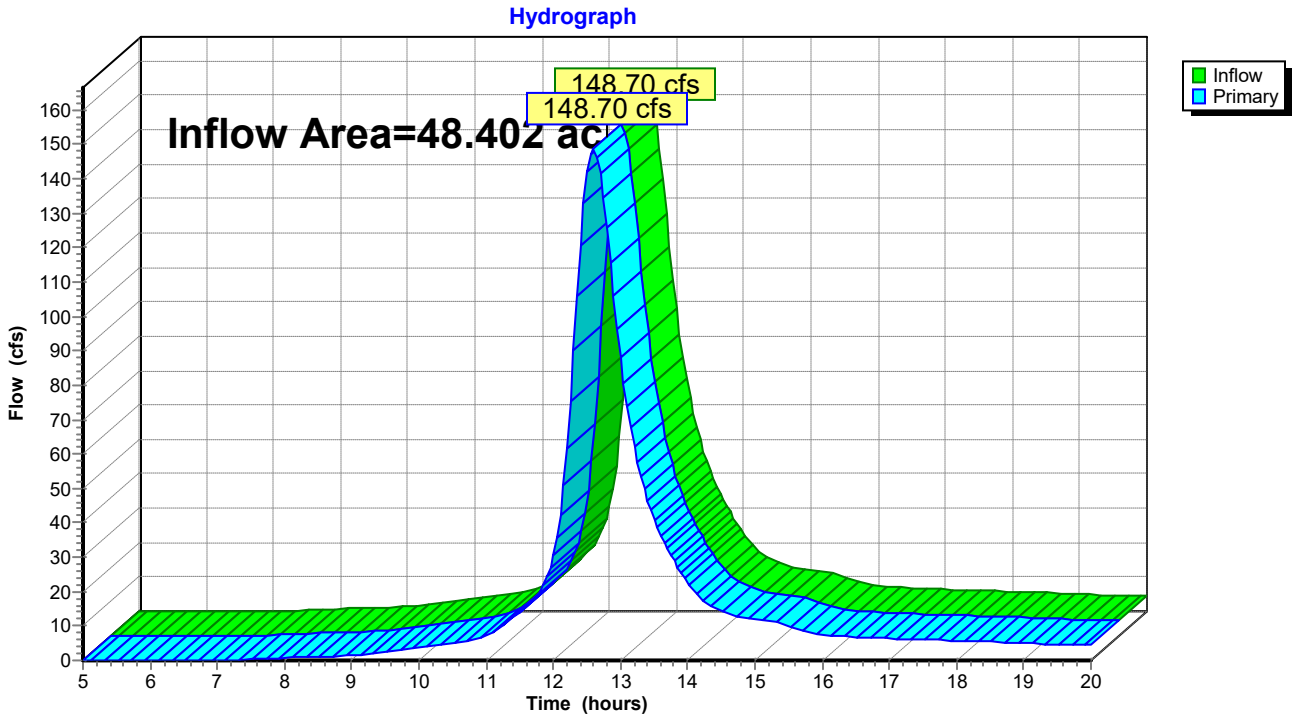


Summary for Link 10L: 10L

Inflow Area = 48.402 ac, 0.21% Impervious, Inflow Depth > 4.54" for 100-Year event
Inflow = 148.70 cfs @ 12.60 hrs, Volume= 18.305 af
Primary = 148.70 cfs @ 12.60 hrs, Volume= 18.305 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 10L: 10L

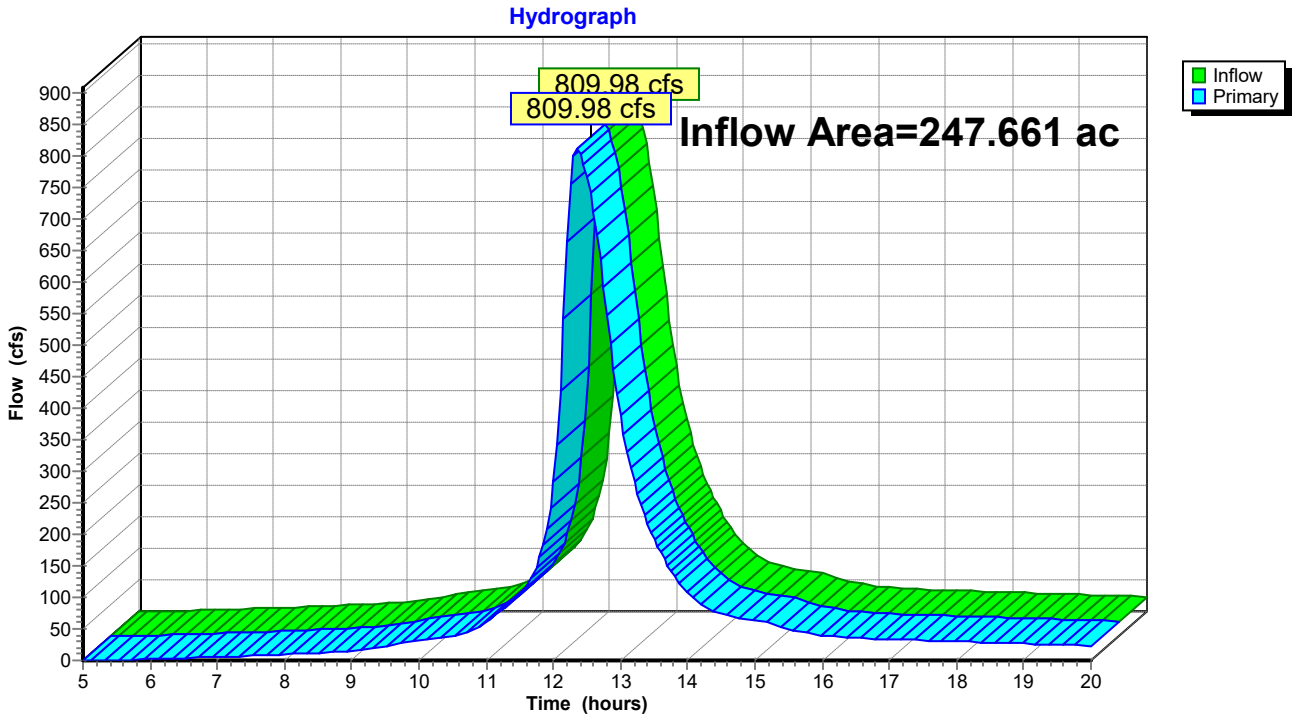


Summary for Link 11L: 11L

Inflow Area = 247.661 ac, 0.81% Impervious, Inflow Depth > 5.14" for 100-Year event
Inflow = 809.98 cfs @ 12.35 hrs, Volume= 105.991 af
Primary = 809.98 cfs @ 12.35 hrs, Volume= 105.991 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 11L: 11L

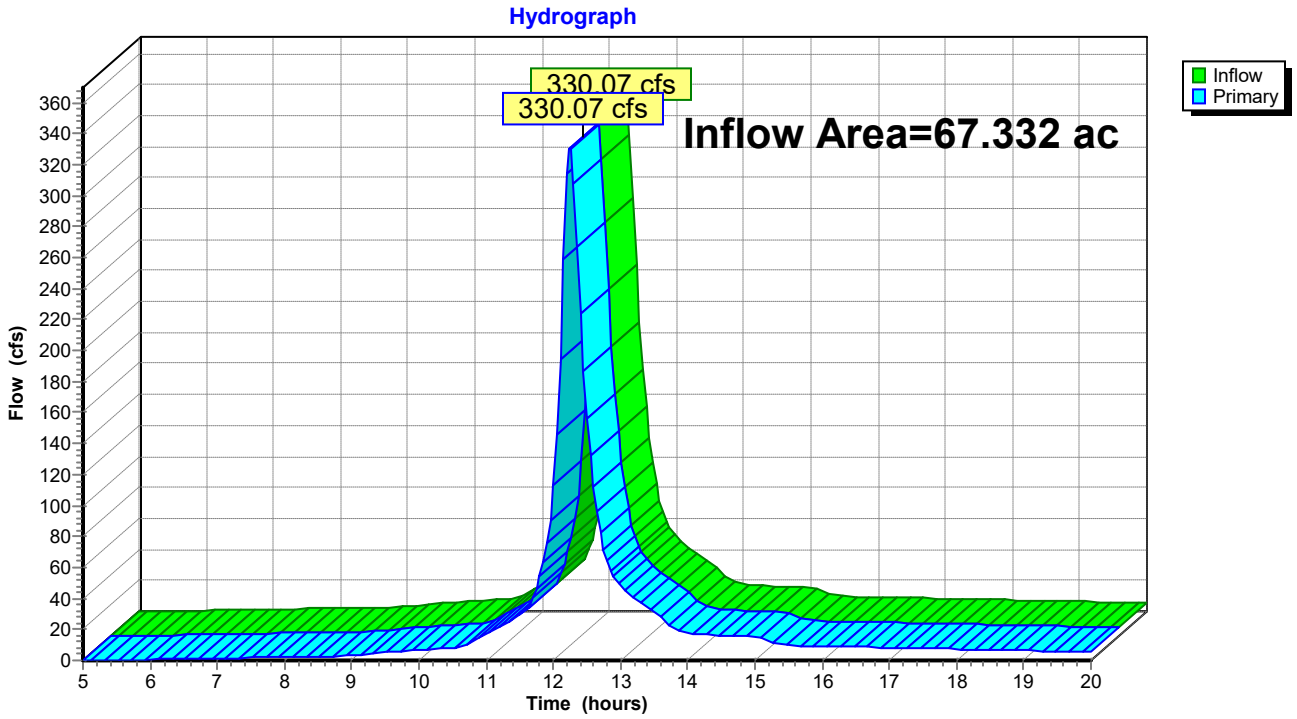


Summary for Link 12L: 12L

Inflow Area = 67.332 ac, 1.10% Impervious, Inflow Depth > 4.50" for 100-Year event
Inflow = 330.07 cfs @ 12.25 hrs, Volume= 25.235 af
Primary = 330.07 cfs @ 12.25 hrs, Volume= 25.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 12L: 12L

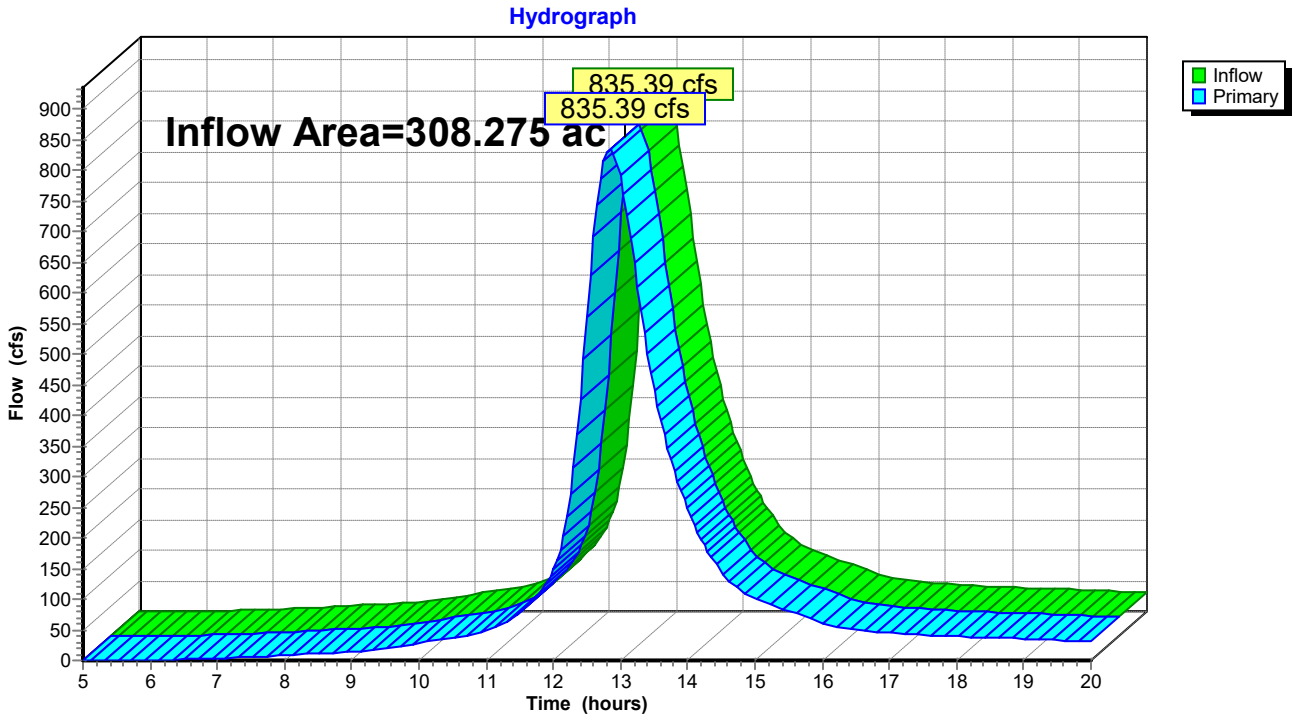


Summary for Link 13L: 13L

Inflow Area = 308.275 ac, 0.62% Impervious, Inflow Depth > 5.04" for 100-Year event
Inflow = 835.39 cfs @ 12.85 hrs, Volume= 129.589 af
Primary = 835.39 cfs @ 12.85 hrs, Volume= 129.589 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 13L: 13L

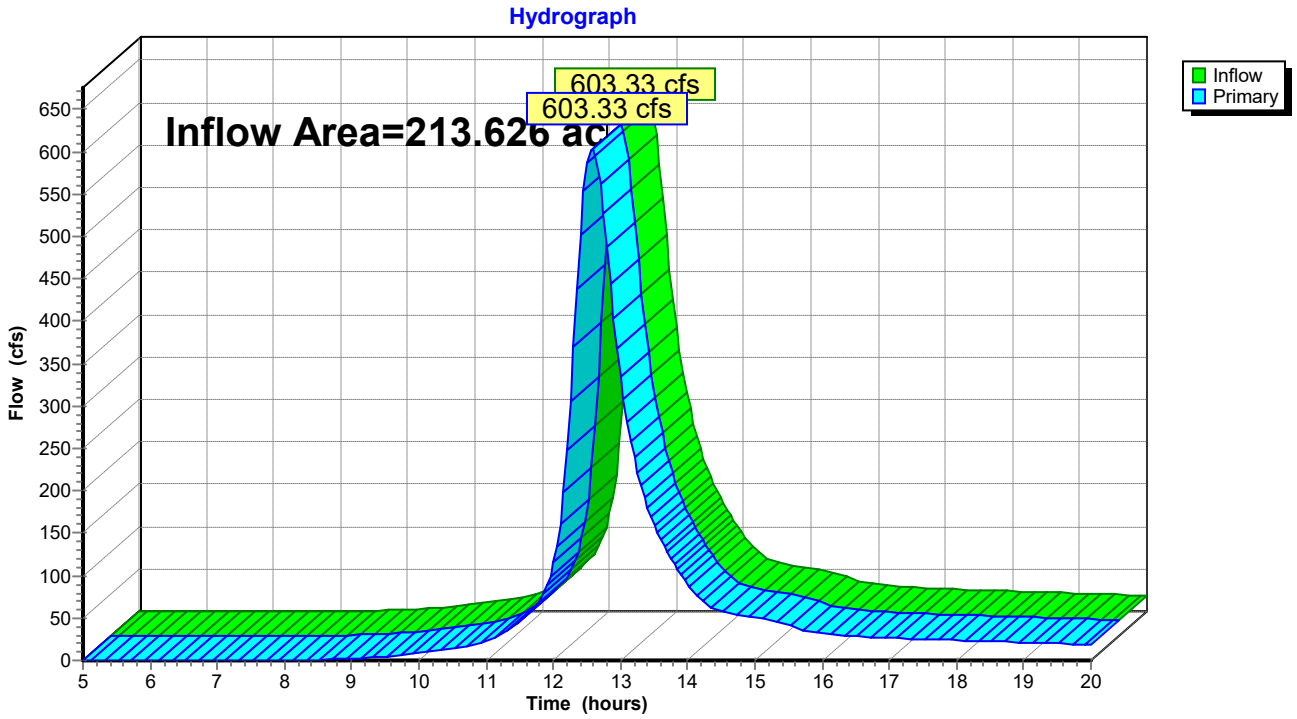


Summary for Link 14L: 14L

Inflow Area = 213.626 ac, 1.19% Impervious, Inflow Depth > 4.00" for 100-Year event
Inflow = 603.33 cfs @ 12.58 hrs, Volume= 71.295 af
Primary = 603.33 cfs @ 12.58 hrs, Volume= 71.295 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 14L: 14L

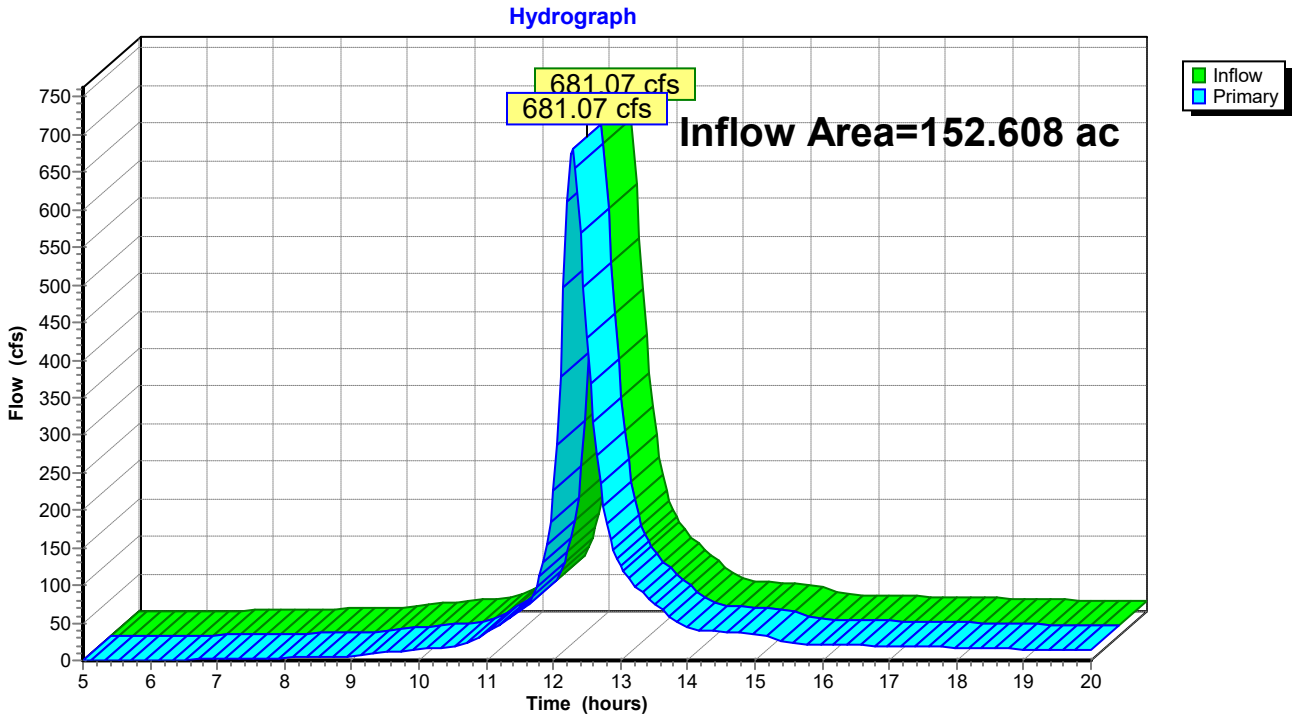


Summary for Link 15L: (new Link)

Inflow Area = 152.608 ac, 2.23% Impervious, Inflow Depth > 4.58" for 100-Year event
Inflow = 681.07 cfs @ 12.28 hrs, Volume= 58.213 af
Primary = 681.07 cfs @ 12.28 hrs, Volume= 58.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 15L: (new Link)

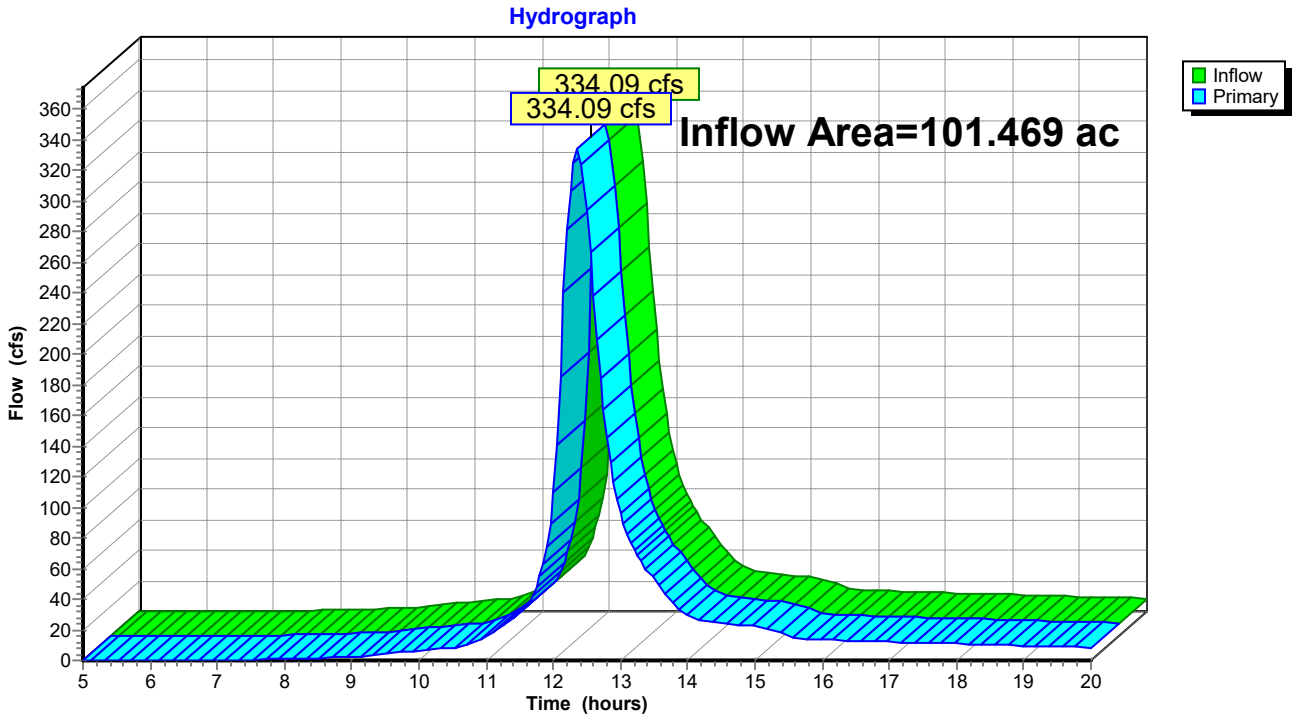


Summary for Link 16L: 16L

Inflow Area = 101.469 ac, 1.95% Impervious, Inflow Depth > 4.07" for 100-Year event
Inflow = 334.09 cfs @ 12.36 hrs, Volume= 34.406 af
Primary = 334.09 cfs @ 12.36 hrs, Volume= 34.406 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 16L: 16L

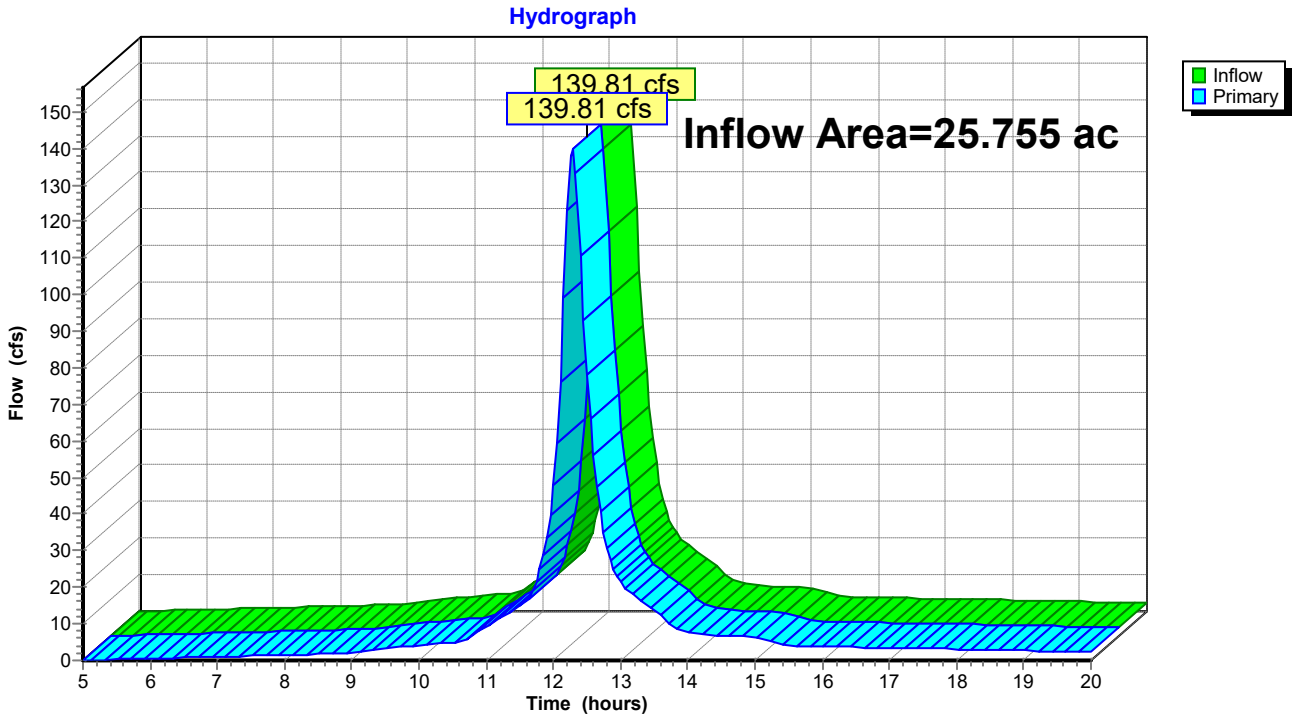


Summary for Link 17L: 17L

Inflow Area = 25.755 ac, 0.00% Impervious, Inflow Depth > 5.38" for 100-Year event
Inflow = 139.81 cfs @ 12.28 hrs, Volume= 11.552 af
Primary = 139.81 cfs @ 12.28 hrs, Volume= 11.552 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 17L: 17L

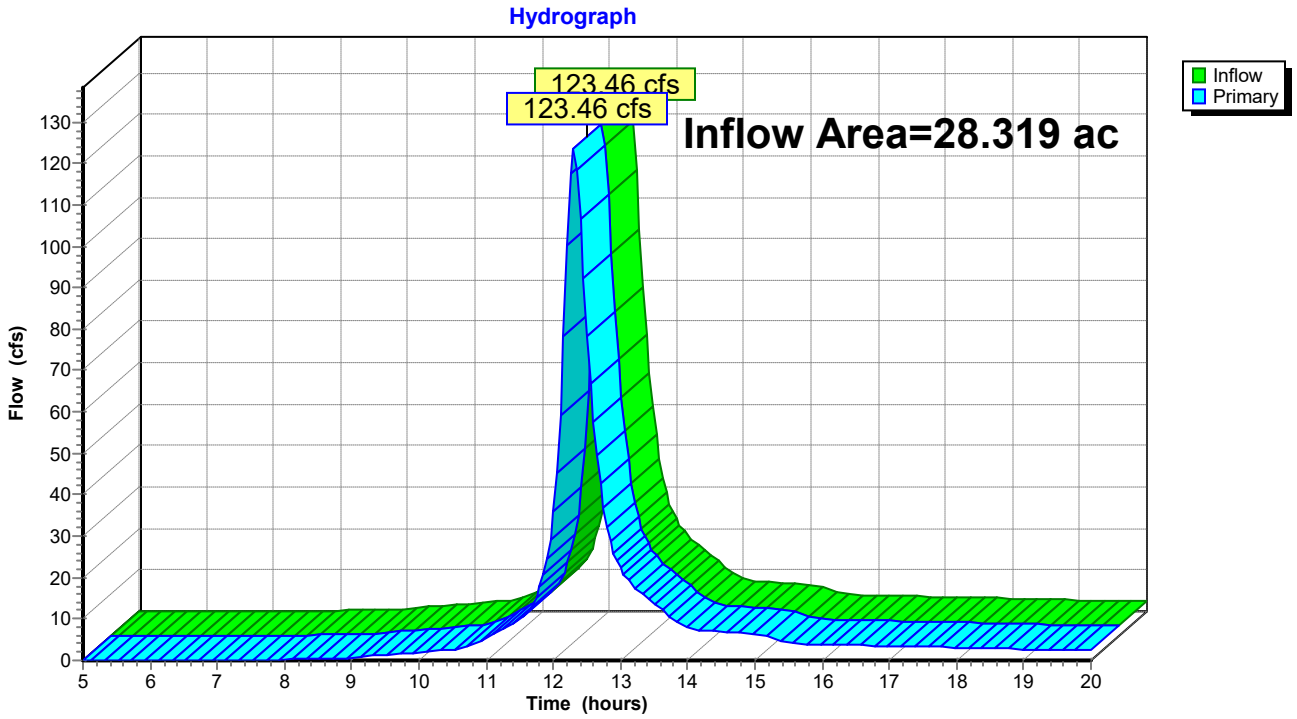


Summary for Link 18L: 18L

Inflow Area = 28.319 ac, 1.51% Impervious, Inflow Depth > 4.25" for 100-Year event
Inflow = 123.46 cfs @ 12.30 hrs, Volume= 10.019 af
Primary = 123.46 cfs @ 12.30 hrs, Volume= 10.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 18L: 18L

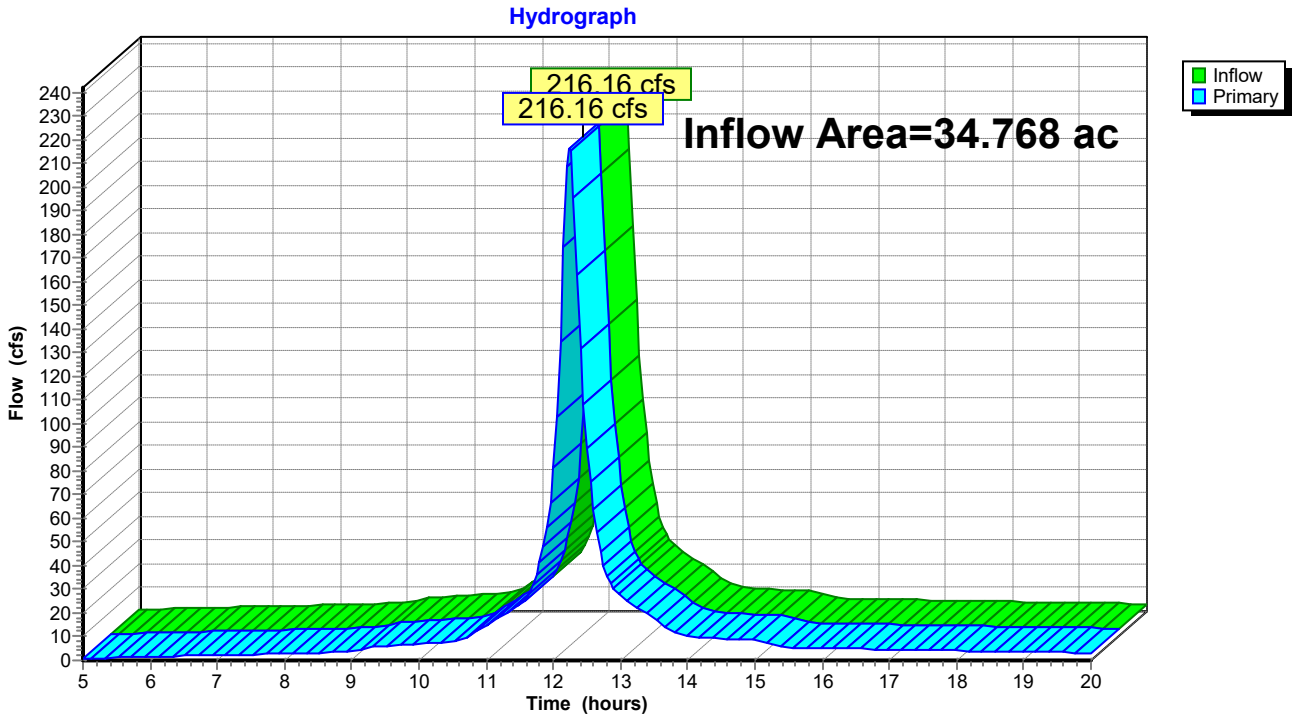


Summary for Link 19L: 19L

Inflow Area = 34.768 ac, 50.00% Impervious, Inflow Depth > 5.80" for 100-Year event
Inflow = 216.16 cfs @ 12.24 hrs, Volume= 16.794 af
Primary = 216.16 cfs @ 12.24 hrs, Volume= 16.794 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 19L: 19L

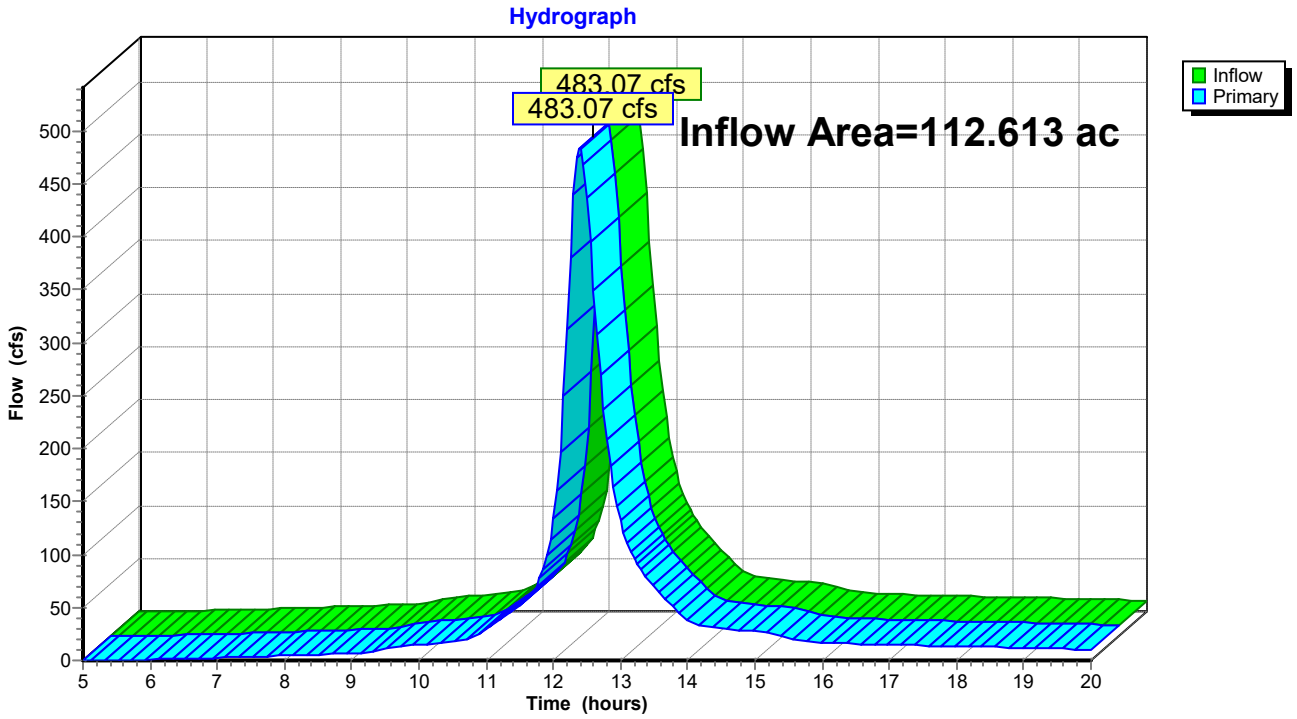


Summary for Link 20L: 20L

Inflow Area = 112.613 ac, 0.36% Impervious, Inflow Depth > 5.09" for 100-Year event
Inflow = 483.07 cfs @ 12.39 hrs, Volume= 47.776 af
Primary = 483.07 cfs @ 12.39 hrs, Volume= 47.776 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 20L: 20L

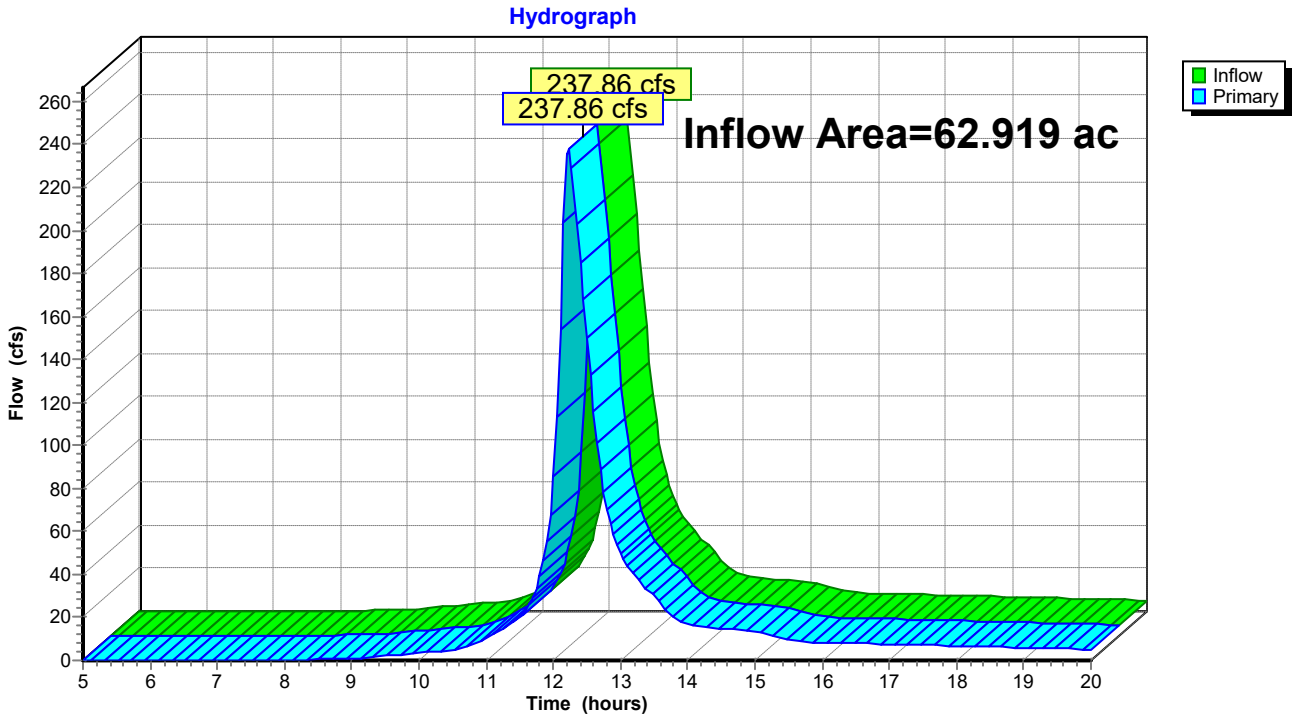


Summary for Link 21L: 21L

Inflow Area = 62.919 ac, 1.91% Impervious, Inflow Depth > 3.99" for 100-Year event
Inflow = 237.86 cfs @ 12.23 hrs, Volume= 20.895 af
Primary = 237.86 cfs @ 12.23 hrs, Volume= 20.895 af, Atten= 0%, Lag= 0.0 min

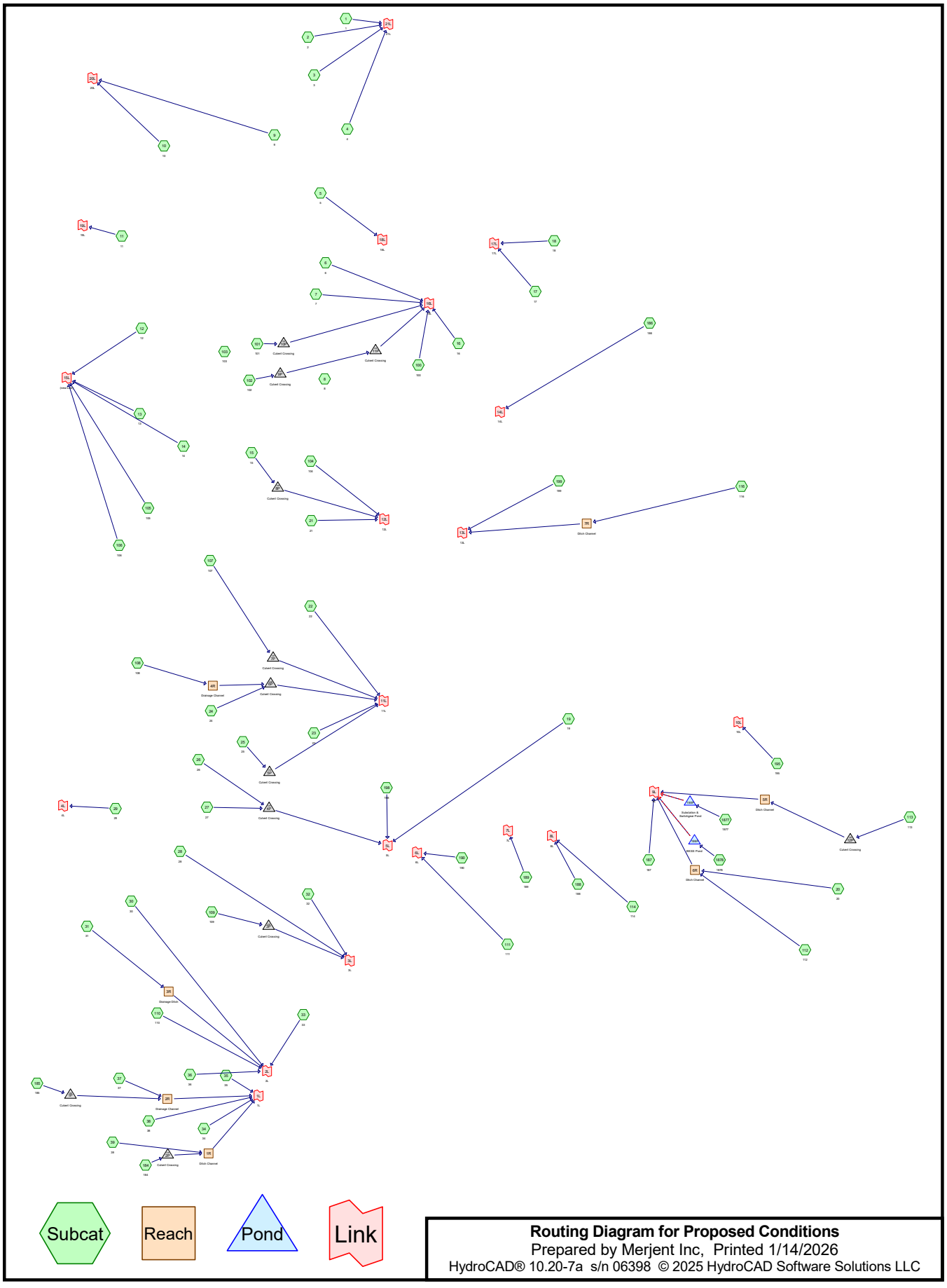
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 21L: 21L



Appendix D

100-year Proposed HydroCAD Report



Routing Diagram for Proposed Conditions
Prepared by Merjent Inc, Printed 1/14/2026
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Project Notes

Rainfall events imported from "NRCS2-Rain.txt" for 2713 MI Muskegon
Rainfall events imported from "NRCS2-Rain.txt" for 2713 MI Muskegon

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	MSE 24-hr	4	Default	24.00	1	7.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
47.588	59	Farmsteads, HSG A (100, 109, 110, 112, 186)
4.404	74	Farmsteads, HSG B (195)
45.818	82	Farmsteads, HSG C (4, 5, 9, 12, 31, 101, 102, 103, 107, 108, 113, 116, 185, 195)
91.947	86	Farmsteads, HSG D (9, 12, 19, 31, 102, 103, 107, 111, 112, 113, 116, 185, 186, 195, 199)
1.791	96	Gravel surface, HSG A (3, 27, 28, 33, 34, 35, 198, 199)
1.868	96	Gravel surface, HSG B (28, 30, 195, 1877)
10.596	96	Gravel surface, HSG C (3, 4, 5, 6, 7, 10, 11, 12, 14, 15, 21, 22, 28, 30, 35, 37, 38, 187, 195, 1877, 1878)
20.158	96	Gravel surface, HSG D (3, 7, 10, 11, 12, 14, 15, 17, 18, 19, 21, 23, 24, 25, 26, 27, 28, 187, 188, 189, 190, 198, 199, 1877, 1878)
121.079	39	Pasture/grassland/range, good, HSG A (1, 2, 3, 4, 5, 6, 7, 8, 17, 27, 28, 32, 33, 34, 35, 36, 38, 104, 109, 110, 113, 186, 198, 199)
32.088	61	Pasture/grassland/range, good, HSG B (28, 30, 38, 39, 109, 113, 187, 195)
410.541	74	Pasture/grassland/range, good, HSG C (1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 21, 22, 23, 26, 27, 28, 30, 31, 35, 36, 37, 38, 104, 109, 110, 113, 116, 187, 195)
739.388	80	Pasture/grassland/range, good, HSG D (1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, 35, 37, 38, 39, 104, 109, 110, 112, 113, 116, 186, 187, 188, 189, 190, 195, 198, 199, 1877, 1878)
11.141	0	Paved; open ditches, 50% imp, HSG A (1, 2, 3, 4, 5, 6, 7, 8, 32, 33, 34, 35, 100, 109, 110, 112, 184, 186, 198)
1.030	0	Paved; open ditches, 50% imp, HSG B (39, 113, 187, 195)
14.438	0	Paved; open ditches, 50% imp, HSG C (1, 2, 3, 4, 5, 7, 8, 9, 12, 13, 15, 21, 22, 23, 26, 101, 102, 107, 110, 116, 186, 187)
30.782	0	Paved; open ditches, 50% imp, HSG D (3, 6, 7, 9, 12, 13, 15, 19, 20, 21, 23, 25, 26, 27, 38, 39, 102, 107, 110, 111, 112, 113, 116, 184, 185, 186, 187, 188, 195, 198, 199)
88.952	67	Row crops, straight row, good, HSG A (5, 16, 17, 32, 33, 34, 35, 36, 38, 109, 110, 184, 186, 198, 199)
13.687	78	Row crops, straight row, good, HSG B (28, 30, 38, 39, 184, 187, 195)
144.609	85	Row crops, straight row, good, HSG C (1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 15, 21, 22, 23, 24, 26, 27, 28, 30, 31, 36, 37, 107, 108, 110, 186, 187, 195)
690.278	89	Row crops, straight row, good, HSG D (1, 3, 5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 37, 38, 39, 105, 106, 107, 108, 110, 111, 114, 116, 184, 185, 186, 187, 188, 189, 190, 195, 198, 199)
55.879	30	Woods, Good, HSG A (14, 106, 108, 112, 186, 190)
16.190	70	Woods, Good, HSG C (12, 13, 14, 105, 185)
234.355	77	Woods, Good, HSG D (14, 19, 105, 106, 108, 112, 113, 114, 116, 185, 186, 190, 199)
2,828.609	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
326.430	HSG A	1, 2, 3, 4, 5, 6, 7, 8, 14, 16, 17, 27, 28, 32, 33, 34, 35, 36, 38, 100, 104, 106, 108, 109, 110, 112, 113, 184, 186, 190, 198, 199
53.078	HSG B	28, 30, 38, 39, 109, 113, 184, 187, 195, 1877
642.194	HSG C	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 22, 23, 24, 26, 27, 28, 30, 31, 35, 36, 37, 38, 101, 102, 103, 104, 105, 107, 108, 109, 110, 113, 116, 185, 186, 187, 195, 1877, 1878
1,806.907	HSG D	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 37, 38, 39, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 184, 185, 186, 187, 188, 189, 190, 195, 198, 199, 1877, 1878
0.000	Other	
2,828.609		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
47.588	4.404	45.818	91.947	0.000	189.758	Farmsteads	4, 5, 9, 12, 19, 31, 100, 101, 102, 103, 107, 108, 109, 110, 111, 112, 113, 116, 185, 186, 195, 199
1.791	1.868	10.596	20.158	0.000	34.412	Gravel surface	3, 4, 5, 6, 7, 10, 11, 12, 14,

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
121.079	32.088	410.541	739.388	0.000	1,303.096	Pasture/grassland/range, good	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 104, 109, 110, 112, 113,

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
11.141	1.030	14.438	30.782	0.000	57.391	Paved; open ditches, 50% imp	1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 15, 19, 20, 21, 22, 23, 25, 26, 27, 32, 33, 34, 35, 38, 39, 100, 101, 102, 107, 109, 110, 111, 112, 113, 116,

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
88.952	13.687	144.609	690.278	0.000	937.527	Row crops, straight row, good	1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 105, 106, 107, 108, 109,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
55.879	0.000	16.190	234.355	0.000	306.424	Woods, Good	12, 13, 14, 19, 105, 106, 108, 112, 113, 114, 116, 185, 186, 190, 199
326.430	**53.078**	**642.194**	**1,806.907**	**0.000**	**2,828.609**	**TOTAL AREA**	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
2	2P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
3	3P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
4	4P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
5	5P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
6	6P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
7	7P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
8	8P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
9	9P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
10	10P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
11	11P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
12	12P	0.00	-0.33	65.0	0.0051	0.025	0.0	24.0	0.0	
13	198P	653.00	652.00	15.0	0.0667	0.012	0.0	24.0	0.0	
14	199P	654.00	653.00	15.0	0.0667	0.012	0.0	36.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6.420 ac 1.55% Impervious Runoff Depth>2.82"
Flow Length=1,325' Tc=9.0 min CN=64 Runoff=26.94 cfs 1.510 af

Subcatchment 2: 2 Runoff Area=12.896 ac 1.70% Impervious Runoff Depth>3.21"
Flow Length=1,456' Tc=13.8 min CN=68 Runoff=51.88 cfs 3.454 af

Subcatchment 3: 3 Runoff Area=15.149 ac 2.00% Impervious Runoff Depth>3.62"
Flow Length=1,770' Tc=12.9 min CN=72 Runoff=70.80 cfs 4.574 af

Subcatchment 4: 4 Runoff Area=28.453 ac 2.04% Impervious Runoff Depth>3.50"
Flow Length=2,451' Tc=28.1 min CN=71 Runoff=88.16 cfs 8.304 af

Subcatchment 5: 5 Runoff Area=28.319 ac 1.51% Impervious Runoff Depth>3.72"
Flow Length=1,891' Tc=20.7 min CN=73 Runoff=109.16 cfs 8.773 af

Subcatchment 6: 6 Runoff Area=13.781 ac 0.50% Impervious Runoff Depth>3.71"
Flow Length=1,603' Tc=24.0 min CN=73 Runoff=49.24 cfs 4.265 af

Subcatchment 7: 7 Runoff Area=62.894 ac 2.16% Impervious Runoff Depth>3.50"
Flow Length=3,517' Tc=29.8 min CN=71 Runoff=188.61 cfs 18.344 af

Subcatchment 8: 8 Runoff Area=13.978 ac 3.35% Impervious Runoff Depth>2.52"
Flow Length=1,653' Tc=18.4 min CN=61 Runoff=38.27 cfs 2.939 af

Subcatchment 9: 9 Runoff Area=6.836 ac 5.98% Impervious Runoff Depth>3.61"
Flow Length=1,099' Tc=25.7 min CN=72 Runoff=22.90 cfs 2.055 af

Subcatchment 10: 10 Runoff Area=96.463 ac 0.00% Impervious Runoff Depth>4.02"
Flow Length=3,763' Tc=28.8 min CN=76 Runoff=337.13 cfs 32.332 af

Subcatchment 11: 11 Runoff Area=34.768 ac 0.00% Impervious Runoff Depth>4.14"
Flow Length=2,382' Tc=15.8 min CN=77 Runoff=167.76 cfs 12.009 af

Subcatchment 12: 12 Runoff Area=57.042 ac 0.78% Impervious Runoff Depth>3.93"
Flow Length=2,340' Tc=18.6 min CN=75 Runoff=242.89 cfs 18.679 af

Subcatchment 13: 13 Runoff Area=15.700 ac 3.10% Impervious Runoff Depth>3.52"
Flow Length=1,517' Tc=11.5 min CN=71 Runoff=74.49 cfs 4.608 af

Subcatchment 14: 14 Runoff Area=52.743 ac 0.00% Impervious Runoff Depth>4.45"
Flow Length=2,714' Tc=25.8 min CN=80 Runoff=214.43 cfs 19.578 af

Subcatchment 15: 15 Runoff Area=17.241 ac 3.76% Impervious Runoff Depth>3.72"
Flow Length=1,300' Tc=15.1 min CN=73 Runoff=76.73 cfs 5.351 af

Subcatchment 16: 16 Runoff Area=4.472 ac 0.00% Impervious Runoff Depth>3.22"
Flow Length=508' Tc=8.3 min CN=68 Runoff=22.05 cfs 1.200 af

Subcatchment 17: 17 Runoff Area=18.049 ac 0.00% Impervious Runoff Depth>4.57"
Flow Length=978' Tc=19.7 min CN=81 Runoff=85.56 cfs 6.875 af

Subcatchment 18: 18 Runoff Area=7.706 ac 0.00% Impervious Runoff Depth>4.79"
Flow Length=814' Tc=18.0 min CN=83 Runoff=39.74 cfs 3.077 af

Subcatchment 19: 19 Runoff Area=359.550 ac 0.51% Impervious Runoff Depth>4.54"
Flow Length=8,776' Tc=164.6 min CN=83 Runoff=471.13 cfs 136.136 af

Subcatchment 20: 20 Runoff Area=4.011 ac 1.37% Impervious Runoff Depth>5.23"
Flow Length=599' Tc=21.8 min CN=87 Runoff=20.18 cfs 1.749 af

Subcatchment 21: 21 Runoff Area=27.513 ac 0.32% Impervious Runoff Depth>4.46"
Flow Length=1,589' Tc=19.4 min CN=80 Runoff=128.80 cfs 10.232 af

Subcatchment 22: 22 Runoff Area=39.352 ac 0.36% Impervious Runoff Depth>4.47"
Flow Length=1,626' Tc=16.6 min CN=80 Runoff=199.29 cfs 14.646 af

Subcatchment 23: 23 Runoff Area=36.495 ac 2.27% Impervious Runoff Depth>4.35"
Flow Length=2,056' Tc=24.9 min CN=79 Runoff=147.80 cfs 13.222 af

Subcatchment 24: 24 Runoff Area=18.905 ac 0.00% Impervious Runoff Depth>4.57"
Flow Length=2,052' Tc=17.7 min CN=81 Runoff=94.57 cfs 7.205 af

Subcatchment 25: 25 Runoff Area=8.334 ac 1.93% Impervious Runoff Depth>4.46"
Flow Length=638' Tc=19.0 min CN=80 Runoff=39.36 cfs 3.100 af

Subcatchment 26: 26 Runoff Area=16.551 ac 4.65% Impervious Runoff Depth>3.93"
Flow Length=2,052' Tc=21.2 min CN=75 Runoff=66.32 cfs 5.415 af

Subcatchment 27: 27 Runoff Area=23.277 ac 0.08% Impervious Runoff Depth>3.93"
Flow Length=1,924' Tc=17.0 min CN=75 Runoff=103.67 cfs 7.626 af

Subcatchment 28: 28 Runoff Area=22.431 ac 0.00% Impervious Runoff Depth>3.00"
Flow Length=2,274' Tc=25.7 min CN=66 Runoff=62.26 cfs 5.610 af

Subcatchment 29: 29 Runoff Area=19.508 ac 0.00% Impervious Runoff Depth>5.13"
Flow Length=884' Tc=14.1 min CN=86 Runoff=118.18 cfs 8.341 af

Subcatchment 30: 30 Runoff Area=26.912 ac 0.00% Impervious Runoff Depth>4.03"
Flow Length=2,159' Tc=20.5 min CN=76 Runoff=112.10 cfs 9.044 af

Subcatchment 31: 31 Runoff Area=14.886 ac 0.00% Impervious Runoff Depth>4.36"
Flow Length=1,079' Tc=12.5 min CN=79 Runoff=83.27 cfs 5.413 af

Subcatchment 32: 32 Runoff Area=41.788 ac 0.85% Impervious Runoff Depth>1.85"
Flow Length=2,678' Tc=49.2 min CN=54 Runoff=46.70 cfs 6.441 af

Subcatchment 33: 33 Runoff Area=29.298 ac 1.12% Impervious Runoff Depth>2.04"
Flow Length=1,974' Tc=41.8 min CN=56 Runoff=40.37 cfs 4.969 af

Subcatchment 34: 34 Runoff Area=21.329 ac 2.54% Impervious Runoff Depth>1.60"
Flow Length=2,345' Slope=0.0050 '/' Tc=37.8 min CN=51 Runoff=23.25 cfs 2.842 af

Subcatchment 35: 35 Runoff Area=13.870 ac 0.89% Impervious Runoff Depth>2.15"
Flow Length=1,290' Slope=0.0050 '/' Tc=16.6 min CN=57 Runoff=33.62 cfs 2.485 af

Subcatchment 36: 36 Runoff Area=3.694 ac 0.00% Impervious Runoff Depth>3.41"
Flow Length=534' Tc=16.1 min CN=70 Runoff=14.74 cfs 1.051 af

Subcatchment 37: 37 Runoff Area=10.949 ac 0.00% Impervious Runoff Depth>4.14"
Flow Length=1,588' Tc=16.2 min CN=77 Runoff=52.34 cfs 3.781 af

Subcatchment 38: 38 Runoff Area=19.742 ac 0.03% Impervious Runoff Depth>4.57"
Flow Length=2,023' Tc=19.6 min CN=81 Runoff=93.92 cfs 7.520 af

Subcatchment 39: 39 Runoff Area=7.485 ac 2.63% Impervious Runoff Depth>3.63"
Flow Length=717' Tc=9.9 min CN=72 Runoff=38.45 cfs 2.262 af

Subcatchment 100: 100 Runoff Area=12.284 ac 1.14% Impervious Runoff Depth>2.24"
Flow Length=908' Tc=14.5 min CN=58 Runoff=33.03 cfs 2.298 af

Subcatchment 101: 101 Runoff Area=3.826 ac 5.63% Impervious Runoff Depth>3.73"
Flow Length=700' Tc=9.5 min CN=73 Runoff=20.53 cfs 1.190 af

Subcatchment 102: 102 Runoff Area=4.212 ac 4.47% Impervious Runoff Depth>3.94"
Flow Length=644' Tc=10.3 min CN=75 Runoff=22.99 cfs 1.383 af

Subcatchment 103: 103 Runoff Area=10.346 ac 0.00% Impervious Runoff Depth>4.70"
Flow Length=922' Tc=8.4 min CN=82 Runoff=70.99 cfs 4.048 af

Subcatchment 104: 104 Runoff Area=22.579 ac 0.00% Impervious Runoff Depth>3.11"
Flow Length=1,782' Tc=13.3 min CN=67 Runoff=89.60 cfs 5.860 af

Subcatchment 105: 105 Runoff Area=16.804 ac 0.00% Impervious Runoff Depth>5.24"
Flow Length=1,183' Tc=15.5 min CN=87 Runoff=98.68 cfs 7.340 af

Subcatchment 106: 106 Runoff Area=19.632 ac 0.00% Impervious Runoff Depth>3.93"
Flow Length=1,831' Tc=22.1 min CN=75 Runoff=76.78 cfs 6.422 af

Subcatchment 107: 107 Runoff Area=61.367 ac 1.42% Impervious Runoff Depth>4.87"
Flow Length=3,278' Tc=39.6 min CN=84 Runoff=212.43 cfs 24.921 af

Subcatchment 108: 108 Runoff Area=83.209 ac 0.00% Impervious Runoff Depth>5.09"
Flow Length=2,176' Tc=43.1 min CN=86 Runoff=283.67 cfs 35.298 af

Subcatchment 109: 109 Runoff Area=33.516 ac 1.44% Impervious Runoff Depth>1.79"
Flow Length=1,589' Tc=19.9 min CN=53 Runoff=59.62 cfs 4.992 af

Subcatchment 110: 110 Runoff Area=98.589 ac 1.37% Impervious Runoff Depth>3.90"
Flow Length=4,703' Tc=38.4 min CN=75 Runoff=285.03 cfs 32.076 af

Subcatchment 111: 111 Runoff Area=19.482 ac 1.64% Impervious Runoff Depth>4.96"
Flow Length=1,485' Tc=57.7 min CN=85 Runoff=54.66 cfs 8.048 af

Subcatchment 112: 112 Runoff Area=204.259 ac 2.08% Impervious Runoff Depth>2.91"
Flow Length=6,748' Tc=97.7 min CN=66 Runoff=245.32 cfs 49.565 af

Subcatchment 113: 113 Runoff Area=135.938 ac 1.40% Impervious Runoff Depth>4.01"
Flow Length=4,754' Tc=41.2 min CN=76 Runoff=387.07 cfs 45.378 af

Subcatchment 114: 114 Runoff Area=11.883 ac 0.00% Impervious Runoff Depth>4.30"
Flow Length=978' Tc=62.0 min CN=79 Runoff=28.16 cfs 4.254 af

Subcatchment 116: 116 Runoff Area=148.528 ac 0.81% Impervious Runoff Depth>4.96"
Flow Length=4,303' Tc=55.0 min CN=85 Runoff=429.77 cfs 61.410 af

Subcatchment 184: 184 Runoff Area=4.172 ac 1.42% Impervious Runoff Depth>4.80"
Flow Length=620' Tc=15.5 min CN=83 Runoff=22.93 cfs 1.667 af

Subcatchment 185: 185 Runoff Area=14.888 ac 4.21% Impervious Runoff Depth>3.61"
Flow Length=1,171' Tc=25.3 min CN=72 Runoff=50.18 cfs 4.477 af

Subcatchment 186: 186 Runoff Area=213.626 ac 1.19% Impervious Runoff Depth>3.79"
Flow Length=6,029' Tc=41.9 min CN=74 Runoff=573.09 cfs 67.558 af

Subcatchment 187: 187 Runoff Area=70.861 ac 2.54% Impervious Runoff Depth>4.18"
Flow Length=3,564' Tc=68.3 min CN=78 Runoff=153.91 cfs 24.683 af

Subcatchment 188: 188 Runoff Area=36.332 ac 0.06% Impervious Runoff Depth>4.75"
Flow Length=2,269' Tc=45.9 min CN=83 Runoff=112.94 cfs 14.393 af

Subcatchment 189: 189 Runoff Area=13.995 ac 0.00% Impervious Runoff Depth>4.67"
Flow Length=1,604' Tc=30.6 min CN=82 Runoff=54.14 cfs 5.441 af

Subcatchment 190: 190 Runoff Area=32.643 ac 0.00% Impervious Runoff Depth>4.54"
Flow Length=2,312' Tc=40.4 min CN=81 Runoff=105.35 cfs 12.358 af

Subcatchment 195: 195 Runoff Area=48.402 ac 0.21% Impervious Runoff Depth>4.00"
Flow Length=1,905' Tc=43.8 min CN=76 Runoff=132.61 cfs 16.143 af

Subcatchment 198: 198 Runoff Area=73.809 ac 1.30% Impervious Runoff Depth>4.23"
Flow Length=2,214' Tc=32.7 min CN=78 Runoff=251.95 cfs 26.016 af

Subcatchment 199: 199 Runoff Area=159.747 ac 0.44% Impervious Runoff Depth>4.61"
Flow Length=3,713' Slope=0.0050 '/' Tc=67.2 min CN=82 Runoff=383.62 cfs 61.407 af

Subcatchment 1877: 1877 Runoff Area=6.714 ac 0.00% Impervious Runoff Depth>6.21"
Flow Length=600' Slope=0.0100 '/' Tc=7.1 min CN=96 Runoff=57.34 cfs 3.475 af

Subcatchment 1878: 1878 Runoff Area=8.177 ac 0.00% Impervious Runoff Depth>6.21"
Flow Length=600' Slope=0.0100 '/' Tc=7.1 min CN=96 Runoff=69.83 cfs 4.233 af

Reach 1R: Ditch Channel Avg. Flow Depth=1.07' Max Vel=3.34 fps Inflow=59.72 cfs 3.930 af
n=0.025 L=2,500.0' S=0.0050 '/' Capacity=393.51 cfs Outflow=43.01 cfs 3.876 af

Reach 2R: Drainage Channel Avg. Flow Depth=1.44' Max Vel=4.05 fps Inflow=96.25 cfs 8.258 af
n=0.025 L=2,679.0' S=0.0050 '/' Capacity=393.43 cfs Outflow=80.64 cfs 8.158 af

Reach 3R: Drainage Ditch Avg. Flow Depth=1.19' Max Vel=3.58 fps Inflow=83.27 cfs 5.413 af
n=0.025 L=3,554.0' S=0.0050 '/' Capacity=393.51 cfs Outflow=54.08 cfs 5.318 af

Reach 4R: Drainage Channel Avg. Flow Depth=2.53' Max Vel=5.87 fps Inflow=283.67 cfs 35.298 af
n=0.025 L=2,665.0' S=0.0050 '/' Capacity=393.58 cfs Outflow=272.77 cfs 35.052 af

Reach 5R: Ditch Channel Avg. Flow Depth=2.90' Max Vel=6.41 fps Inflow=387.07 cfs 45.378 af
n=0.025 L=3,385.0' S=0.0050 '/' Capacity=393.57 cfs Outflow=365.83 cfs 44.964 af

Reach 6R: Ditch Channel Avg. Flow Depth=2.41' Max Vel=5.69 fps Inflow=247.81 cfs 51.314 af
n=0.025 L=1,685.0' S=0.0050 '/' Capacity=393.62 cfs Outflow=246.47 cfs 51.043 af

Reach 7R: Ditch Channel Avg. Flow Depth=3.08' Max Vel=6.66 fps Inflow=429.77 cfs 61.410 af
n=0.025 L=3,423.0' S=0.0050 '/' Capacity=393.56 cfs Outflow=415.57 cfs 60.931 af

Pond 1P: Culvert Crossing Peak Elev=21.06' Inflow=50.18 cfs 4.477 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=50.18 cfs 4.477 af

Pond 2P: Culvert Crossing Peak Elev=5.72' Inflow=22.93 cfs 1.667 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=22.93 cfs 1.667 af

Pond 3P: Culvert Crossing Peak Elev=29.02' Inflow=59.62 cfs 4.992 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=59.62 cfs 4.992 af

Pond 4P: Culvert Crossing Peak Elev=216.92' Inflow=167.24 cfs 13.041 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=167.24 cfs 13.041 af

Pond 5P: Culvert Crossing Peak Elev=13.59' Inflow=39.36 cfs 3.100 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=39.36 cfs 3.100 af

Pond 6P: Culvert Crossing Peak Elev=702.91' Inflow=301.73 cfs 42.258 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=301.73 cfs 42.258 af

Pond 7P: Culvert Crossing Peak Elev=349.25' Inflow=212.43 cfs 24.921 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=212.43 cfs 24.921 af

Pond 8P: Culvert Crossing Peak Elev=46.99' Inflow=76.73 cfs 5.351 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=76.73 cfs 5.351 af

Pond 9P: Culvert Crossing Peak Elev=9.39' Inflow=22.99 cfs 1.383 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=22.99 cfs 1.383 af

Pond 10P: Culvert Crossing Peak Elev=4.90' Inflow=20.53 cfs 1.190 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=20.53 cfs 1.190 af

Pond 11P: Culvert Crossing Peak Elev=5.72' Inflow=22.99 cfs 1.383 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=22.99 cfs 1.383 af

Pond 12P: Culvert Crossing Peak Elev=1,156.72' Inflow=387.07 cfs 45.378 af
24.0" Round Culvert n=0.025 L=65.0' S=0.0051 '/' Outflow=387.07 cfs 45.378 af

Pond 198P: Substation & Switchgear Pond Peak Elev=655.23' Storage=1.103 af Inflow=57.34 cfs 3.475 af
Primary=22.32 cfs 3.316 af Secondary=2.97 cfs 0.041 af Outflow=25.29 cfs 3.357 af

Pond 199P: BESS Pond Peak Elev=656.28' Storage=1.128 af Inflow=69.83 cfs 4.233 af
Primary=36.89 cfs 4.051 af Secondary=3.99 cfs 0.046 af Outflow=40.88 cfs 4.097 af

Link 1L: 1L Inflow=251.42 cfs 24.881 af
Primary=251.42 cfs 24.881 af

Link 2L: 2L Inflow=447.23 cfs 52.459 af
Primary=447.23 cfs 52.459 af

Link 3L: 3L Inflow=142.03 cfs 17.043 af
Primary=142.03 cfs 17.043 af

Link 4L: 4L Inflow=118.18 cfs 8.341 af
Primary=118.18 cfs 8.341 af

Link 5L: 5L Inflow=503.91 cfs 175.193 af
Primary=503.91 cfs 175.193 af

Link 6L: 6L Inflow=154.05 cfs 20.406 af
Primary=154.05 cfs 20.406 af

Link 7L: 7L Inflow=54.14 cfs 5.441 af
Primary=54.14 cfs 5.441 af

Link 8L: 8L Inflow=137.93 cfs 18.647 af
Primary=137.93 cfs 18.647 af

Link 9L: 9L Inflow=665.34 cfs 128.144 af
Primary=665.34 cfs 128.144 af

Link 10L: 10L Inflow=132.61 cfs 16.143 af
Primary=132.61 cfs 16.143 af

Link 11L: 11L Inflow=749.30 cfs 98.146 af
Primary=749.30 cfs 98.146 af

Link 12L: 12L Inflow=288.69 cfs 21.442 af
Primary=288.69 cfs 21.442 af

Link 13L: 13L Inflow=797.12 cfs 122.338 af
Primary=797.12 cfs 122.338 af

Link 14L: 14L Inflow=573.09 cfs 67.558 af
Primary=573.09 cfs 67.558 af

Link 15L: (new Link) Inflow=662.92 cfs 56.625 af
Primary=662.92 cfs 56.625 af

Link 16L: 16L Inflow=280.74 cfs 28.679 af
Primary=280.74 cfs 28.679 af

Link 17L: 17L Inflow=124.84 cfs 9.953 af
Primary=124.84 cfs 9.953 af

Link 18L: 18L Inflow=109.16 cfs 8.773 af
Primary=109.16 cfs 8.773 af

Link 19L: 19L Inflow=167.76 cfs 12.009 af
Primary=167.76 cfs 12.009 af

Link 20L: 20L Inflow=359.69 cfs 34.387 af
Primary=359.69 cfs 34.387 af

Link 21L: 21L Inflow=202.58 cfs 17.842 af
Primary=202.58 cfs 17.842 af

Total Runoff Area = 2,828.609 ac Runoff Volume = 953.351 af Average Runoff Depth = 4.04"
98.99% Pervious = 2,799.913 ac 1.01% Impervious = 28.696 ac

Summary for Subcatchment 1: 1

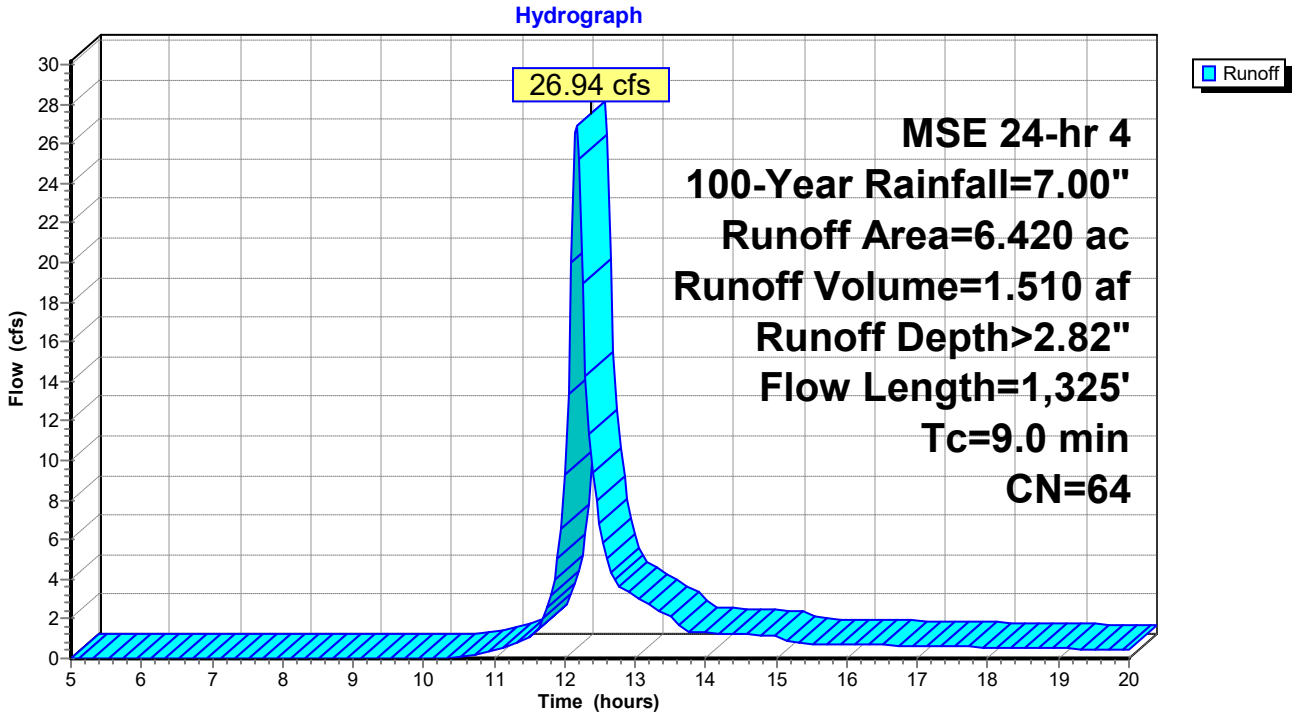
Runoff = 26.94 cfs @ 12.17 hrs, Volume= 1.510 af, Depth> 2.82"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	1.542	39	Pasture/grassland/range, good, HSG A
	0.979	85	Row crops, straight row, good, HSG C
	0.969	89	Row crops, straight row, good, HSG D
	0.917	80	Pasture/grassland/range, good, HSG D
	0.805	39	Pasture/grassland/range, good, HSG A
	0.433	80	Pasture/grassland/range, good, HSG D
	0.291	80	Pasture/grassland/range, good, HSG D
	0.261	74	Pasture/grassland/range, good, HSG C
*	0.123	0	Paved; open ditches, 50% imp, HSG A
*	0.077	0	Paved; open ditches, 50% imp, HSG C
	0.023	39	Pasture/grassland/range, good, HSG A
	6.420	64	Weighted Average
	6.320		98.45% Pervious Area
	0.100		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0170	0.32		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
0.9	183	0.0434	3.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.9	1,042	0.0249	5.91	29.54	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
9.0	1,325	Total			

Subcatchment 1: 1



Summary for Subcatchment 2: 2

[47] Hint: Peak is 179% of capacity of segment #3

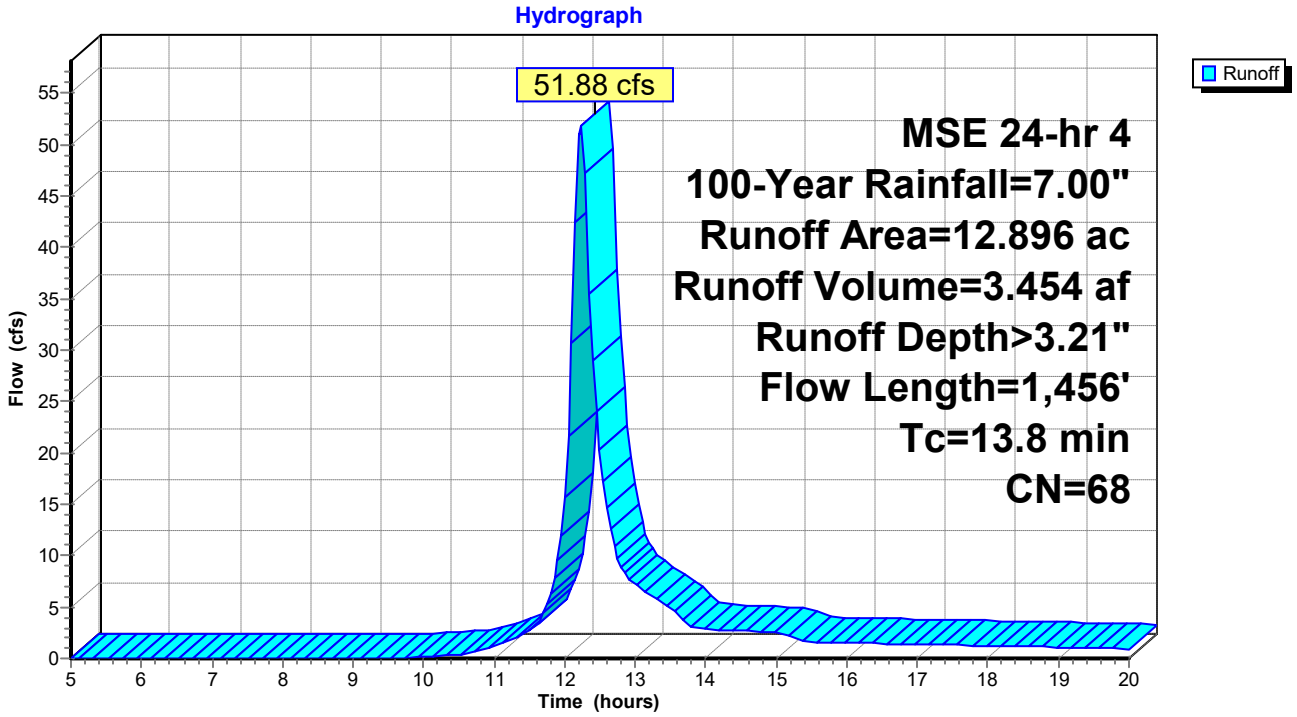
Runoff = 51.88 cfs @ 12.22 hrs, Volume= 3.454 af, Depth> 3.21"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	5.627	80	Pasture/grassland/range, good, HSG D
	2.205	85	Row crops, straight row, good, HSG C
	1.762	39	Pasture/grassland/range, good, HSG A
	1.140	39	Pasture/grassland/range, good, HSG A
	0.920	74	Pasture/grassland/range, good, HSG C
	0.803	80	Pasture/grassland/range, good, HSG D
*	0.358	0	Paved; open ditches, 50% imp, HSG A
*	0.081	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG A
	12.896	68	Weighted Average
	12.677		98.30% Pervious Area
	0.220		1.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.7	437	0.0291	2.75		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.6	919	0.0239	5.79	28.94	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
13.8	1,456	Total			

Subcatchment 2: 2



Summary for Subcatchment 3: 3

[47] Hint: Peak is 294% of capacity of segment #3

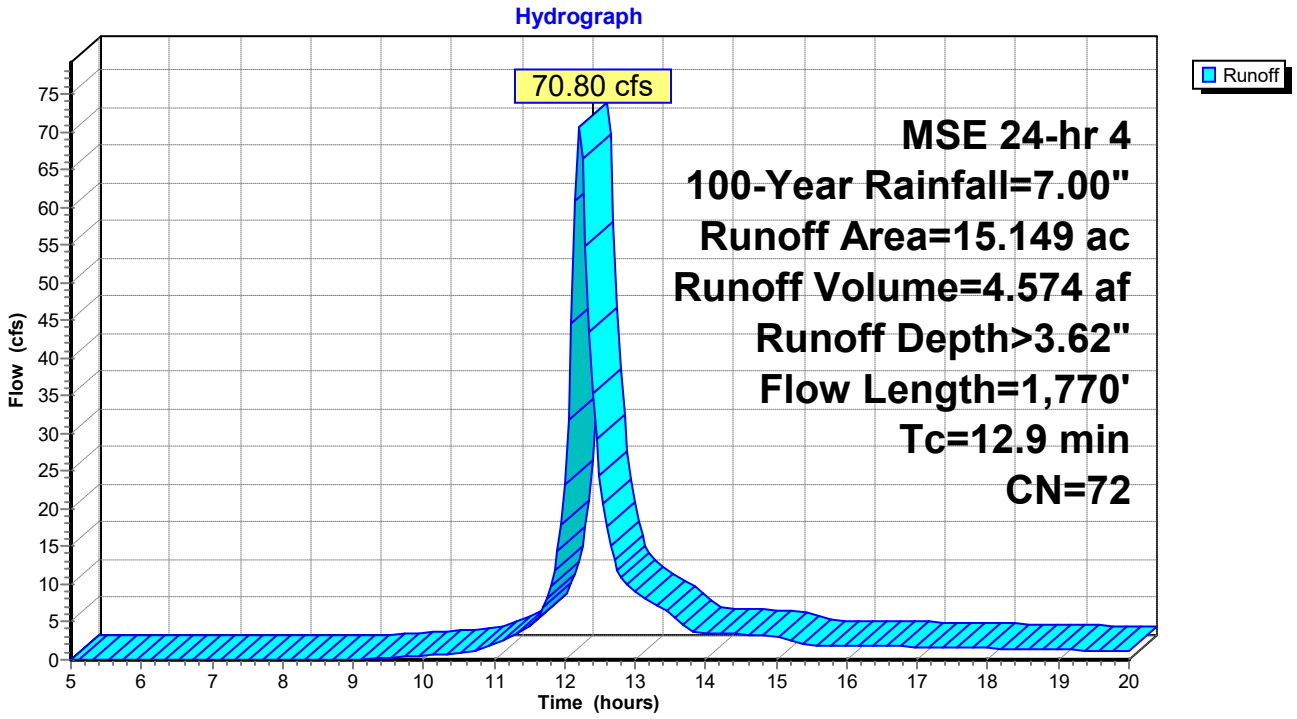
Runoff = 70.80 cfs @ 12.21 hrs, Volume= 4.574 af, Depth> 3.62"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.634	74	Pasture/grassland/range, good, HSG C
	1.823	80	Pasture/grassland/range, good, HSG D
	1.577	80	Pasture/grassland/range, good, HSG D
	1.262	80	Pasture/grassland/range, good, HSG D
	1.014	74	Pasture/grassland/range, good, HSG C
	0.786	80	Pasture/grassland/range, good, HSG D
	0.663	80	Pasture/grassland/range, good, HSG D
	0.574	39	Pasture/grassland/range, good, HSG A
	0.561	85	Row crops, straight row, good, HSG C
	0.477	39	Pasture/grassland/range, good, HSG A
	0.348	39	Pasture/grassland/range, good, HSG A
	0.315	80	Pasture/grassland/range, good, HSG D
	0.309	89	Row crops, straight row, good, HSG D
	0.267	96	Gravel surface, HSG D
	0.236	39	Pasture/grassland/range, good, HSG A
*	0.227	0	Paved; open ditches, 50% imp, HSG A
*	0.173	0	Paved; open ditches, 50% imp, HSG C
	0.153	89	Row crops, straight row, good, HSG D
	0.147	96	Gravel surface, HSG C
*	0.098	0	Paved; open ditches, 50% imp, HSG D
	0.092	74	Pasture/grassland/range, good, HSG C
*	0.082	0	Paved; open ditches, 50% imp, HSG C
	0.079	96	Gravel surface, HSG A
	0.039	96	Gravel surface, HSG A
	0.032	96	Gravel surface, HSG D
	0.030	96	Gravel surface, HSG D
	0.028	96	Gravel surface, HSG D
	0.024	96	Gravel surface, HSG D
*	0.022	0	Paved; open ditches, 50% imp, HSG A
	0.021	80	Pasture/grassland/range, good, HSG D
	0.020	80	Pasture/grassland/range, good, HSG D
	0.016	80	Pasture/grassland/range, good, HSG D
	0.016	80	Pasture/grassland/range, good, HSG D
*	0.003	0	Paved; open ditches, 50% imp, HSG C
	0.001	74	Pasture/grassland/range, good, HSG C
	0.001	74	Pasture/grassland/range, good, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG A
	15.149	72	Weighted Average
	14.847		98.00% Pervious Area
	0.303		2.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0186	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.8	486	0.0177	2.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.1	1,184	0.0165	4.81	24.05	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
12.9	1,770	Total			

Subcatchment 3: 3



Summary for Subcatchment 4: 4

[47] Hint: Peak is 447% of capacity of segment #3

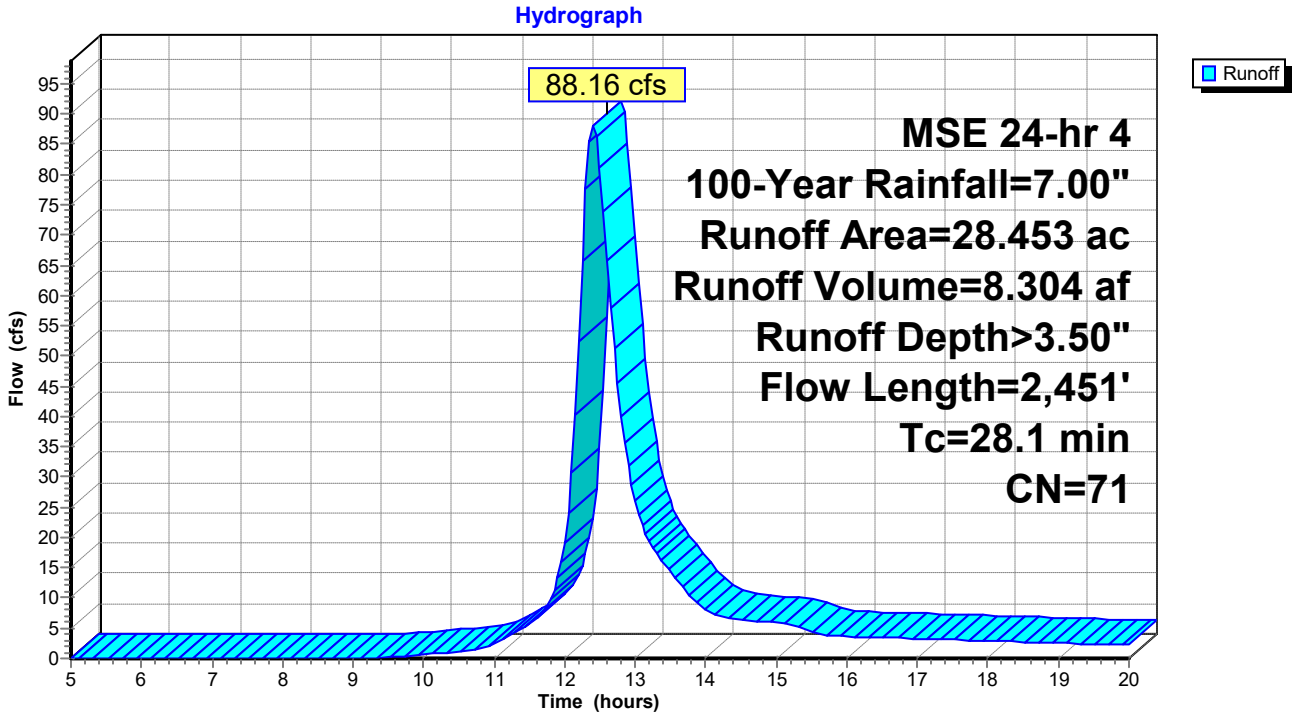
Runoff = 88.16 cfs @ 12.40 hrs, Volume= 8.304 af, Depth> 3.50"
Routed to Link 21L : 21L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	13.172	74	Pasture/grassland/range, good, HSG C
	4.447	74	Pasture/grassland/range, good, HSG C
	2.356	82	Farmsteads, HSG C
	2.038	74	Pasture/grassland/range, good, HSG C
	1.950	74	Pasture/grassland/range, good, HSG C
	1.099	39	Pasture/grassland/range, good, HSG A
	0.769	85	Row crops, straight row, good, HSG C
*	0.715	0	Paved; open ditches, 50% imp, HSG C
	0.411	74	Pasture/grassland/range, good, HSG C
	0.372	85	Row crops, straight row, good, HSG C
	0.283	39	Pasture/grassland/range, good, HSG A
*	0.279	0	Paved; open ditches, 50% imp, HSG A
	0.263	96	Gravel surface, HSG C
*	0.157	0	Paved; open ditches, 50% imp, HSG C
	0.068	96	Gravel surface, HSG C
	0.030	96	Gravel surface, HSG C
	0.021	74	Pasture/grassland/range, good, HSG C
	0.014	80	Pasture/grassland/range, good, HSG D
*	0.008	0	Paved; open ditches, 50% imp, HSG C
	28.453	71	Weighted Average
	27.873		97.96% Pervious Area
	0.580		2.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0095	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.7	559	0.0153	1.99		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.6	1,792	0.0111	3.95	19.73	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
28.1	2,451	Total			

Subcatchment 4: 4



Summary for Subcatchment 5: 5

[47] Hint: Peak is 489% of capacity of segment #3

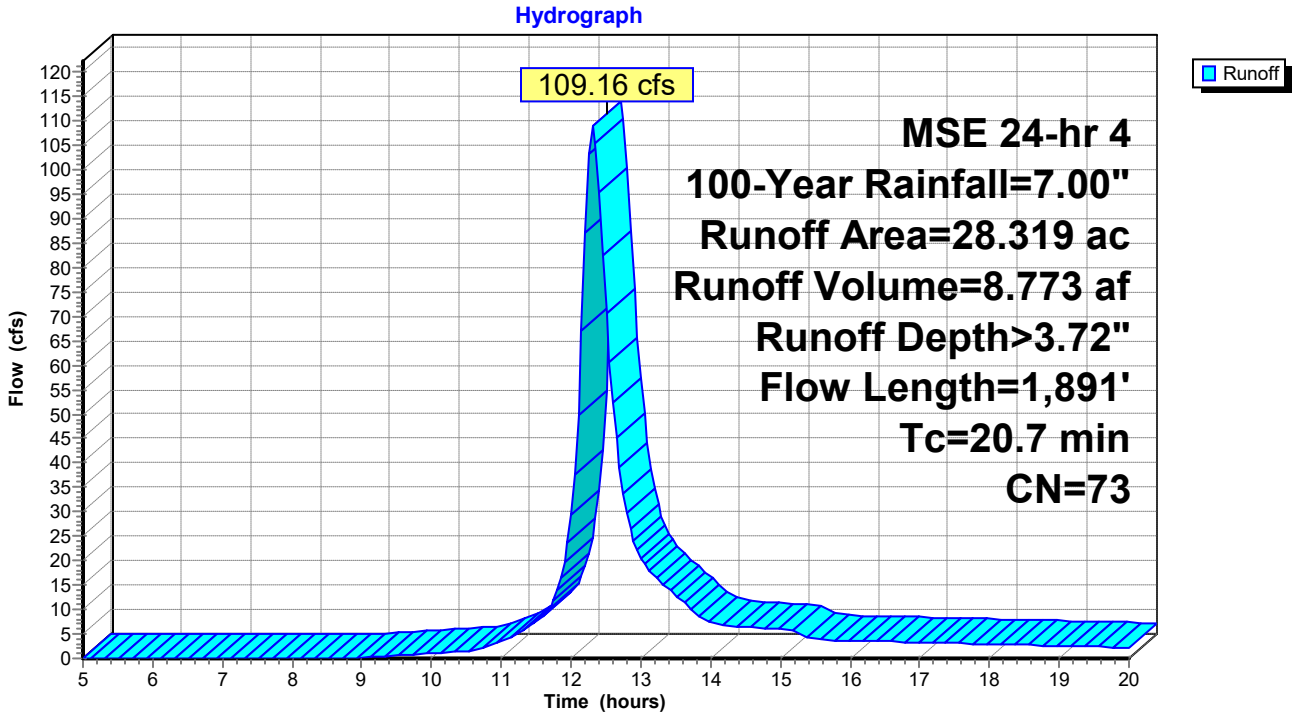
Runoff = 109.16 cfs @ 12.31 hrs, Volume= 8.773 af, Depth> 3.72"
Routed to Link 18L : 18L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	9.532	74	Pasture/grassland/range, good, HSG C
	3.785	74	Pasture/grassland/range, good, HSG C
	2.892	74	Pasture/grassland/range, good, HSG C
	2.754	74	Pasture/grassland/range, good, HSG C
	1.269	80	Pasture/grassland/range, good, HSG D
	1.106	85	Row crops, straight row, good, HSG C
	0.985	74	Pasture/grassland/range, good, HSG C
	0.972	74	Pasture/grassland/range, good, HSG C
	0.723	80	Pasture/grassland/range, good, HSG D
	0.471	85	Row crops, straight row, good, HSG C
	0.417	96	Gravel surface, HSG C
	0.412	82	Farmsteads, HSG C
	0.384	74	Pasture/grassland/range, good, HSG C
*	0.336	0	Paved; open ditches, 50% imp, HSG A
	0.315	39	Pasture/grassland/range, good, HSG A
	0.303	67	Row crops, straight row, good, HSG A
	0.285	74	Pasture/grassland/range, good, HSG C
*	0.284	0	Paved; open ditches, 50% imp, HSG C
	0.263	80	Pasture/grassland/range, good, HSG D
*	0.236	0	Paved; open ditches, 50% imp, HSG C
	0.218	96	Gravel surface, HSG C
	0.202	74	Pasture/grassland/range, good, HSG C
	0.124	96	Gravel surface, HSG C
	0.050	89	Row crops, straight row, good, HSG D
	28.319	73	Weighted Average
	27.892		98.49% Pervious Area
	0.428		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	98	0.0211	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.8	563	0.0150	1.97		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.6	1,230	0.0142	4.46	22.31	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
20.7	1,891	Total			

Subcatchment 5: 5



Summary for Subcatchment 6: 6

[47] Hint: Peak is 276% of capacity of segment #3

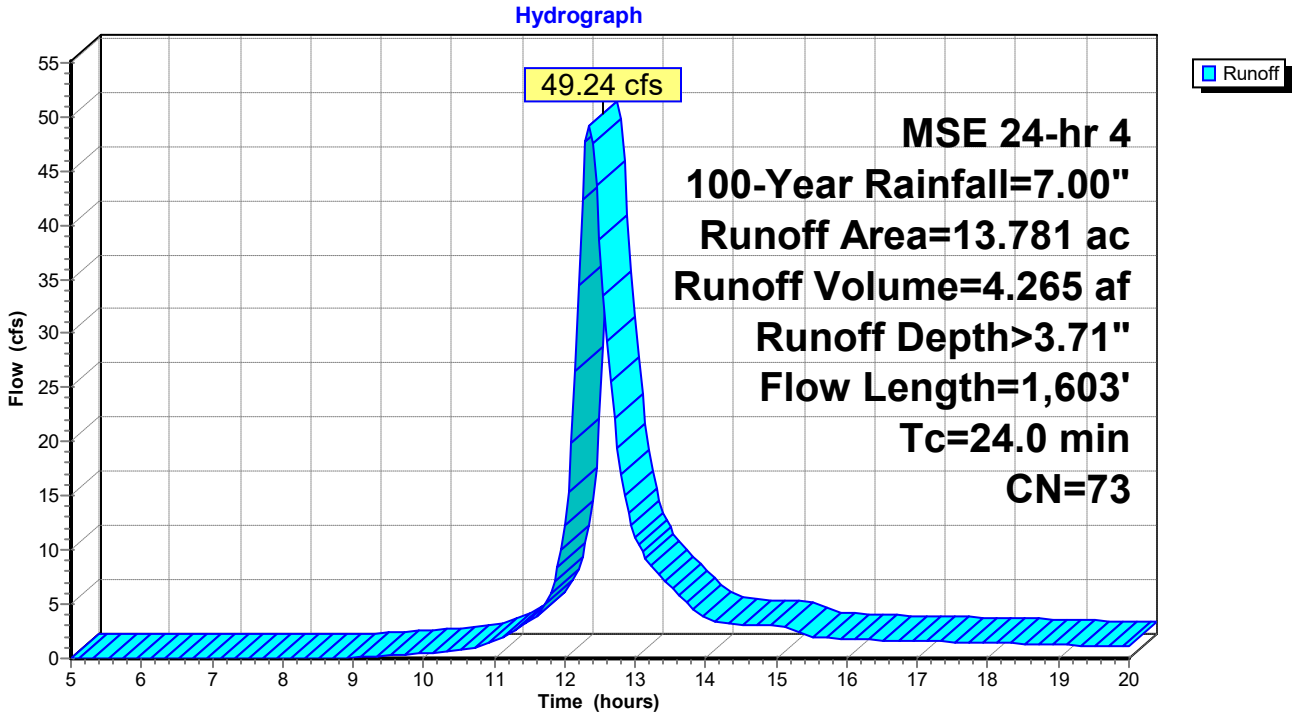
Runoff = 49.24 cfs @ 12.35 hrs, Volume= 4.265 af, Depth> 3.71"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.040	74	Pasture/grassland/range, good, HSG C
	2.803	74	Pasture/grassland/range, good, HSG C
	1.564	74	Pasture/grassland/range, good, HSG C
	1.527	74	Pasture/grassland/range, good, HSG C
	1.447	74	Pasture/grassland/range, good, HSG C
	1.225	74	Pasture/grassland/range, good, HSG C
	0.523	74	Pasture/grassland/range, good, HSG C
	0.368	80	Pasture/grassland/range, good, HSG D
	0.342	74	Pasture/grassland/range, good, HSG C
	0.325	80	Pasture/grassland/range, good, HSG D
	0.223	39	Pasture/grassland/range, good, HSG A
	0.130	74	Pasture/grassland/range, good, HSG C
	0.124	96	Gravel surface, HSG C
*	0.068	0	Paved; open ditches, 50% imp, HSG A
*	0.036	0	Paved; open ditches, 50% imp, HSG D
*	0.019	0	Paved; open ditches, 50% imp, HSG A
*	0.010	0	Paved; open ditches, 50% imp, HSG D
*	0.003	0	Paved; open ditches, 50% imp, HSG D
	0.001	80	Pasture/grassland/range, good, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG D
	13.781	73	Weighted Average
	13.712		99.50% Pervious Area
	0.068		0.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	99	0.0016	0.12		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
10.3	1,392	0.0194	2.24		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.5	112	0.0091	3.57	17.86	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
24.0	1,603	Total			

Subcatchment 6: 6



Summary for Subcatchment 7: 7

[47] Hint: Peak is 1086% of capacity of segment #3

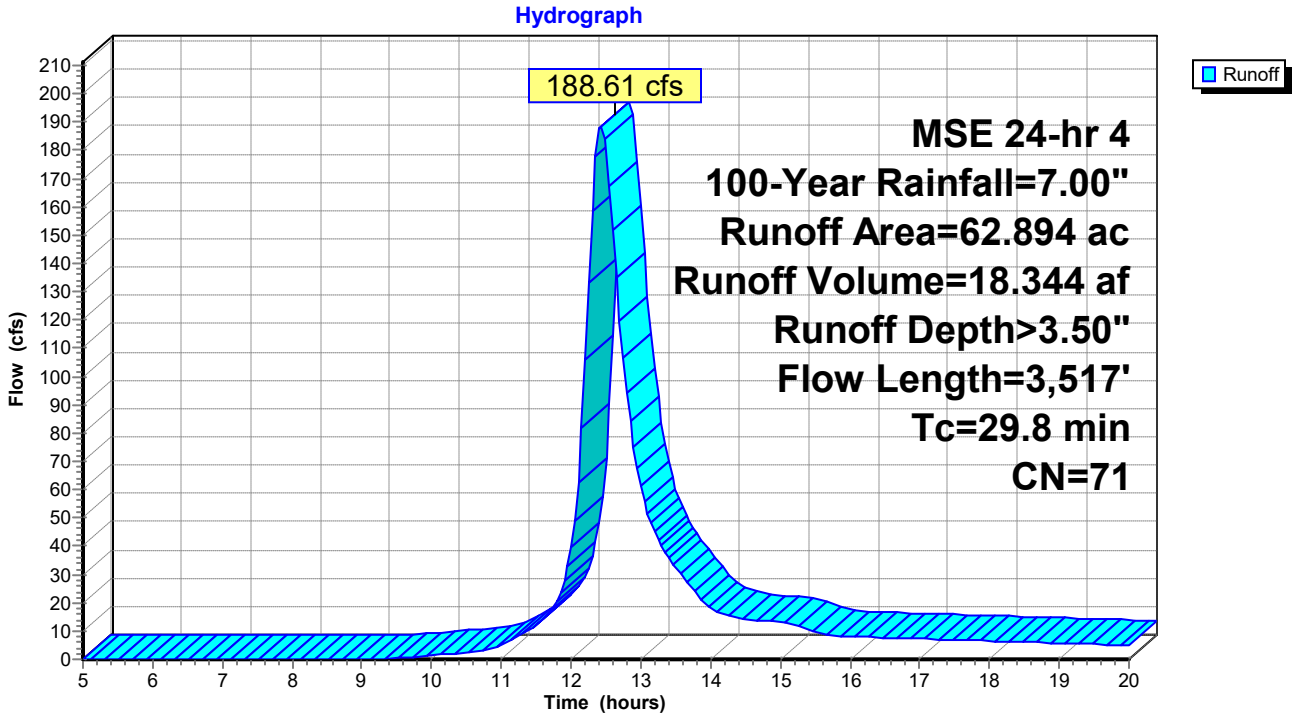
Runoff = 188.61 cfs @ 12.42 hrs, Volume= 18.344 af, Depth> 3.50"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	6.361	74	Pasture/grassland/range, good, HSG C
	5.437	74	Pasture/grassland/range, good, HSG C
	4.517	74	Pasture/grassland/range, good, HSG C
	4.385	74	Pasture/grassland/range, good, HSG C
	4.202	74	Pasture/grassland/range, good, HSG C
	4.002	74	Pasture/grassland/range, good, HSG C
	3.936	74	Pasture/grassland/range, good, HSG C
	3.517	74	Pasture/grassland/range, good, HSG C
	2.295	74	Pasture/grassland/range, good, HSG C
	2.146	85	Row crops, straight row, good, HSG C
	2.101	74	Pasture/grassland/range, good, HSG C
	2.080	85	Row crops, straight row, good, HSG C
	1.911	80	Pasture/grassland/range, good, HSG D
	1.766	80	Pasture/grassland/range, good, HSG D
	1.548	74	Pasture/grassland/range, good, HSG C
	1.445	39	Pasture/grassland/range, good, HSG A
	1.253	39	Pasture/grassland/range, good, HSG A
*	1.239	0	Paved; open ditches, 50% imp, HSG C
	1.108	96	Gravel surface, HSG C
	1.104	74	Pasture/grassland/range, good, HSG C
	1.018	80	Pasture/grassland/range, good, HSG D
	1.017	80	Pasture/grassland/range, good, HSG D
	0.608	80	Pasture/grassland/range, good, HSG D
*	0.502	0	Paved; open ditches, 50% imp, HSG C
	0.457	74	Pasture/grassland/range, good, HSG C
*	0.433	0	Paved; open ditches, 50% imp, HSG C
	0.430	96	Gravel surface, HSG C
	0.377	74	Pasture/grassland/range, good, HSG C
	0.318	80	Pasture/grassland/range, good, HSG D
	0.269	74	Pasture/grassland/range, good, HSG C
	0.251	80	Pasture/grassland/range, good, HSG D
*	0.219	0	Paved; open ditches, 50% imp, HSG D
*	0.216	0	Paved; open ditches, 50% imp, HSG A
	0.124	96	Gravel surface, HSG C
*	0.085	0	Paved; open ditches, 50% imp, HSG D
	0.074	96	Gravel surface, HSG D
	0.043	96	Gravel surface, HSG C
	0.041	96	Gravel surface, HSG C
	0.021	96	Gravel surface, HSG C
*	0.014	0	Paved; open ditches, 50% imp, HSG C
*	0.012	0	Paved; open ditches, 50% imp, HSG C
	0.006	96	Gravel surface, HSG C
*	0.003	0	Paved; open ditches, 50% imp, HSG D
	0.001	80	Pasture/grassland/range, good, HSG D
	0.001	85	Row crops, straight row, good, HSG C
	0.001	80	Pasture/grassland/range, good, HSG D
	0.000	74	Pasture/grassland/range, good, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG A
	62.894	71	Weighted Average
	61.533		97.84% Pervious Area
	1.361		2.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	99	0.0259	0.16		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.3	295	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
15.0	3,123	0.0086	3.47	17.36	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
29.8	3,517	Total			

Subcatchment 7: 7



Summary for Subcatchment 8: 8

[47] Hint: Peak is 179% of capacity of segment #3

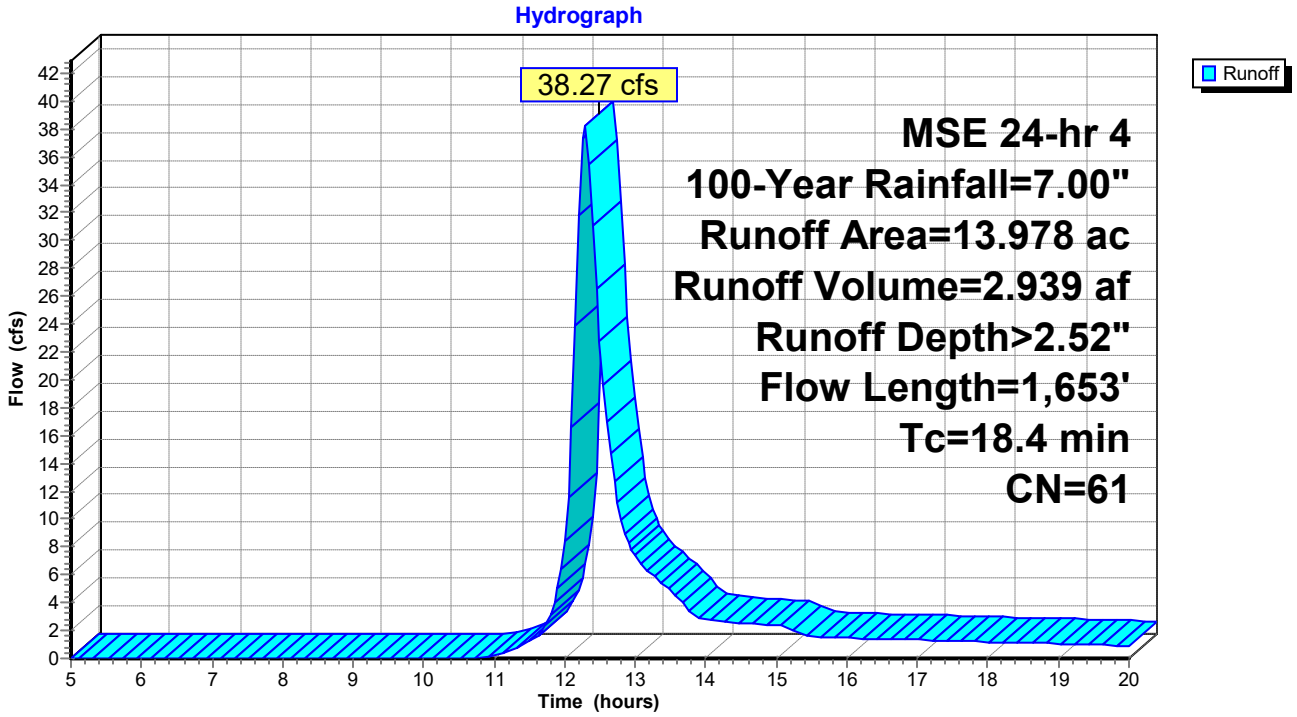
Runoff = 38.27 cfs @ 12.29 hrs, Volume= 2.939 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.266	74	Pasture/grassland/range, good, HSG C
	2.759	74	Pasture/grassland/range, good, HSG C
	2.325	74	Pasture/grassland/range, good, HSG C
	1.751	39	Pasture/grassland/range, good, HSG A
	1.425	39	Pasture/grassland/range, good, HSG A
	0.569	74	Pasture/grassland/range, good, HSG C
	0.489	85	Row crops, straight row, good, HSG C
*	0.404	0	Paved; open ditches, 50% imp, HSG C
	0.350	74	Pasture/grassland/range, good, HSG C
*	0.198	0	Paved; open ditches, 50% imp, HSG A
*	0.142	0	Paved; open ditches, 50% imp, HSG A
	0.107	39	Pasture/grassland/range, good, HSG A
*	0.100	0	Paved; open ditches, 50% imp, HSG C
*	0.081	0	Paved; open ditches, 50% imp, HSG A
*	0.006	0	Paved; open ditches, 50% imp, HSG A
*	0.004	0	Paved; open ditches, 50% imp, HSG A
	0.002	74	Pasture/grassland/range, good, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG A
	13.978	61	Weighted Average
	13.510		96.65% Pervious Area
	0.468		3.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	99	0.0179	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
1.0	182	0.0346	2.99		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.3	1,372	0.0131	4.29	21.43	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
18.4	1,653	Total			

Subcatchment 8: 8



Summary for Subcatchment 9: 9

[47] Hint: Peak is 143% of capacity of segment #3

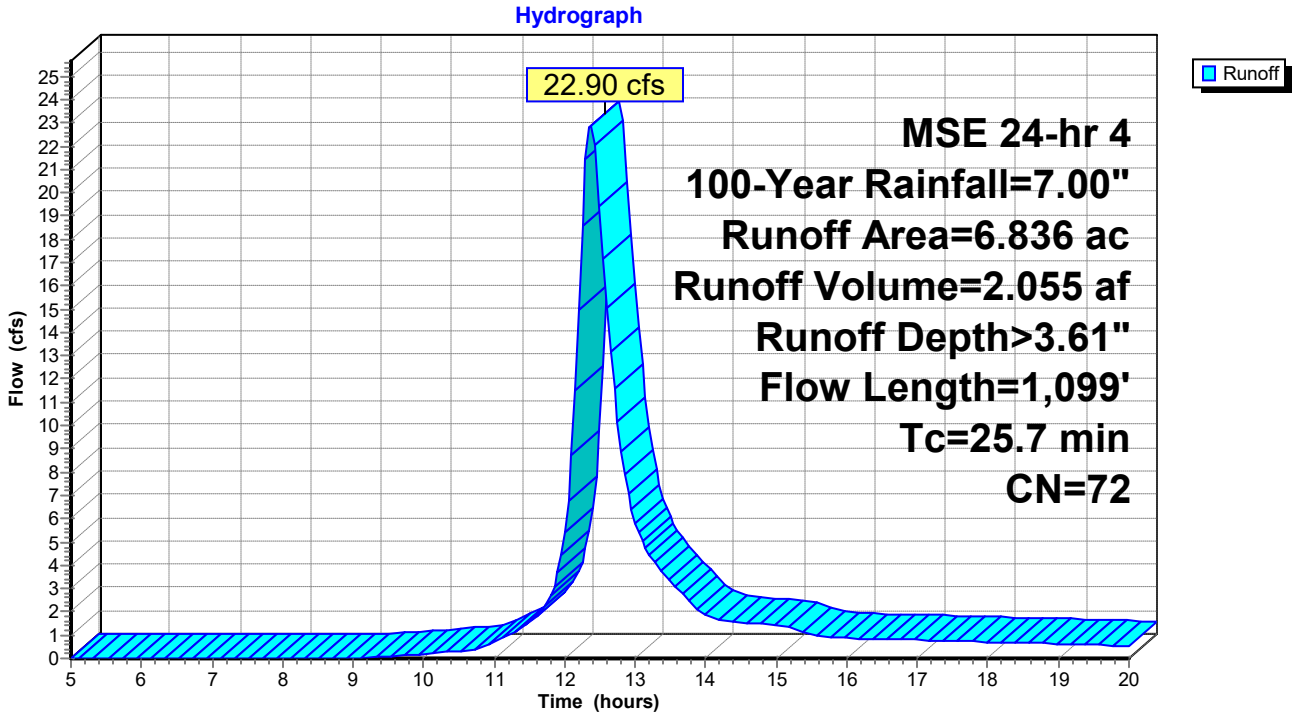
Runoff = 22.90 cfs @ 12.37 hrs, Volume= 2.055 af, Depth> 3.61"
Routed to Link 20L : 20L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	5.892	82	Farmsteads, HSG C
*	0.411	0	Paved; open ditches, 50% imp, HSG C
*	0.382	0	Paved; open ditches, 50% imp, HSG C
	0.079	82	Farmsteads, HSG C
	0.034	82	Farmsteads, HSG C
*	0.008	0	Paved; open ditches, 50% imp, HSG C
	0.008	86	Farmsteads, HSG D
*	0.007	0	Paved; open ditches, 50% imp, HSG D
	0.006	82	Farmsteads, HSG C
*	0.006	0	Paved; open ditches, 50% imp, HSG D
*	0.003	0	Paved; open ditches, 50% imp, HSG C
	6.836	72	Weighted Average
	6.428		94.02% Pervious Area
	0.408		5.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	100	0.0141	0.12		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
9.9	563	0.0035	0.95		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	436	0.0073	3.20	16.00	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.7	1,099	Total			

Subcatchment 9: 9



Summary for Subcatchment 10: 10

[47] Hint: Peak is 1987% of capacity of segment #3

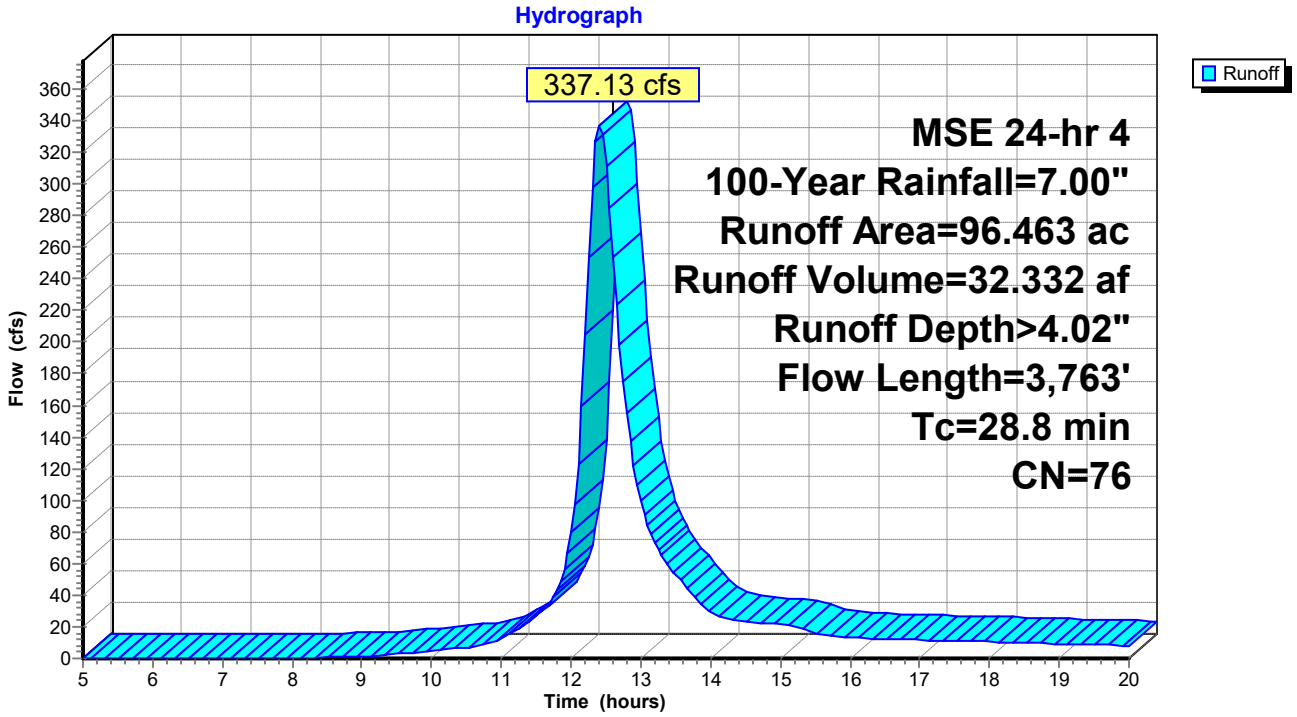
Runoff = 337.13 cfs @ 12.41 hrs, Volume= 32.332 af, Depth> 4.02"
Routed to Link 20L : 20L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
29.450	74	Pasture/grassland/range, good, HSG C
13.141	74	Pasture/grassland/range, good, HSG C
9.963	80	Pasture/grassland/range, good, HSG D
9.334	74	Pasture/grassland/range, good, HSG C
8.366	74	Pasture/grassland/range, good, HSG C
6.200	74	Pasture/grassland/range, good, HSG C
4.541	80	Pasture/grassland/range, good, HSG D
3.029	80	Pasture/grassland/range, good, HSG D
2.684	80	Pasture/grassland/range, good, HSG D
2.535	74	Pasture/grassland/range, good, HSG C
2.376	80	Pasture/grassland/range, good, HSG D
1.859	74	Pasture/grassland/range, good, HSG C
0.984	74	Pasture/grassland/range, good, HSG C
0.362	96	Gravel surface, HSG C
0.290	80	Pasture/grassland/range, good, HSG D
0.284	96	Gravel surface, HSG C
0.282	96	Gravel surface, HSG D
0.232	96	Gravel surface, HSG D
0.178	96	Gravel surface, HSG C
0.105	96	Gravel surface, HSG C
0.093	96	Gravel surface, HSG C
0.082	80	Pasture/grassland/range, good, HSG D
0.047	96	Gravel surface, HSG D
0.046	96	Gravel surface, HSG C
96.463	76	Weighted Average
96.463		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0292	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
3.6	581	0.0283	2.71		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
15.1	3,082	0.0141	3.39	16.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 15.0' r= 0.33' n= 0.025 Earth, clean & winding
28.8	3,763	Total			

Subcatchment 10: 10



Summary for Subcatchment 11: 11

[47] Hint: Peak is 685% of capacity of segment #3

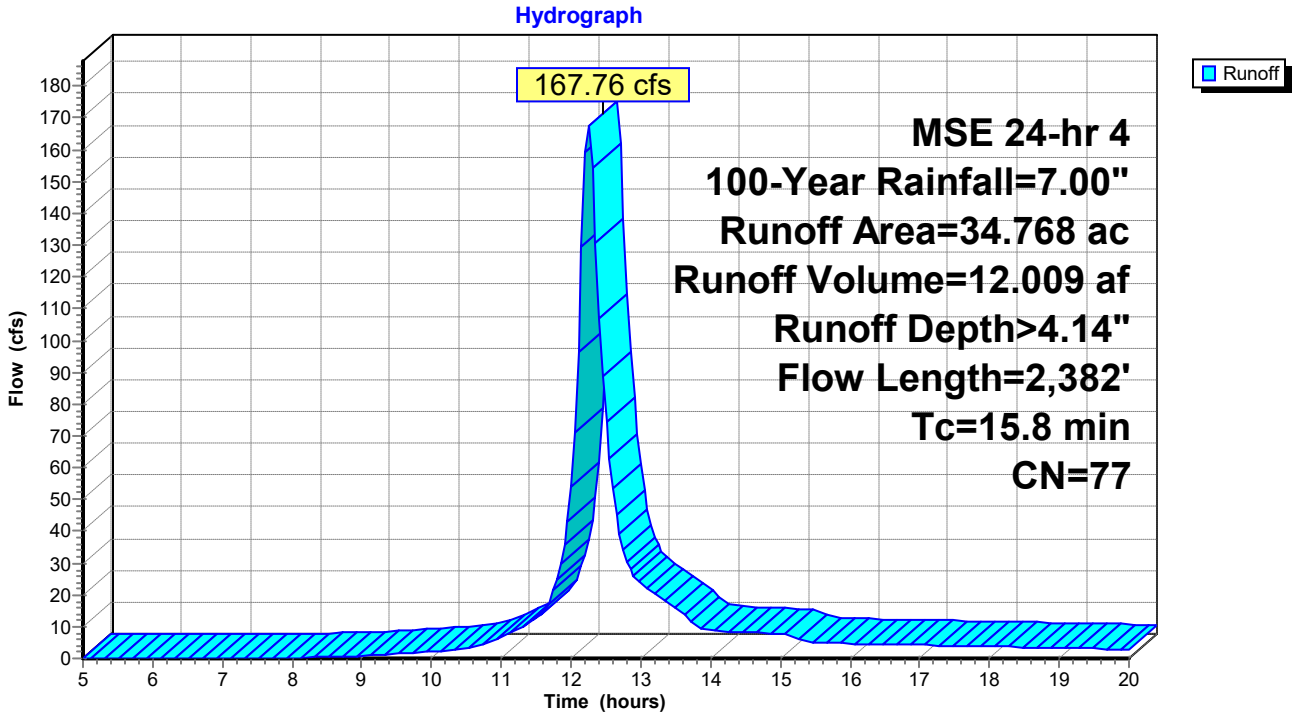
Runoff = 167.76 cfs @ 12.24 hrs, Volume= 12.009 af, Depth> 4.14"
Routed to Link 19L : 19L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
8.263	74	Pasture/grassland/range, good, HSG C
6.515	74	Pasture/grassland/range, good, HSG C
5.657	80	Pasture/grassland/range, good, HSG D
5.237	74	Pasture/grassland/range, good, HSG C
2.325	74	Pasture/grassland/range, good, HSG C
1.790	80	Pasture/grassland/range, good, HSG D
1.664	80	Pasture/grassland/range, good, HSG D
1.183	85	Row crops, straight row, good, HSG C
0.534	89	Row crops, straight row, good, HSG D
0.494	89	Row crops, straight row, good, HSG D
0.429	85	Row crops, straight row, good, HSG C
0.344	89	Row crops, straight row, good, HSG D
0.299	96	Gravel surface, HSG C
0.024	80	Pasture/grassland/range, good, HSG D
0.008	96	Gravel surface, HSG D
34.768	77	Weighted Average
34.768		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0159	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.3	756	0.0217	2.37		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.2	1,526	0.0171	4.90	24.48	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.8	2,382	Total			

Subcatchment 11: 11



Summary for Subcatchment 12: 12

[47] Hint: Peak is 931% of capacity of segment #3

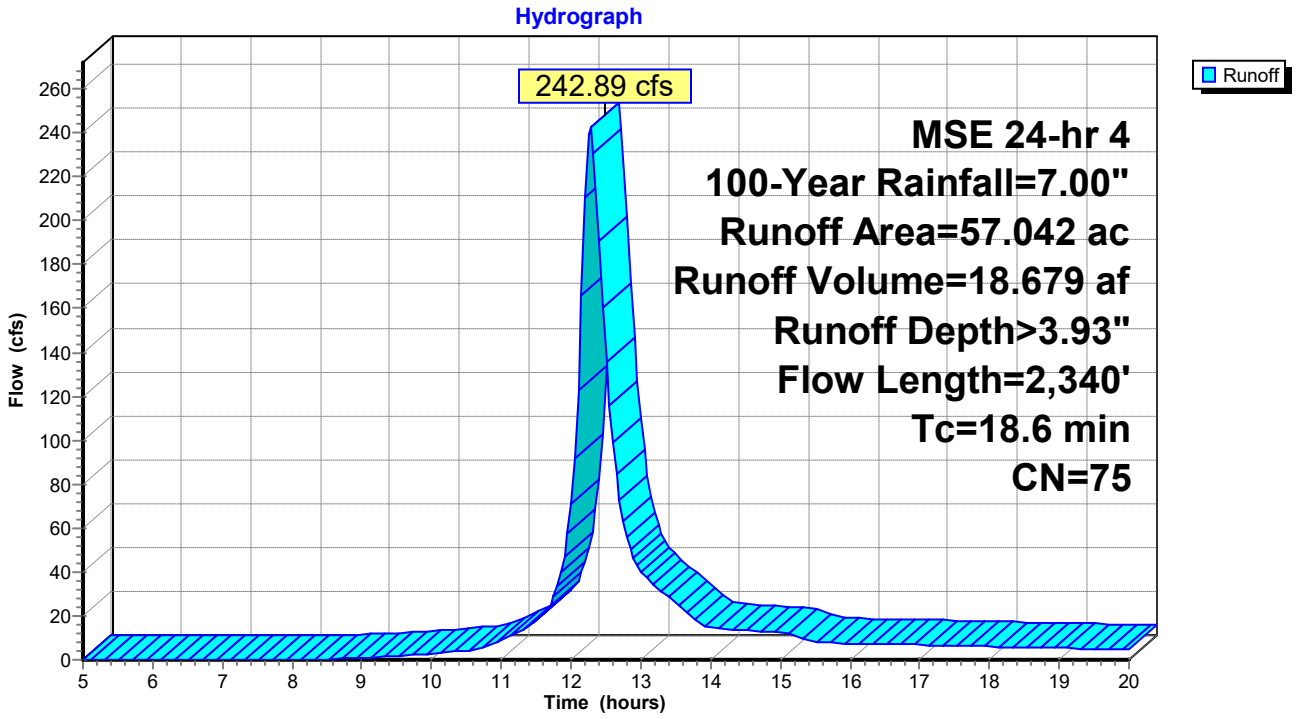
Runoff = 242.89 cfs @ 12.28 hrs, Volume= 18.679 af, Depth> 3.93"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	28.194	74	Pasture/grassland/range, good, HSG C
	5.995	74	Pasture/grassland/range, good, HSG C
	5.361	85	Row crops, straight row, good, HSG C
	3.070	70	Woods, Good, HSG C
	2.719	80	Pasture/grassland/range, good, HSG D
	2.191	82	Farmsteads, HSG C
	1.445	70	Woods, Good, HSG C
	1.441	74	Pasture/grassland/range, good, HSG C
	1.173	74	Pasture/grassland/range, good, HSG C
	0.880	85	Row crops, straight row, good, HSG C
*	0.868	0	Paved; open ditches, 50% imp, HSG C
	0.687	74	Pasture/grassland/range, good, HSG C
	0.665	70	Woods, Good, HSG C
	0.451	70	Woods, Good, HSG C
	0.370	85	Row crops, straight row, good, HSG C
	0.252	85	Row crops, straight row, good, HSG C
	0.224	89	Row crops, straight row, good, HSG D
	0.203	85	Row crops, straight row, good, HSG C
	0.160	85	Row crops, straight row, good, HSG C
	0.129	70	Woods, Good, HSG C
	0.128	96	Gravel surface, HSG C
	0.096	96	Gravel surface, HSG D
	0.091	85	Row crops, straight row, good, HSG C
	0.068	80	Pasture/grassland/range, good, HSG D
	0.062	86	Farmsteads, HSG D
	0.049	82	Farmsteads, HSG C
	0.016	70	Woods, Good, HSG C
	0.013	96	Gravel surface, HSG C
*	0.011	0	Paved; open ditches, 50% imp, HSG D
	0.010	70	Woods, Good, HSG C
	0.008	70	Woods, Good, HSG C
	0.004	74	Pasture/grassland/range, good, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG C
	0.002	86	Farmsteads, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	0.000	86	Farmsteads, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	0.000	86	Farmsteads, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	57.042	75	Weighted Average
	56.600		99.22% Pervious Area
	0.442		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
6.1	985	0.0280	2.69		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.0	1,255	0.0194	5.22	26.08	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
18.6	2,340	Total			

Subcatchment 12: 12



Summary for Subcatchment 13: 13

[47] Hint: Peak is 335% of capacity of segment #3

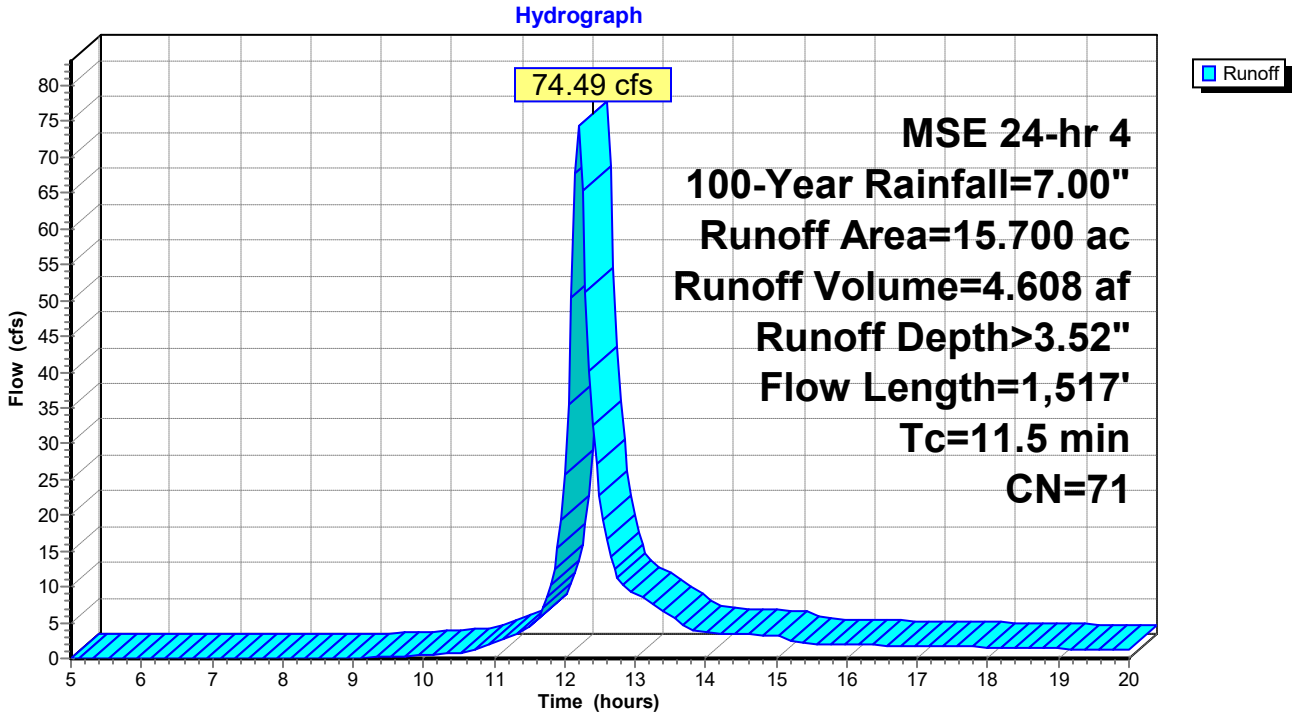
Runoff = 74.49 cfs @ 12.20 hrs, Volume= 4.608 af, Depth> 3.52"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	8.148	74	Pasture/grassland/range, good, HSG C
	3.495	70	Woods, Good, HSG C
	3.037	85	Row crops, straight row, good, HSG C
*	0.856	0	Paved; open ditches, 50% imp, HSG C
*	0.059	0	Paved; open ditches, 50% imp, HSG D
*	0.021	0	Paved; open ditches, 50% imp, HSG C
	0.021	85	Row crops, straight row, good, HSG C
	0.019	89	Row crops, straight row, good, HSG D
*	0.014	0	Paved; open ditches, 50% imp, HSG C
*	0.010	0	Paved; open ditches, 50% imp, HSG C
	0.007	70	Woods, Good, HSG C
*	0.004	0	Paved; open ditches, 50% imp, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	15.700	71	Weighted Average
	15.213		96.90% Pervious Area
	0.487		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.0282	0.39		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.5	398	0.0138	1.89		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.8	1,019	0.0141	4.45	22.23	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
11.5	1,517	Total			

Subcatchment 13: 13



Summary for Subcatchment 14: 14

[47] Hint: Peak is 897% of capacity of segment #3

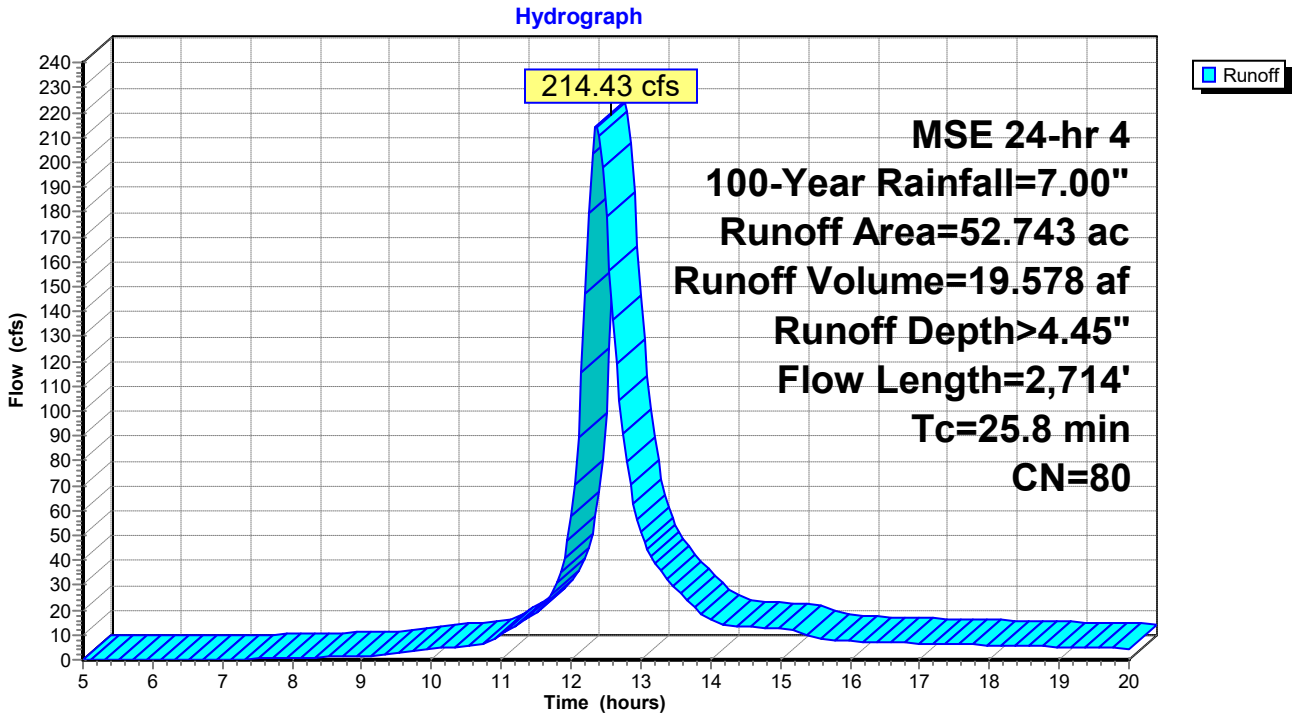
Runoff = 214.43 cfs @ 12.36 hrs, Volume= 19.578 af, Depth> 4.45"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
12.961	80	Pasture/grassland/range, good, HSG D
8.496	74	Pasture/grassland/range, good, HSG C
5.362	70	Woods, Good, HSG C
4.233	80	Pasture/grassland/range, good, HSG D
4.117	89	Row crops, straight row, good, HSG D
2.571	74	Pasture/grassland/range, good, HSG C
2.409	85	Row crops, straight row, good, HSG C
2.198	85	Row crops, straight row, good, HSG C
1.913	89	Row crops, straight row, good, HSG D
1.235	85	Row crops, straight row, good, HSG C
1.017	89	Row crops, straight row, good, HSG D
0.949	77	Woods, Good, HSG D
0.910	85	Row crops, straight row, good, HSG C
0.855	85	Row crops, straight row, good, HSG C
0.803	89	Row crops, straight row, good, HSG D
0.547	85	Row crops, straight row, good, HSG C
0.417	89	Row crops, straight row, good, HSG D
0.365	85	Row crops, straight row, good, HSG C
0.326	85	Row crops, straight row, good, HSG C
0.308	89	Row crops, straight row, good, HSG D
0.205	96	Gravel surface, HSG C
0.152	85	Row crops, straight row, good, HSG C
0.122	96	Gravel surface, HSG D
0.116	96	Gravel surface, HSG D
0.043	30	Woods, Good, HSG A
0.034	85	Row crops, straight row, good, HSG C
0.031	96	Gravel surface, HSG C
0.028	77	Woods, Good, HSG D
0.011	74	Pasture/grassland/range, good, HSG C
0.006	85	Row crops, straight row, good, HSG C
0.003	77	Woods, Good, HSG D
0.001	85	Row crops, straight row, good, HSG C
52.743	80	Weighted Average
52.743		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0140	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
17.4	1,806	0.0116	1.73		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.8	808	0.0163	4.78	23.90	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.8	2,714	Total			

Subcatchment 14: 14



Summary for Subcatchment 15: 15

[47] Hint: Peak is 410% of capacity of segment #3

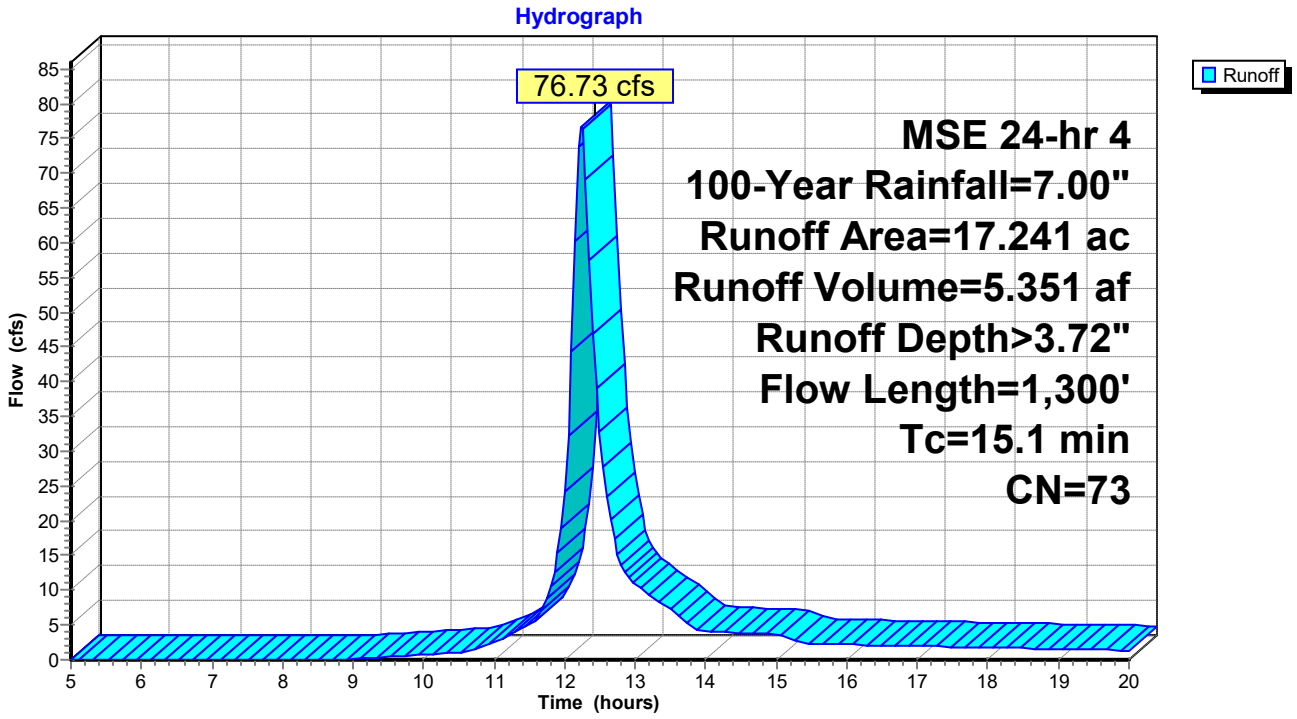
Runoff = 76.73 cfs @ 12.24 hrs, Volume= 5.351 af, Depth> 3.72"
Routed to Pond 8P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	6.438	74	Pasture/grassland/range, good, HSG C
	2.819	85	Row crops, straight row, good, HSG C
	2.281	74	Pasture/grassland/range, good, HSG C
	1.437	85	Row crops, straight row, good, HSG C
	1.028	89	Row crops, straight row, good, HSG D
	0.996	80	Pasture/grassland/range, good, HSG D
	0.535	80	Pasture/grassland/range, good, HSG D
*	0.256	0	Paved; open ditches, 50% imp, HSG C
*	0.213	0	Paved; open ditches, 50% imp, HSG C
*	0.182	0	Paved; open ditches, 50% imp, HSG C
	0.170	96	Gravel surface, HSG D
*	0.149	0	Paved; open ditches, 50% imp, HSG C
*	0.120	0	Paved; open ditches, 50% imp, HSG C
	0.105	96	Gravel surface, HSG C
*	0.087	0	Paved; open ditches, 50% imp, HSG D
*	0.085	0	Paved; open ditches, 50% imp, HSG D
	0.059	89	Row crops, straight row, good, HSG D
*	0.055	0	Paved; open ditches, 50% imp, HSG D
*	0.046	0	Paved; open ditches, 50% imp, HSG D
	0.032	89	Row crops, straight row, good, HSG D
*	0.031	0	Paved; open ditches, 50% imp, HSG D
	0.024	96	Gravel surface, HSG D
*	0.022	0	Paved; open ditches, 50% imp, HSG D
*	0.014	0	Paved; open ditches, 50% imp, HSG D
*	0.014	0	Paved; open ditches, 50% imp, HSG D
*	0.012	0	Paved; open ditches, 50% imp, HSG D
	0.010	85	Row crops, straight row, good, HSG C
	0.008	80	Pasture/grassland/range, good, HSG D
*	0.006	0	Paved; open ditches, 50% imp, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG C
	0.001	80	Pasture/grassland/range, good, HSG D
	0.001	85	Row crops, straight row, good, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG C
*	0.001	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	17.241	73	Weighted Average
	16.592		96.24% Pervious Area
	0.649		3.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0052	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.3	414	0.0165	2.07		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.5	786	0.0100	3.74	18.72	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.1	1,300	Total			

Subcatchment 15: 15



Summary for Subcatchment 16: 16

[47] Hint: Peak is 162% of capacity of segment #3

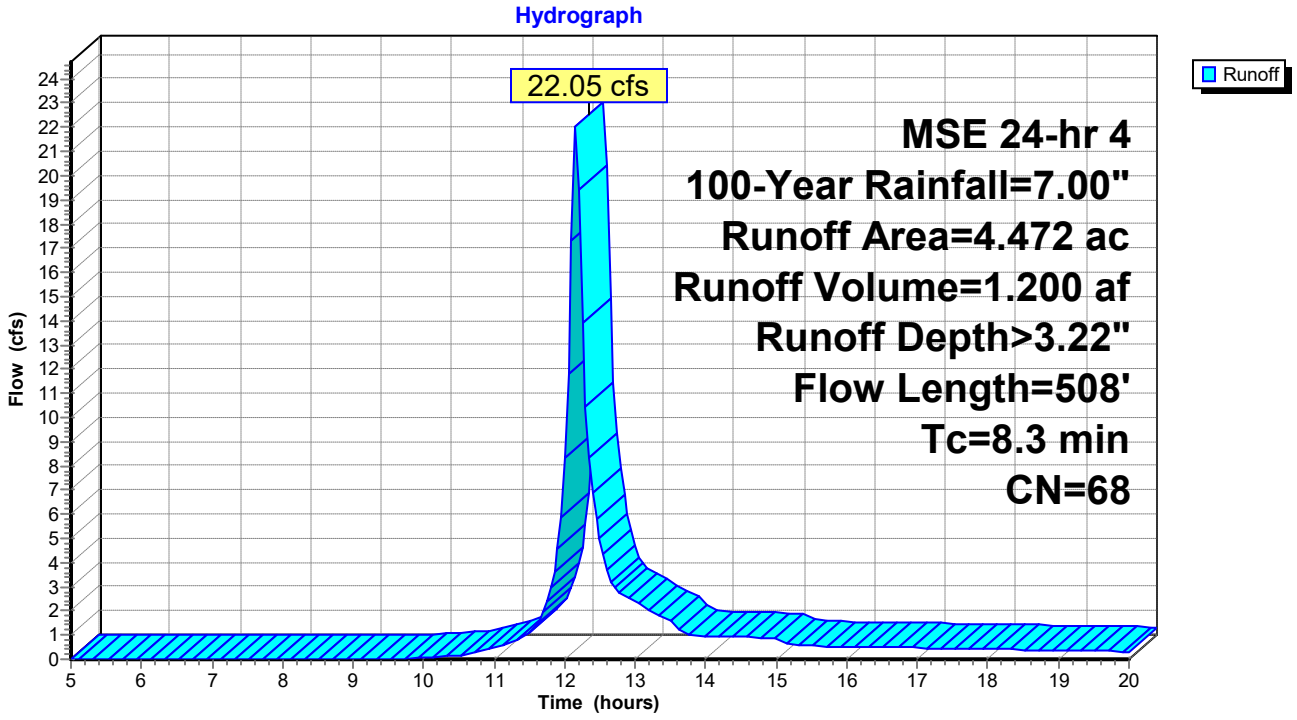
Runoff = 22.05 cfs @ 12.16 hrs, Volume= 1.200 af, Depth> 3.22"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.309	67	Row crops, straight row, good, HSG A
0.163	89	Row crops, straight row, good, HSG D
4.472	68	Weighted Average
4.472		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.0214	0.35		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.9	294	0.0111	1.70		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.7	114	0.0053	2.73	13.63	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
8.3	508	Total			

Subcatchment 16: 16



Summary for Subcatchment 17: 17

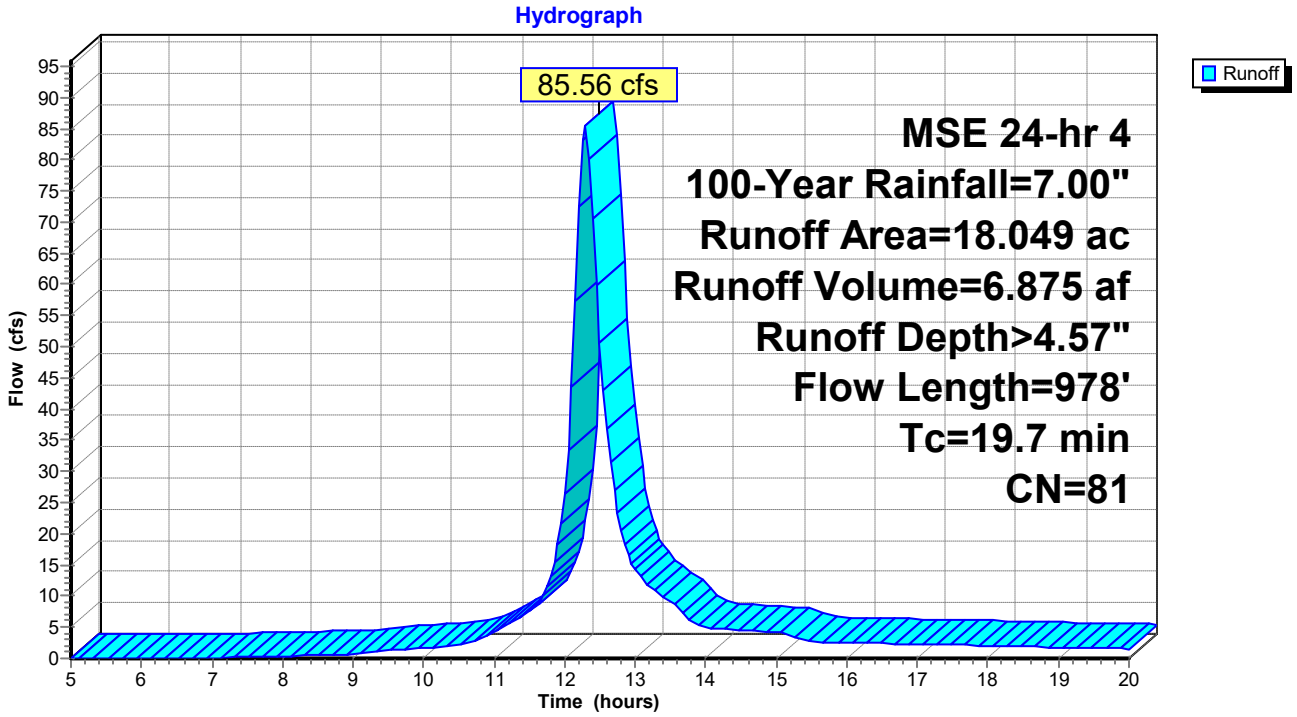
Runoff = 85.56 cfs @ 12.29 hrs, Volume= 6.875 af, Depth> 4.57"
Routed to Link 17L : 17L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.755	80	Pasture/grassland/range, good, HSG D
3.722	80	Pasture/grassland/range, good, HSG D
1.137	89	Row crops, straight row, good, HSG D
1.110	89	Row crops, straight row, good, HSG D
0.880	89	Row crops, straight row, good, HSG D
0.781	80	Pasture/grassland/range, good, HSG D
0.702	67	Row crops, straight row, good, HSG A
0.558	80	Pasture/grassland/range, good, HSG D
0.521	80	Pasture/grassland/range, good, HSG D
0.321	89	Row crops, straight row, good, HSG D
0.271	96	Gravel surface, HSG D
0.267	96	Gravel surface, HSG D
0.240	39	Pasture/grassland/range, good, HSG A
0.196	89	Row crops, straight row, good, HSG D
0.180	89	Row crops, straight row, good, HSG D
0.120	96	Gravel surface, HSG D
0.110	80	Pasture/grassland/range, good, HSG D
0.071	80	Pasture/grassland/range, good, HSG D
0.056	80	Pasture/grassland/range, good, HSG D
0.015	89	Row crops, straight row, good, HSG D
0.012	96	Gravel surface, HSG D
0.011	89	Row crops, straight row, good, HSG D
0.007	80	Pasture/grassland/range, good, HSG D
0.003	89	Row crops, straight row, good, HSG D
0.002	80	Pasture/grassland/range, good, HSG D
18.049	81	Weighted Average
18.049		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.2	878	0.0066	1.31		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.7	978	Total			

Subcatchment 17: 17



Summary for Subcatchment 18: 18

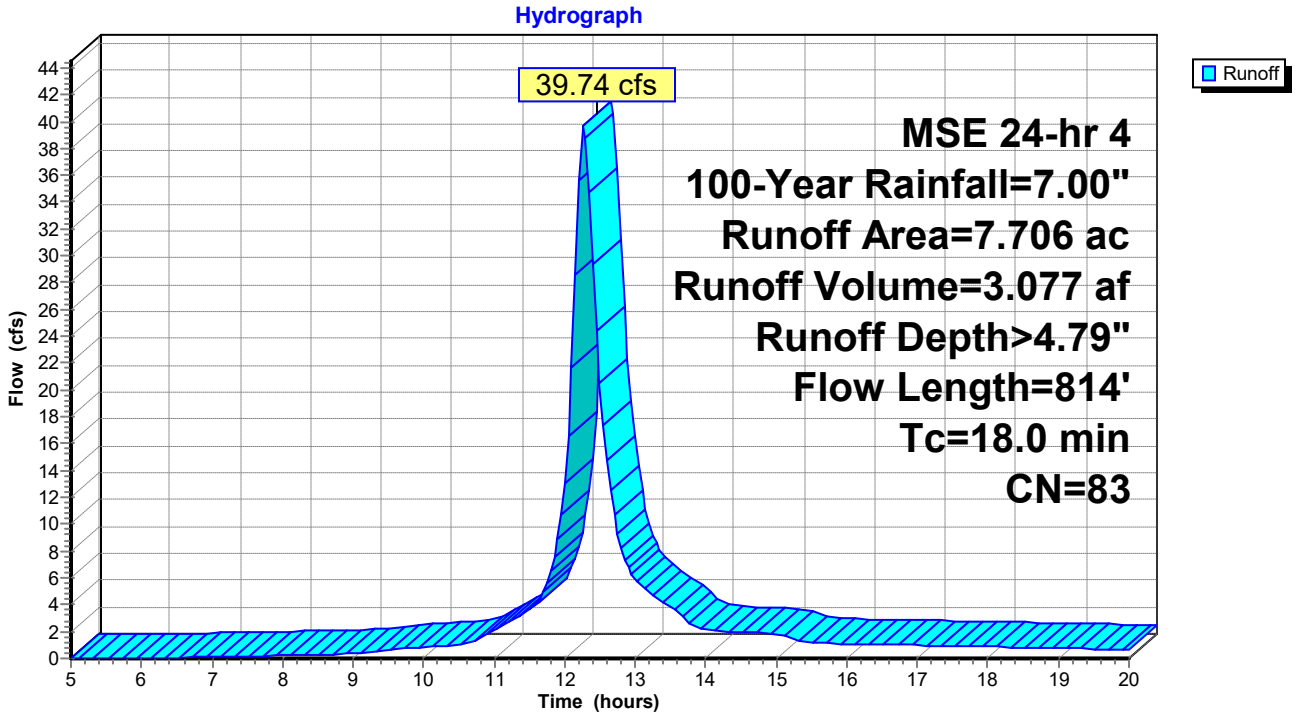
Runoff = 39.74 cfs @ 12.27 hrs, Volume= 3.077 af, Depth> 4.79"
Routed to Link 17L : 17L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.339	80	Pasture/grassland/range, good, HSG D
1.202	89	Row crops, straight row, good, HSG D
0.677	89	Row crops, straight row, good, HSG D
0.621	80	Pasture/grassland/range, good, HSG D
0.325	89	Row crops, straight row, good, HSG D
0.253	89	Row crops, straight row, good, HSG D
0.161	96	Gravel surface, HSG D
0.068	80	Pasture/grassland/range, good, HSG D
0.029	89	Row crops, straight row, good, HSG D
0.018	89	Row crops, straight row, good, HSG D
0.012	96	Gravel surface, HSG D
7.706	83	Weighted Average
7.706		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0090	0.25		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.3	714	0.0043	1.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
18.0	814	Total			

Subcatchment 18: 18



Summary for Subcatchment 19: 19

[47] Hint: Peak is 5922% of capacity of segment #3

Runoff = 471.13 cfs @ 14.10 hrs, Volume= 136.136 af, Depth> 4.54"
Routed to Link 5L : 5L

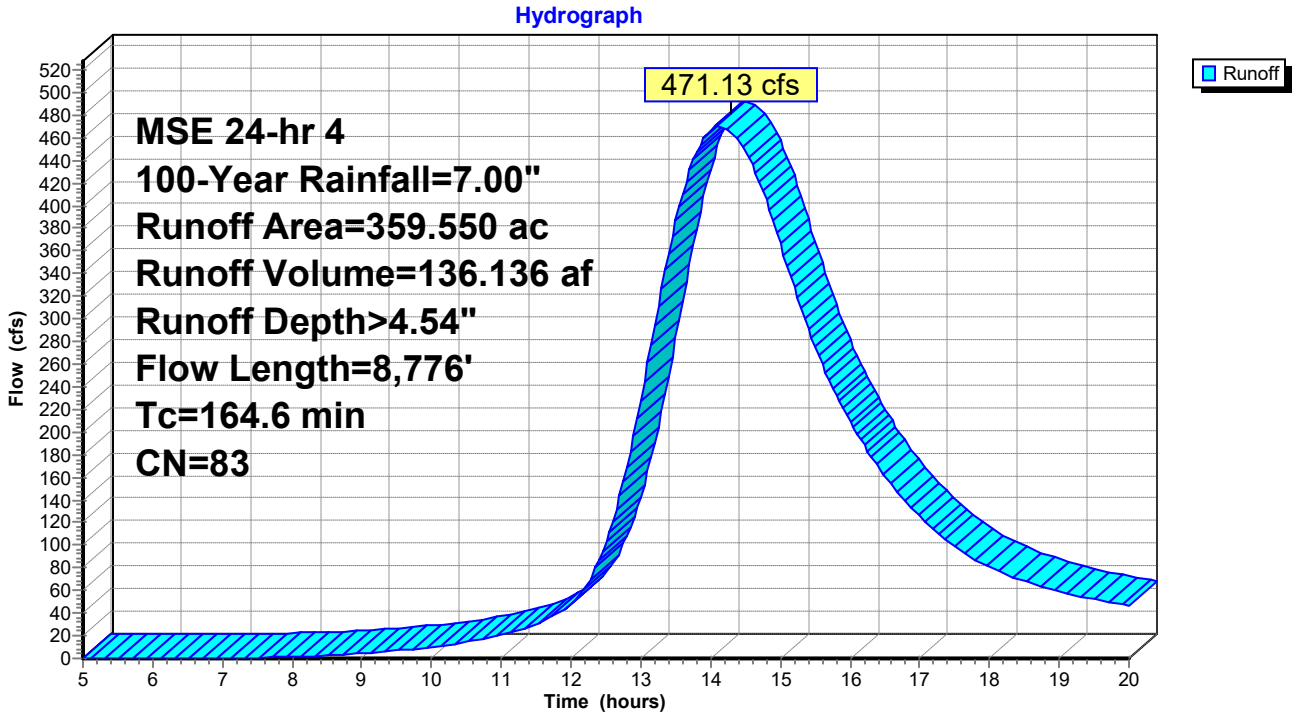
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.059	89	Row crops, straight row, good, HSG D
	93.514	80	Pasture/grassland/range, good, HSG D
	33.092	89	Row crops, straight row, good, HSG D
	17.550	80	Pasture/grassland/range, good, HSG D
	16.787	89	Row crops, straight row, good, HSG D
	15.700	89	Row crops, straight row, good, HSG D
	14.272	80	Pasture/grassland/range, good, HSG D
	11.942	89	Row crops, straight row, good, HSG D
	9.820	80	Pasture/grassland/range, good, HSG D
	9.514	86	Farmsteads, HSG D
	9.475	89	Row crops, straight row, good, HSG D
	9.437	89	Row crops, straight row, good, HSG D
	8.804	80	Pasture/grassland/range, good, HSG D
	8.390	89	Row crops, straight row, good, HSG D
	8.117	89	Row crops, straight row, good, HSG D
	8.059	77	Woods, Good, HSG D
	8.030	80	Pasture/grassland/range, good, HSG D
	7.904	89	Row crops, straight row, good, HSG D
	7.084	77	Woods, Good, HSG D
	5.894	77	Woods, Good, HSG D
	5.525	80	Pasture/grassland/range, good, HSG D
	4.960	80	Pasture/grassland/range, good, HSG D
	4.360	89	Row crops, straight row, good, HSG D
	3.704	89	Row crops, straight row, good, HSG D
	3.223	80	Pasture/grassland/range, good, HSG D
	3.142	80	Pasture/grassland/range, good, HSG D
	3.110	89	Row crops, straight row, good, HSG D
	3.071	80	Pasture/grassland/range, good, HSG D
	2.750	89	Row crops, straight row, good, HSG D
	2.468	80	Pasture/grassland/range, good, HSG D
	2.348	80	Pasture/grassland/range, good, HSG D
	1.933	89	Row crops, straight row, good, HSG D
	1.675	80	Pasture/grassland/range, good, HSG D
	1.537	89	Row crops, straight row, good, HSG D
	1.456	96	Gravel surface, HSG D
*	1.399	0	Paved; open ditches, 50% imp, HSG D
*	1.206	0	Paved; open ditches, 50% imp, HSG D
	0.856	89	Row crops, straight row, good, HSG D
	0.809	89	Row crops, straight row, good, HSG D
	0.787	77	Woods, Good, HSG D
	0.711	96	Gravel surface, HSG D
	0.637	96	Gravel surface, HSG D
	0.617	80	Pasture/grassland/range, good, HSG D
*	0.521	0	Paved; open ditches, 50% imp, HSG D
	0.440	96	Gravel surface, HSG D
	0.381	77	Woods, Good, HSG D
	0.250	89	Row crops, straight row, good, HSG D
*	0.240	0	Paved; open ditches, 50% imp, HSG D
	0.233	96	Gravel surface, HSG D
	0.224	89	Row crops, straight row, good, HSG D
	0.196	80	Pasture/grassland/range, good, HSG D

*	0.159	0	Paved; open ditches, 50% imp, HSG D
	0.141	96	Gravel surface, HSG D
*	0.128	0	Paved; open ditches, 50% imp, HSG D
	0.127	96	Gravel surface, HSG D
	0.112	89	Row crops, straight row, good, HSG D
	0.103	80	Pasture/grassland/range, good, HSG D
	0.086	96	Gravel surface, HSG D
	0.079	89	Row crops, straight row, good, HSG D
	0.078	86	Farmsteads, HSG D
	0.065	89	Row crops, straight row, good, HSG D
	0.060	96	Gravel surface, HSG D
	0.047	77	Woods, Good, HSG D
	0.043	96	Gravel surface, HSG D
	0.040	96	Gravel surface, HSG D
*	0.025	0	Paved; open ditches, 50% imp, HSG D
	0.016	96	Gravel surface, HSG D
	0.014	80	Pasture/grassland/range, good, HSG D
	0.006	86	Farmsteads, HSG D
	0.003	89	Row crops, straight row, good, HSG D
	0.002	89	Row crops, straight row, good, HSG D
	0.002	96	Gravel surface, HSG D
	359.550	83	Weighted Average
	357.711		99.49% Pervious Area
	1.839		0.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0158	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
138.4	6,684	0.0025	0.81		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
20.9	1,992	0.0031	1.59	7.96	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 15.0' r= 0.33' n= 0.025 Earth, clean & winding
164.6	8,776	Total			

Subcatchment 19: 19



Summary for Subcatchment 20: 20

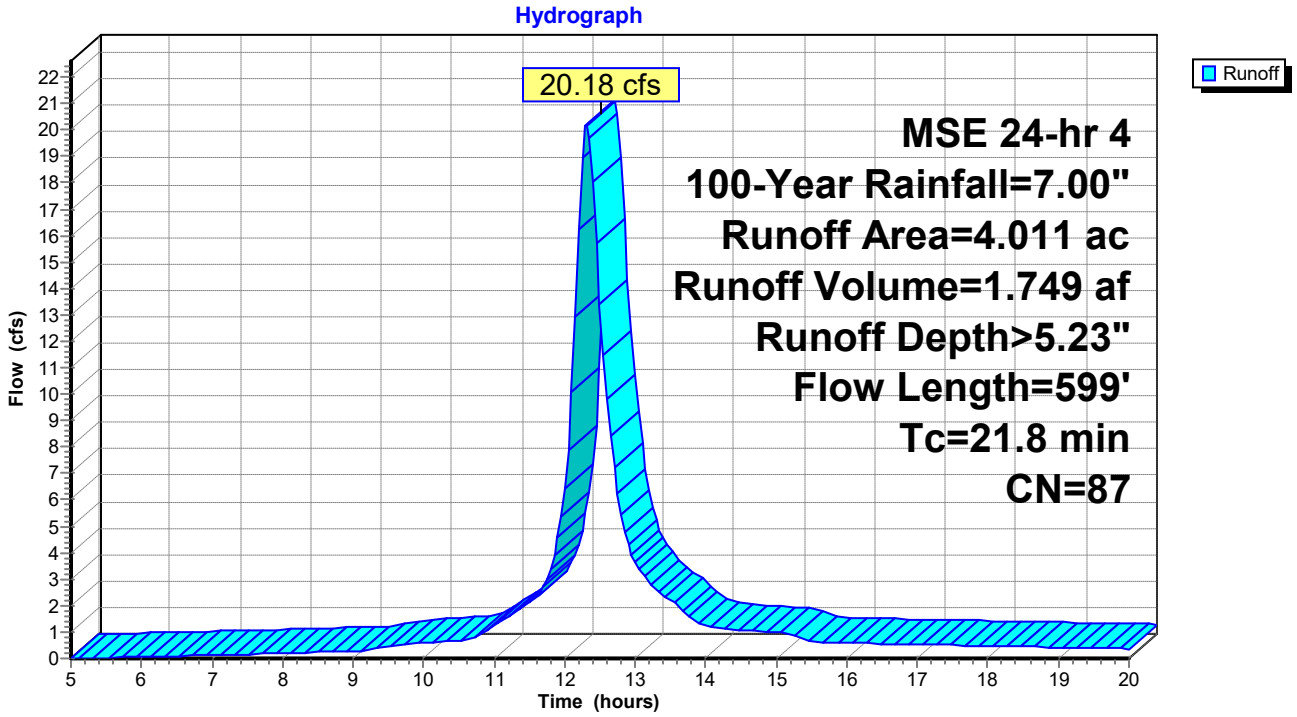
Runoff = 20.18 cfs @ 12.31 hrs, Volume= 1.749 af, Depth> 5.23"
Routed to Reach 6R : Ditch Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	1.497	89	Row crops, straight row, good, HSG D
	1.150	89	Row crops, straight row, good, HSG D
	1.032	89	Row crops, straight row, good, HSG D
	0.116	89	Row crops, straight row, good, HSG D
*	0.104	0	Paved; open ditches, 50% imp, HSG D
	0.069	89	Row crops, straight row, good, HSG D
	0.015	89	Row crops, straight row, good, HSG D
	0.012	89	Row crops, straight row, good, HSG D
	0.008	89	Row crops, straight row, good, HSG D
*	0.006	0	Paved; open ditches, 50% imp, HSG D
	0.002	89	Row crops, straight row, good, HSG D
	4.011	87	Weighted Average
	3.956		98.63% Pervious Area
	0.055		1.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
13.3	499	0.0015	0.62		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
21.8	599	Total			

Subcatchment 20: 20



Summary for Subcatchment 21: 21

[47] Hint: Peak is 811% of capacity of segment #3

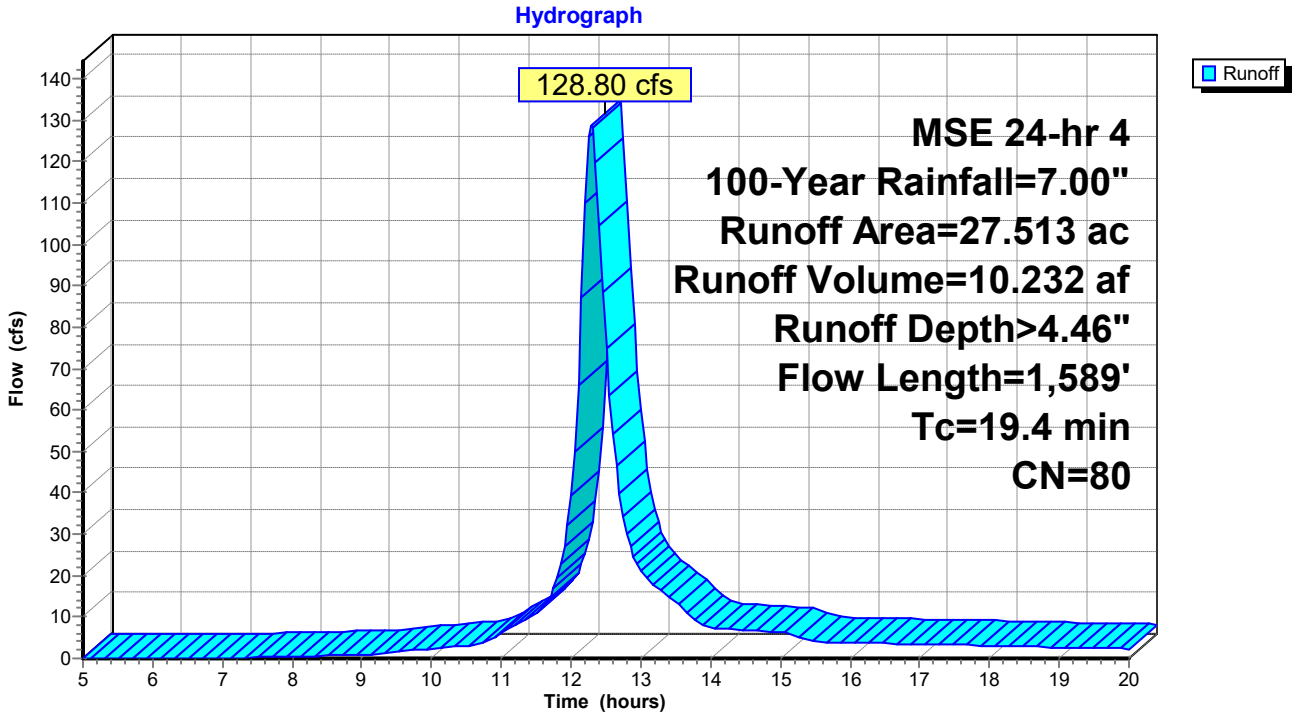
Runoff = 128.80 cfs @ 12.29 hrs, Volume= 10.232 af, Depth> 4.46"
Routed to Link 12L : 12L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	8.754	80	Pasture/grassland/range, good, HSG D
	5.992	74	Pasture/grassland/range, good, HSG C
	5.416	89	Row crops, straight row, good, HSG D
	4.071	85	Row crops, straight row, good, HSG C
	2.316	74	Pasture/grassland/range, good, HSG C
	0.503	85	Row crops, straight row, good, HSG C
	0.204	96	Gravel surface, HSG C
	0.078	96	Gravel surface, HSG C
*	0.068	0	Paved; open ditches, 50% imp, HSG C
*	0.058	0	Paved; open ditches, 50% imp, HSG C
*	0.053	0	Paved; open ditches, 50% imp, HSG D
	0.000	96	Gravel surface, HSG D
	27.513	80	Weighted Average
	27.424		99.68% Pervious Area
	0.089		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0073	0.23		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.2	1,325	0.0149	1.97		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.9	164	0.0072	3.18	15.89	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.4	1,589	Total			

Subcatchment 21: 21



Summary for Subcatchment 22: 22

[47] Hint: Peak is 1476% of capacity of segment #3

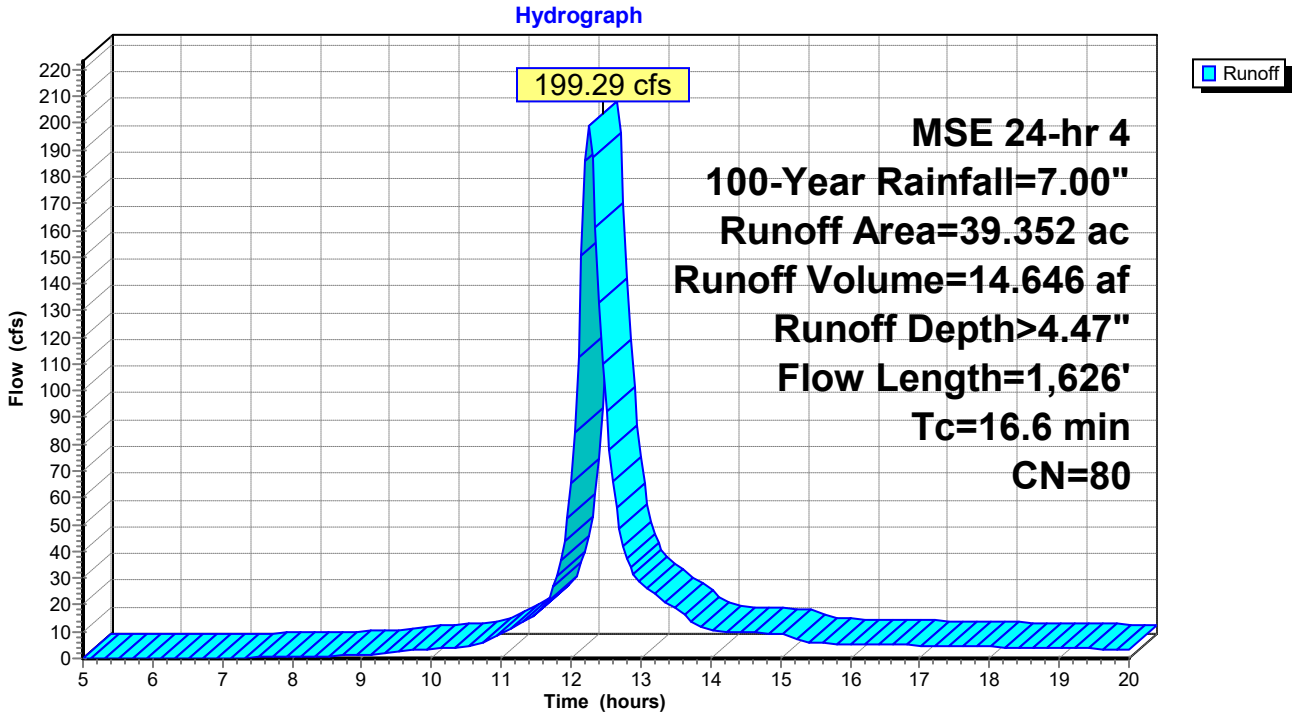
Runoff = 199.29 cfs @ 12.25 hrs, Volume= 14.646 af, Depth> 4.47"
Routed to Link 11L : 11L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	16.848	74	Pasture/grassland/range, good, HSG C
	9.939	89	Row crops, straight row, good, HSG D
	6.822	80	Pasture/grassland/range, good, HSG D
	2.885	85	Row crops, straight row, good, HSG C
	0.892	80	Pasture/grassland/range, good, HSG D
	0.623	89	Row crops, straight row, good, HSG D
	0.460	80	Pasture/grassland/range, good, HSG D
	0.326	85	Row crops, straight row, good, HSG C
*	0.284	0	Paved; open ditches, 50% imp, HSG C
	0.161	96	Gravel surface, HSG C
	0.047	96	Gravel surface, HSG C
	0.033	89	Row crops, straight row, good, HSG D
	0.027	89	Row crops, straight row, good, HSG D
	0.004	80	Pasture/grassland/range, good, HSG D
	39.352	80	Weighted Average
	39.209		99.64% Pervious Area
	0.142		0.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.0203	0.34		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
10.1	1,255	0.0164	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.7	273	0.0052	2.70	13.50	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
16.6	1,626	Total			

Subcatchment 22: 22



Summary for Subcatchment 23: 23

[47] Hint: Peak is 2189% of capacity of segment #3

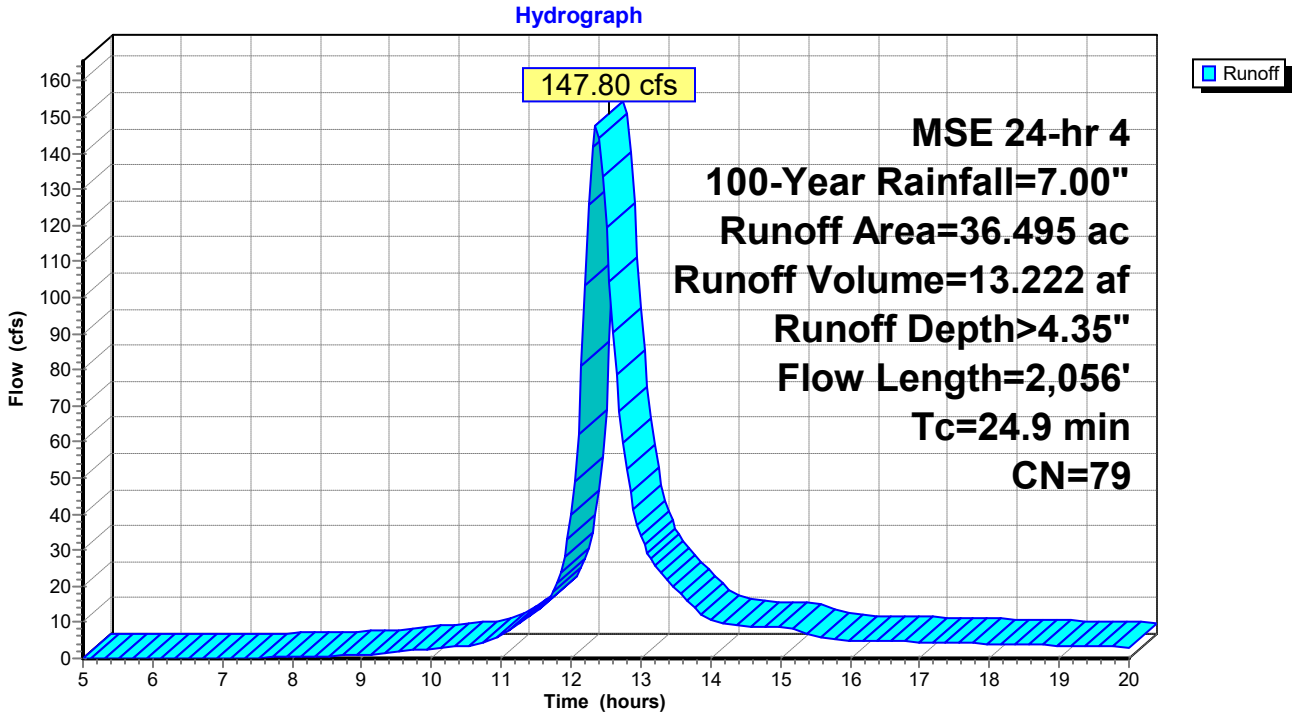
Runoff = 147.80 cfs @ 12.36 hrs, Volume= 13.222 af, Depth> 4.35"
Routed to Link 11L : 11L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	18.945	80	Pasture/grassland/range, good, HSG D
	3.759	89	Row crops, straight row, good, HSG D
	2.965	80	Pasture/grassland/range, good, HSG D
	2.631	89	Row crops, straight row, good, HSG D
	2.525	89	Row crops, straight row, good, HSG D
	1.948	89	Row crops, straight row, good, HSG D
	0.827	85	Row crops, straight row, good, HSG C
	0.653	80	Pasture/grassland/range, good, HSG D
*	0.569	0	Paved; open ditches, 50% imp, HSG D
*	0.506	0	Paved; open ditches, 50% imp, HSG D
*	0.432	0	Paved; open ditches, 50% imp, HSG D
	0.247	96	Gravel surface, HSG D
	0.220	74	Pasture/grassland/range, good, HSG C
	0.091	96	Gravel surface, HSG D
*	0.069	0	Paved; open ditches, 50% imp, HSG C
*	0.064	0	Paved; open ditches, 50% imp, HSG D
	0.027	89	Row crops, straight row, good, HSG D
*	0.016	0	Paved; open ditches, 50% imp, HSG D
*	0.002	0	Paved; open ditches, 50% imp, HSG D
	0.001	89	Row crops, straight row, good, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	36.495	79	Weighted Average
	35.667		97.73% Pervious Area
	0.829		2.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	97	0.0366	0.43		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
14.9	1,451	0.0101	1.62		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
6.3	508	0.0013	1.35	6.75	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
24.9	2,056	Total			

Subcatchment 23: 23



Summary for Subcatchment 24: 24

[47] Hint: Peak is 729% of capacity of segment #3

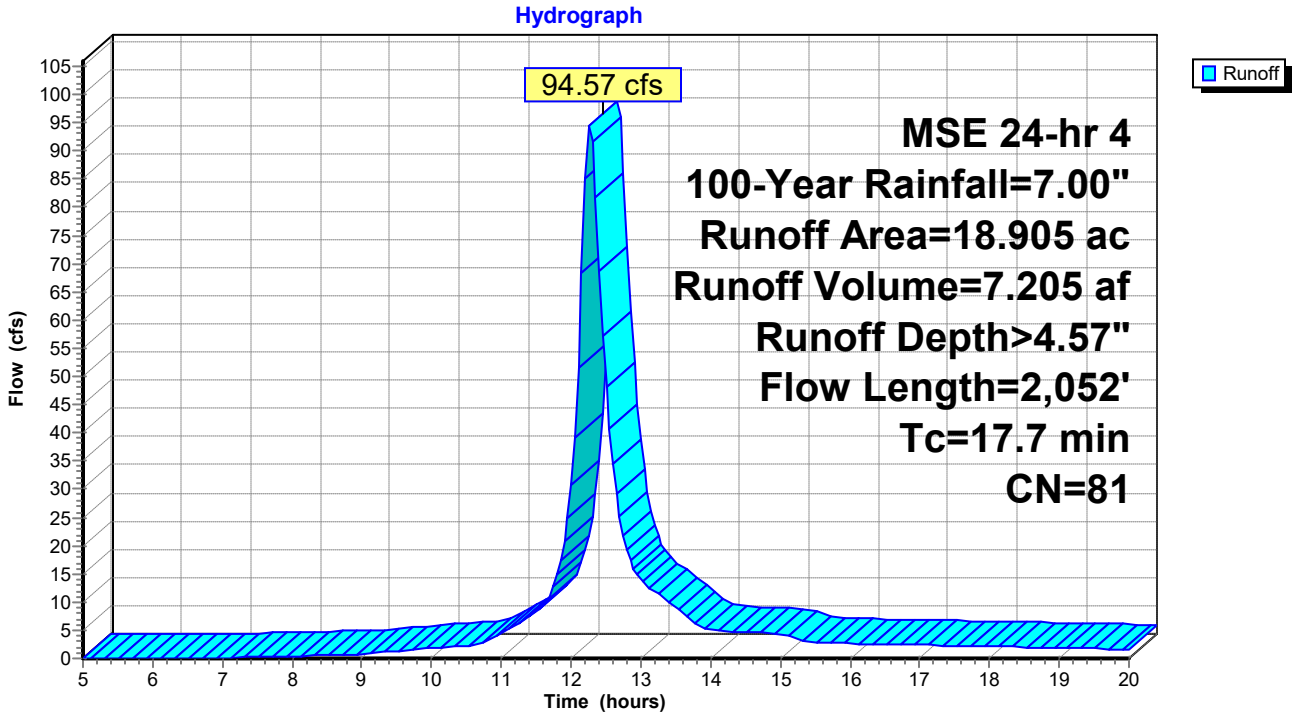
Runoff = 94.57 cfs @ 12.26 hrs, Volume= 7.205 af, Depth> 4.57"
Routed to Pond 6P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.787	80	Pasture/grassland/range, good, HSG D
2.954	80	Pasture/grassland/range, good, HSG D
2.666	80	Pasture/grassland/range, good, HSG D
2.309	80	Pasture/grassland/range, good, HSG D
1.161	89	Row crops, straight row, good, HSG D
0.934	89	Row crops, straight row, good, HSG D
0.687	80	Pasture/grassland/range, good, HSG D
0.275	80	Pasture/grassland/range, good, HSG D
0.226	80	Pasture/grassland/range, good, HSG D
0.224	96	Gravel surface, HSG D
0.208	80	Pasture/grassland/range, good, HSG D
0.116	85	Row crops, straight row, good, HSG C
0.083	89	Row crops, straight row, good, HSG D
0.067	80	Pasture/grassland/range, good, HSG D
0.057	80	Pasture/grassland/range, good, HSG D
0.043	80	Pasture/grassland/range, good, HSG D
0.042	89	Row crops, straight row, good, HSG D
0.041	80	Pasture/grassland/range, good, HSG D
0.024	96	Gravel surface, HSG D
0.000	80	Pasture/grassland/range, good, HSG D
18.905	81	Weighted Average
18.905		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0176	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.7	406	0.0240	2.49		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.9	1,546	0.0048	2.59	12.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
17.7	2,052	Total			

Subcatchment 24: 24



Summary for Subcatchment 25: 25

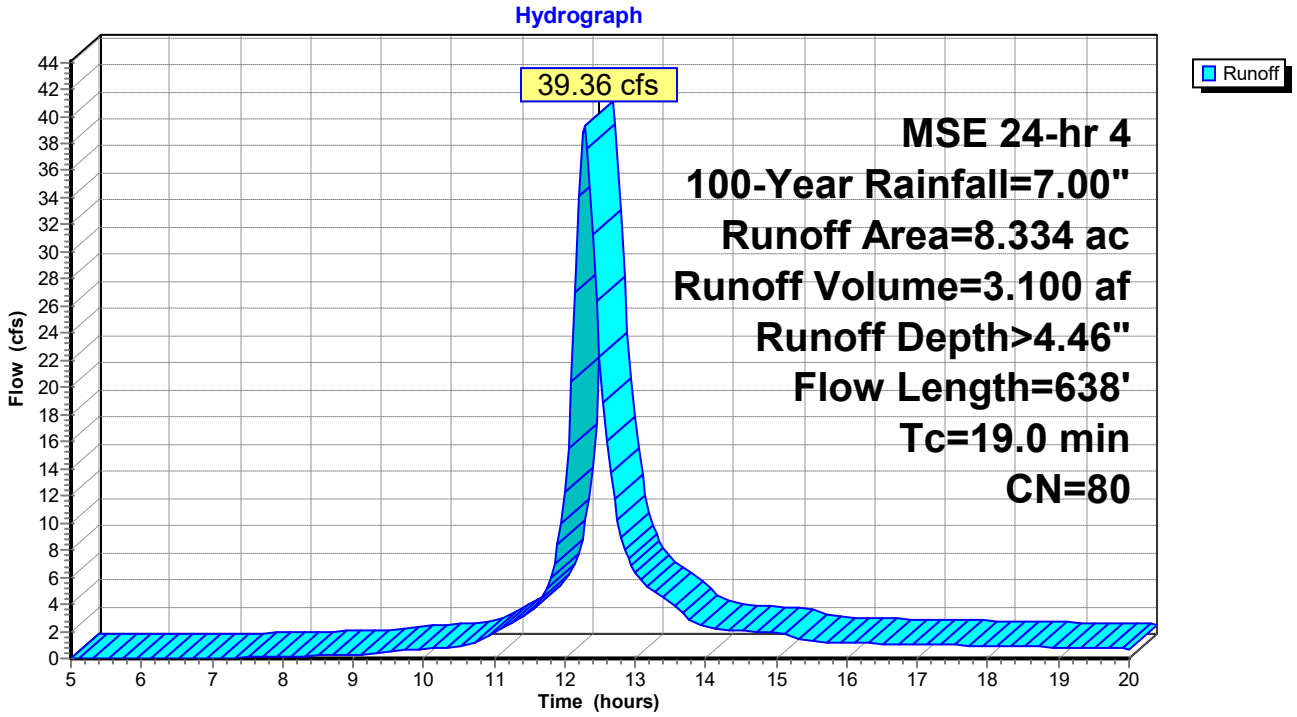
Runoff = 39.36 cfs @ 12.28 hrs, Volume= 3.100 af, Depth> 4.46"
Routed to Pond 5P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	2.312	80	Pasture/grassland/range, good, HSG D
	2.154	89	Row crops, straight row, good, HSG D
	1.310	80	Pasture/grassland/range, good, HSG D
	0.774	89	Row crops, straight row, good, HSG D
	0.570	80	Pasture/grassland/range, good, HSG D
	0.395	80	Pasture/grassland/range, good, HSG D
*	0.291	0	Paved; open ditches, 50% imp, HSG D
	0.188	80	Pasture/grassland/range, good, HSG D
	0.187	80	Pasture/grassland/range, good, HSG D
	0.077	96	Gravel surface, HSG D
	0.024	80	Pasture/grassland/range, good, HSG D
*	0.015	0	Paved; open ditches, 50% imp, HSG D
*	0.015	0	Paved; open ditches, 50% imp, HSG D
	0.014	96	Gravel surface, HSG D
	0.008	80	Pasture/grassland/range, good, HSG D
	8.334	80	Weighted Average
	8.173		98.07% Pervious Area
	0.160		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0107	0.11		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
4.0	538	0.0195	2.25		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.0	638	Total			

Subcatchment 25: 25



Summary for Subcatchment 26: 26

[47] Hint: Peak is 312% of capacity of segment #3

Runoff = 66.32 cfs @ 12.31 hrs, Volume= 5.415 af, Depth> 3.93"
Routed to Pond 4P : Culvert Crossing

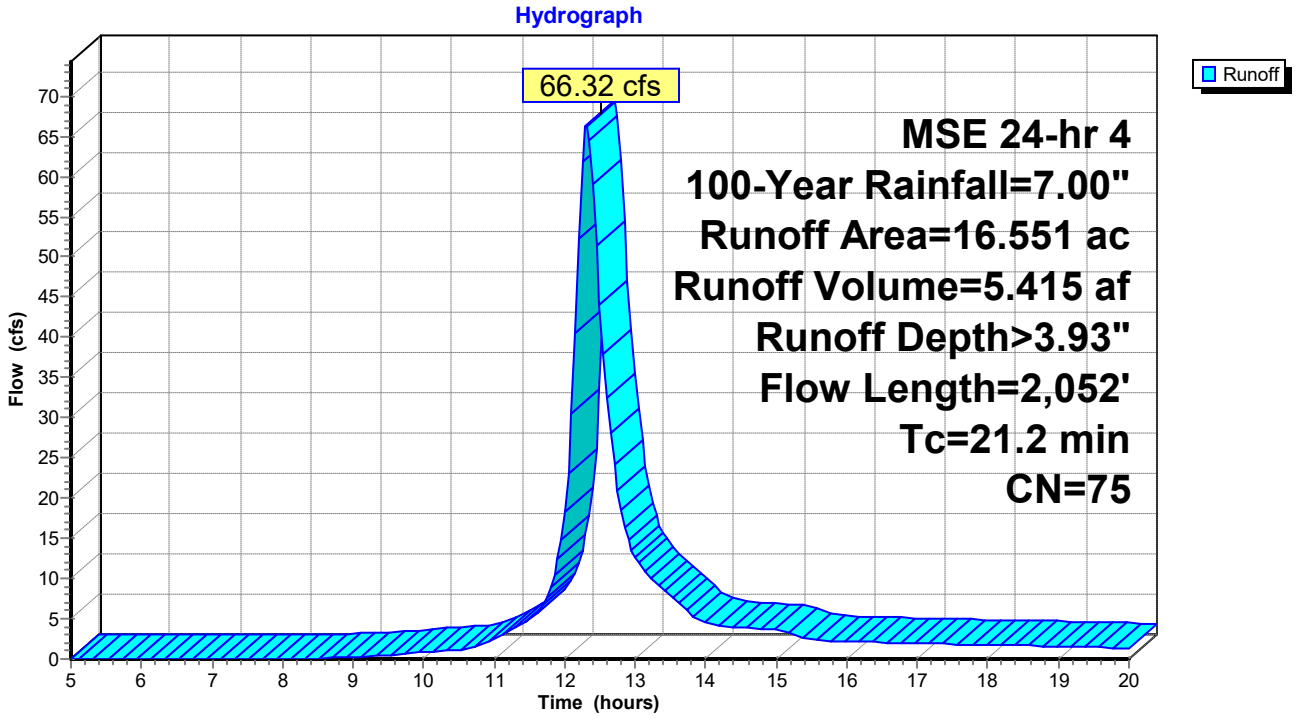
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.914	80	Pasture/grassland/range, good, HSG D
	2.150	80	Pasture/grassland/range, good, HSG D
	1.935	80	Pasture/grassland/range, good, HSG D
	1.388	80	Pasture/grassland/range, good, HSG D
	0.913	89	Row crops, straight row, good, HSG D
	0.857	89	Row crops, straight row, good, HSG D
	0.748	89	Row crops, straight row, good, HSG D
*	0.688	0	Paved; open ditches, 50% imp, HSG D
	0.655	80	Pasture/grassland/range, good, HSG D
*	0.567	0	Paved; open ditches, 50% imp, HSG D
	0.543	80	Pasture/grassland/range, good, HSG D
	0.459	85	Row crops, straight row, good, HSG C
	0.380	85	Row crops, straight row, good, HSG C
	0.353	89	Row crops, straight row, good, HSG D
	0.191	80	Pasture/grassland/range, good, HSG D
	0.149	89	Row crops, straight row, good, HSG D
	0.136	74	Pasture/grassland/range, good, HSG C
*	0.136	0	Paved; open ditches, 50% imp, HSG D
*	0.133	0	Paved; open ditches, 50% imp, HSG C
	0.067	96	Gravel surface, HSG D
	0.060	89	Row crops, straight row, good, HSG D
	0.056	85	Row crops, straight row, good, HSG C
	0.025	96	Gravel surface, HSG D
	0.020	80	Pasture/grassland/range, good, HSG D
	0.014	80	Pasture/grassland/range, good, HSG D
*	0.008	0	Paved; open ditches, 50% imp, HSG D
*	0.006	0	Paved; open ditches, 50% imp, HSG D
	16.551	75	Weighted Average
	15.781		95.35% Pervious Area
	0.769		4.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0269	0.16		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
6.5	844	0.0183	2.18		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.3	1,108	0.0129	4.25	21.26	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding

21.2 2,052 Total

Subcatchment 26: 26



Summary for Subcatchment 27: 27

[47] Hint: Peak is 644% of capacity of segment #3

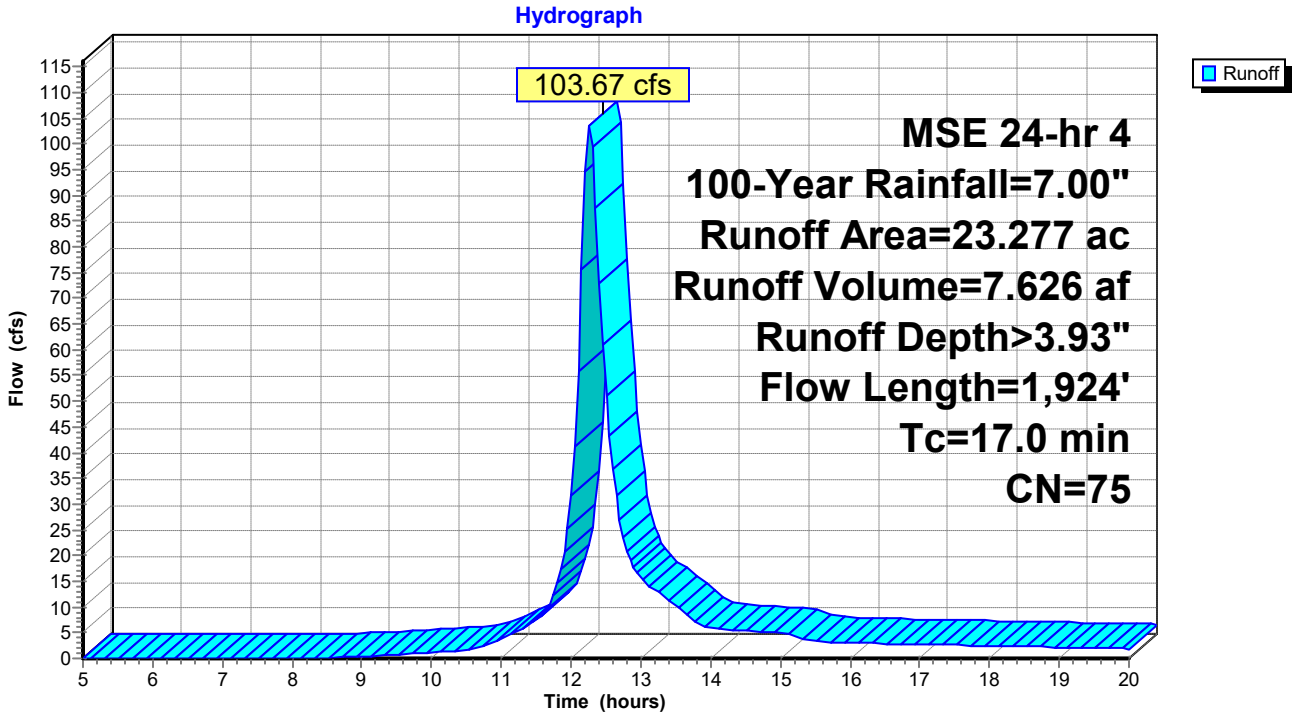
Runoff = 103.67 cfs @ 12.26 hrs, Volume= 7.626 af, Depth> 3.93"
Routed to Pond 4P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	7.253	80	Pasture/grassland/range, good, HSG D
	3.299	89	Row crops, straight row, good, HSG D
	2.747	85	Row crops, straight row, good, HSG C
	1.852	39	Pasture/grassland/range, good, HSG A
	1.616	80	Pasture/grassland/range, good, HSG D
	1.511	39	Pasture/grassland/range, good, HSG A
	1.478	74	Pasture/grassland/range, good, HSG C
	1.419	80	Pasture/grassland/range, good, HSG D
	0.837	80	Pasture/grassland/range, good, HSG D
	0.250	96	Gravel surface, HSG A
	0.219	39	Pasture/grassland/range, good, HSG A
	0.186	85	Row crops, straight row, good, HSG C
	0.171	96	Gravel surface, HSG D
	0.164	80	Pasture/grassland/range, good, HSG D
	0.068	39	Pasture/grassland/range, good, HSG A
	0.064	80	Pasture/grassland/range, good, HSG D
	0.058	96	Gravel surface, HSG D
	0.039	80	Pasture/grassland/range, good, HSG D
*	0.032	0	Paved; open ditches, 50% imp, HSG D
	0.007	96	Gravel surface, HSG D
*	0.005	0	Paved; open ditches, 50% imp, HSG D
	0.003	96	Gravel surface, HSG D
	0.000	85	Row crops, straight row, good, HSG C
	23.277	75	Weighted Average
	23.258		99.92% Pervious Area
	0.018		0.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	95	0.0357	0.43		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.3	1,446	0.0175	2.13		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.0	383	0.0074	3.22	16.11	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
17.0	1,924	Total			

Subcatchment 27: 27



Summary for Subcatchment 28: 28

[47] Hint: Peak is 480% of capacity of segment #3

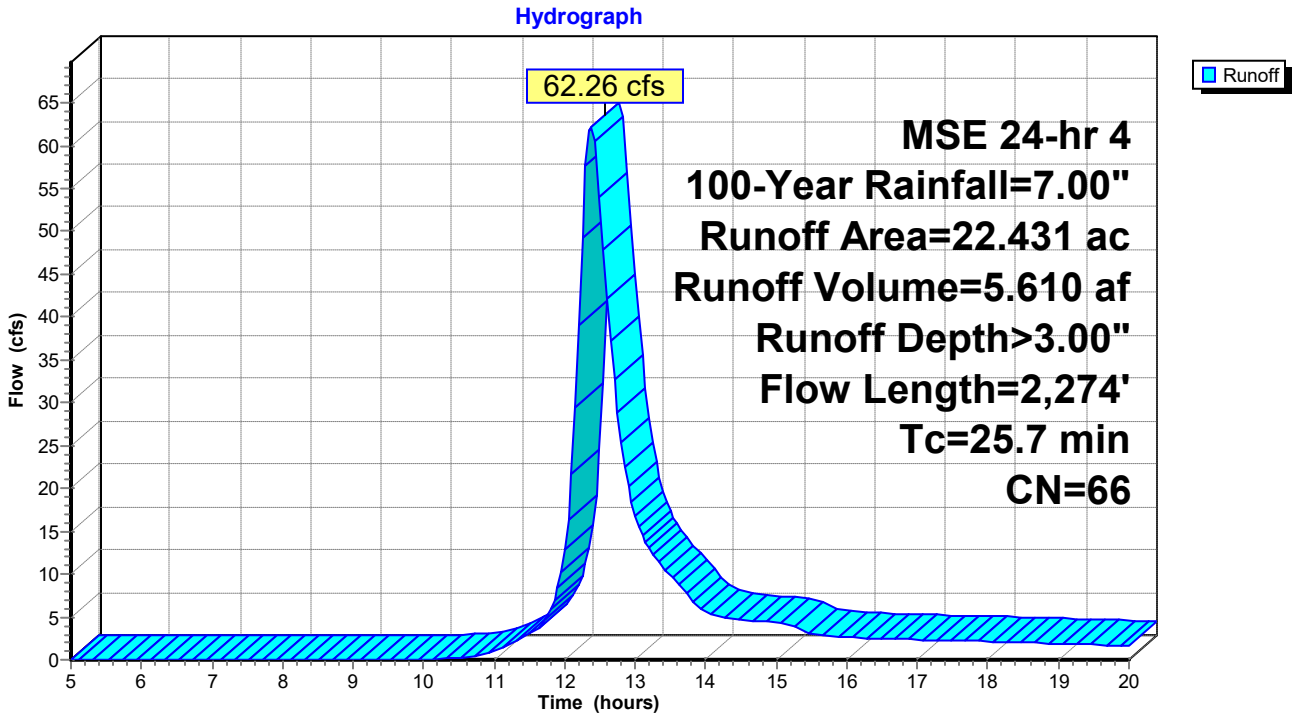
Runoff = 62.26 cfs @ 12.38 hrs, Volume= 5.610 af, Depth> 3.00"
Routed to Link 3L : 3L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.750	80	Pasture/grassland/range, good, HSG D
3.447	39	Pasture/grassland/range, good, HSG A
2.506	39	Pasture/grassland/range, good, HSG A
2.403	74	Pasture/grassland/range, good, HSG C
1.706	74	Pasture/grassland/range, good, HSG C
1.377	89	Row crops, straight row, good, HSG D
1.173	85	Row crops, straight row, good, HSG C
0.869	61	Pasture/grassland/range, good, HSG B
0.826	39	Pasture/grassland/range, good, HSG A
0.671	80	Pasture/grassland/range, good, HSG D
0.624	80	Pasture/grassland/range, good, HSG D
0.611	61	Pasture/grassland/range, good, HSG B
0.516	61	Pasture/grassland/range, good, HSG B
0.279	74	Pasture/grassland/range, good, HSG C
0.240	96	Gravel surface, HSG C
0.213	96	Gravel surface, HSG A
0.205	74	Pasture/grassland/range, good, HSG C
0.179	74	Pasture/grassland/range, good, HSG C
0.153	85	Row crops, straight row, good, HSG C
0.111	96	Gravel surface, HSG D
0.107	39	Pasture/grassland/range, good, HSG A
0.101	96	Gravel surface, HSG B
0.090	74	Pasture/grassland/range, good, HSG C
0.067	74	Pasture/grassland/range, good, HSG C
0.065	61	Pasture/grassland/range, good, HSG B
0.044	61	Pasture/grassland/range, good, HSG B
0.036	78	Row crops, straight row, good, HSG B
0.031	89	Row crops, straight row, good, HSG D
0.015	85	Row crops, straight row, good, HSG C
0.010	96	Gravel surface, HSG B
0.006	85	Row crops, straight row, good, HSG C
0.001	85	Row crops, straight row, good, HSG C
22.431	66	Weighted Average
22.431		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	99	0.0201	0.34		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
18.5	1,808	0.0102	1.63		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.4	367	0.0048	2.59	12.97	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.7	2,274	Total			

Subcatchment 28: 28



Summary for Subcatchment 29: 29

[47] Hint: Peak is 710% of capacity of segment #3

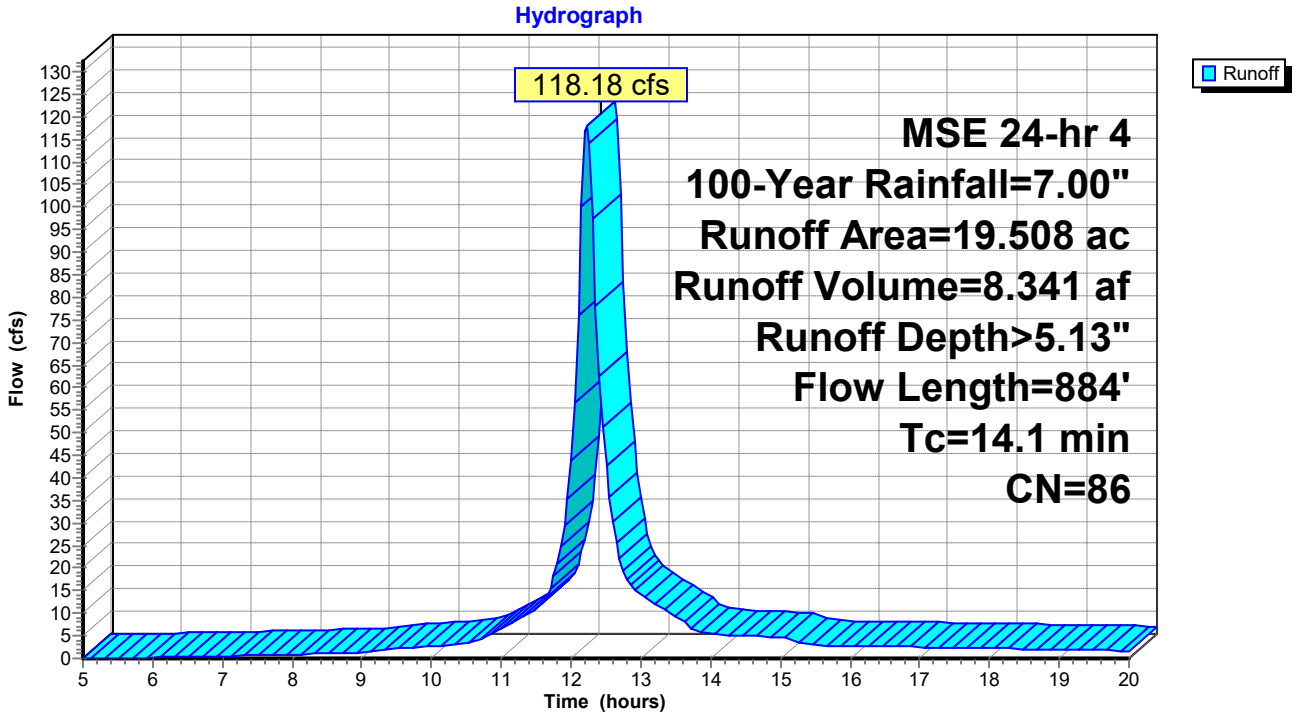
Runoff = 118.18 cfs @ 12.22 hrs, Volume= 8.341 af, Depth> 5.13"
Routed to Link 4L : 4L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
12.540	89	Row crops, straight row, good, HSG D
6.661	80	Pasture/grassland/range, good, HSG D
0.306	89	Row crops, straight row, good, HSG D
19.508	86	Weighted Average
19.508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.4	552	0.0166	2.07		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.2	232	0.0079	3.33	16.64	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
14.1	884	Total			

Subcatchment 29: 29



Summary for Subcatchment 30: 30

[47] Hint: Peak is 743% of capacity of segment #3

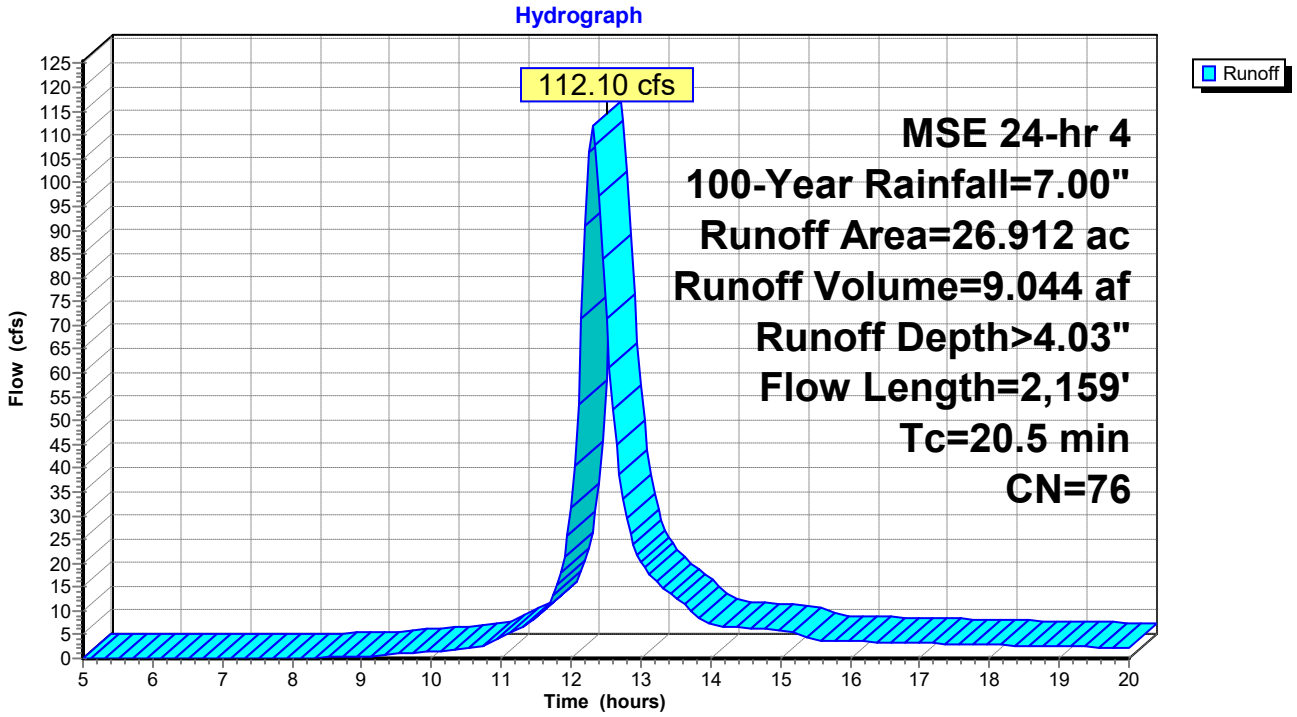
Runoff = 112.10 cfs @ 12.30 hrs, Volume= 9.044 af, Depth> 4.03"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
15.969	74	Pasture/grassland/range, good, HSG C
3.030	80	Pasture/grassland/range, good, HSG D
2.028	61	Pasture/grassland/range, good, HSG B
1.397	89	Row crops, straight row, good, HSG D
1.327	80	Pasture/grassland/range, good, HSG D
0.927	78	Row crops, straight row, good, HSG B
0.757	89	Row crops, straight row, good, HSG D
0.746	85	Row crops, straight row, good, HSG C
0.341	85	Row crops, straight row, good, HSG C
0.222	96	Gravel surface, HSG B
0.168	96	Gravel surface, HSG C
26.912	76	Weighted Average
26.912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0512	0.50		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.6	1,037	0.0085	1.48		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.6	1,022	0.0065	3.02	15.09	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
20.5	2,159	Total			

Subcatchment 30: 30



Summary for Subcatchment 31: 31

[47] Hint: Peak is 629% of capacity of segment #3

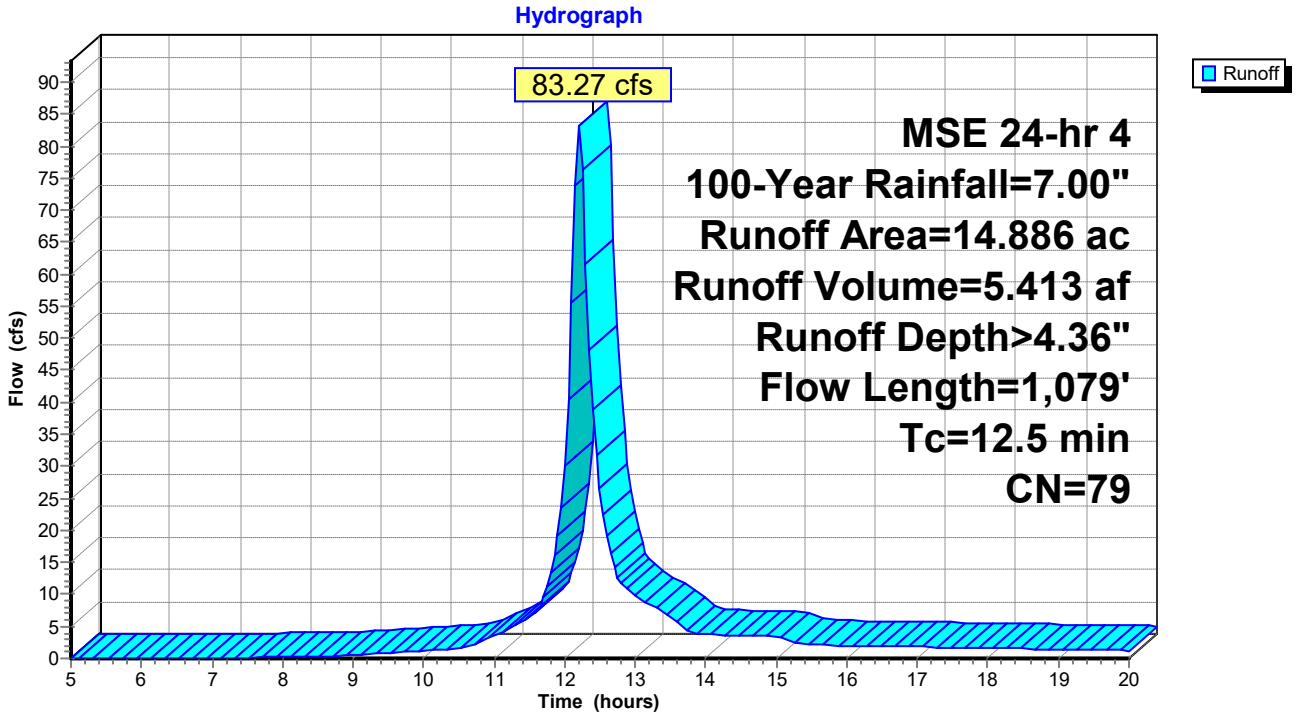
Runoff = 83.27 cfs @ 12.20 hrs, Volume= 5.413 af, Depth> 4.36"
Routed to Reach 3R : Drainage Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.439	74	Pasture/grassland/range, good, HSG C
2.355	74	Pasture/grassland/range, good, HSG C
2.083	85	Row crops, straight row, good, HSG C
1.993	85	Row crops, straight row, good, HSG C
1.596	85	Row crops, straight row, good, HSG C
0.875	74	Pasture/grassland/range, good, HSG C
0.821	86	Farmsteads, HSG D
0.318	74	Pasture/grassland/range, good, HSG C
0.292	82	Farmsteads, HSG C
0.043	89	Row crops, straight row, good, HSG D
0.042	82	Farmsteads, HSG C
0.027	74	Pasture/grassland/range, good, HSG C
14.886	79	Weighted Average
14.886		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.0440	0.47		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
6.7	611	0.0089	1.52		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	368	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
12.5	1,079	Total			

Subcatchment 31: 31



Summary for Subcatchment 32: 32

[47] Hint: Peak is 353% of capacity of segment #3

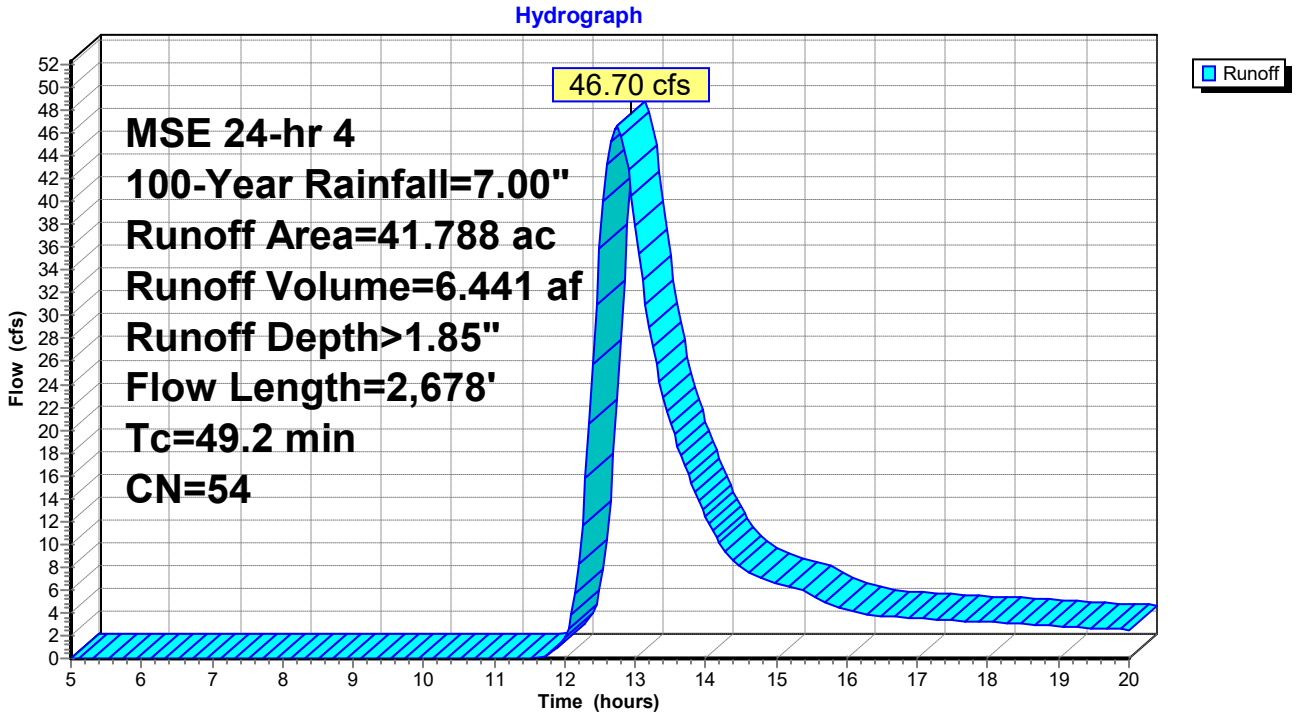
Runoff = 46.70 cfs @ 12.74 hrs, Volume= 6.441 af, Depth> 1.85"
Routed to Link 3L : 3L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	23.586	67	Row crops, straight row, good, HSG A
	17.358	39	Pasture/grassland/range, good, HSG A
*	0.707	0	Paved; open ditches, 50% imp, HSG A
	0.137	67	Row crops, straight row, good, HSG A
	41.788	54	Weighted Average
	41.435		99.15% Pervious Area
	0.353		0.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.9	100	0.0025	0.06		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
11.6	886	0.0063	1.28		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
10.7	1,692	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
49.2	2,678	Total			

Subcatchment 32: 32



Summary for Subcatchment 33: 33

[47] Hint: Peak is 305% of capacity of segment #3

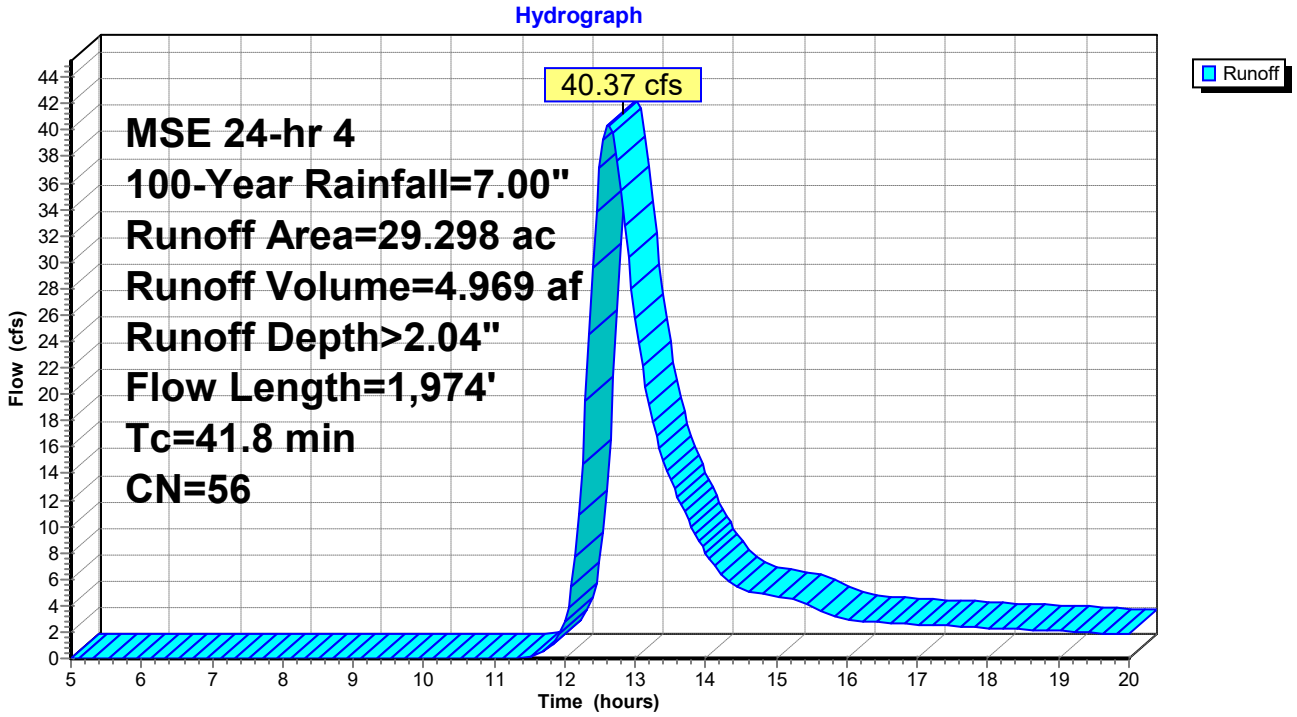
Runoff = 40.37 cfs @ 12.62 hrs, Volume= 4.969 af, Depth> 2.04"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	8.088	39	Pasture/grassland/range, good, HSG A
	7.928	67	Row crops, straight row, good, HSG A
	6.198	67	Row crops, straight row, good, HSG A
	2.658	39	Pasture/grassland/range, good, HSG A
	1.439	67	Row crops, straight row, good, HSG A
	1.316	89	Row crops, straight row, good, HSG D
*	0.653	0	Paved; open ditches, 50% imp, HSG A
	0.633	67	Row crops, straight row, good, HSG A
	0.127	67	Row crops, straight row, good, HSG A
	0.123	96	Gravel surface, HSG A
	0.083	96	Gravel surface, HSG A
	0.047	96	Gravel surface, HSG A
*	0.004	0	Paved; open ditches, 50% imp, HSG A
	29.298	56	Weighted Average
	28.970		98.88% Pervious Area
	0.328		1.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0054	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
17.9	1,226	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.1	648	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.8	1,974	Total			

Subcatchment 33: 33



Summary for Subcatchment 34: 34

[47] Hint: Peak is 176% of capacity of segment #3

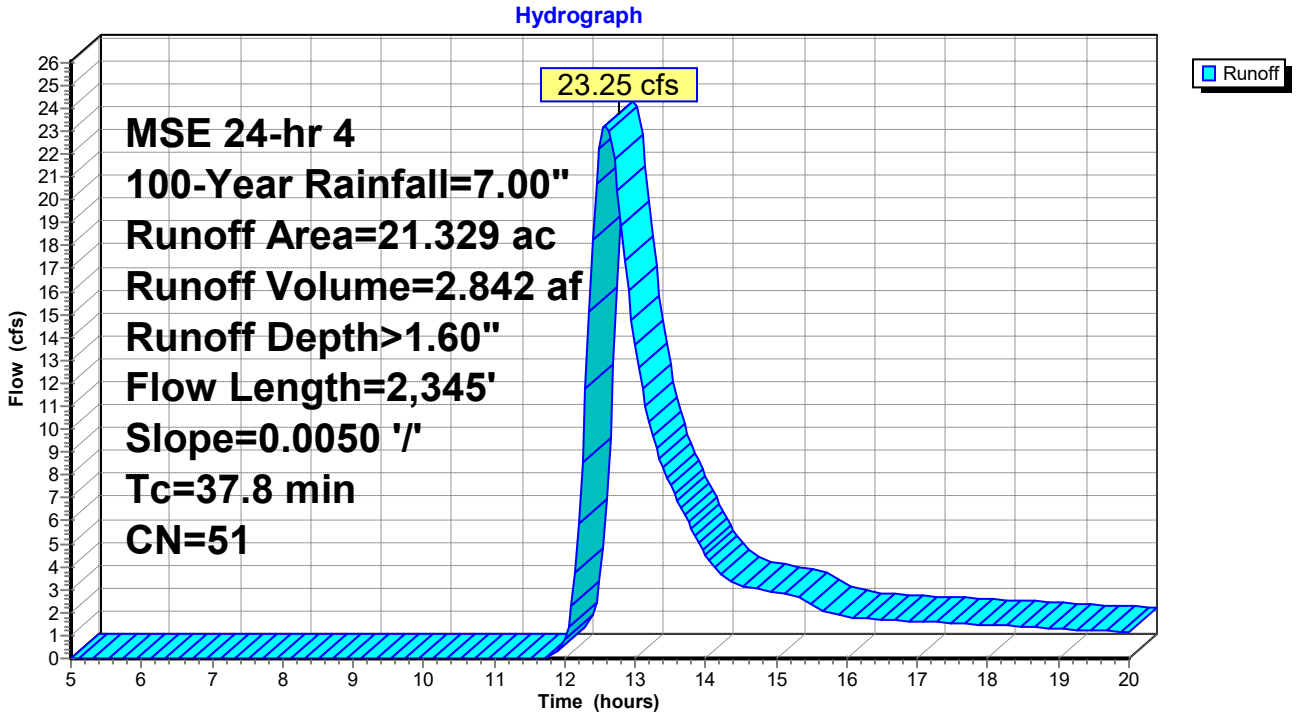
Runoff = 23.25 cfs @ 12.58 hrs, Volume= 2.842 af, Depth> 1.60"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	9.995	39	Pasture/grassland/range, good, HSG A
	8.563	67	Row crops, straight row, good, HSG A
	1.304	67	Row crops, straight row, good, HSG A
*	0.564	0	Paved; open ditches, 50% imp, HSG A
*	0.487	0	Paved; open ditches, 50% imp, HSG A
	0.154	96	Gravel surface, HSG A
	0.122	89	Row crops, straight row, good, HSG D
	0.087	39	Pasture/grassland/range, good, HSG A
*	0.024	0	Paved; open ditches, 50% imp, HSG A
	0.018	96	Gravel surface, HSG A
*	0.010	0	Paved; open ditches, 50% imp, HSG A
	0.001	89	Row crops, straight row, good, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	0.000	80	Pasture/grassland/range, good, HSG D
	21.329	51	Weighted Average
	20.786		97.46% Pervious Area
	0.542		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
26.6	1,817	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.7	428	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
37.8	2,345	Total			

Subcatchment 34: 34



Summary for Subcatchment 35: 35

[47] Hint: Peak is 254% of capacity of segment #3

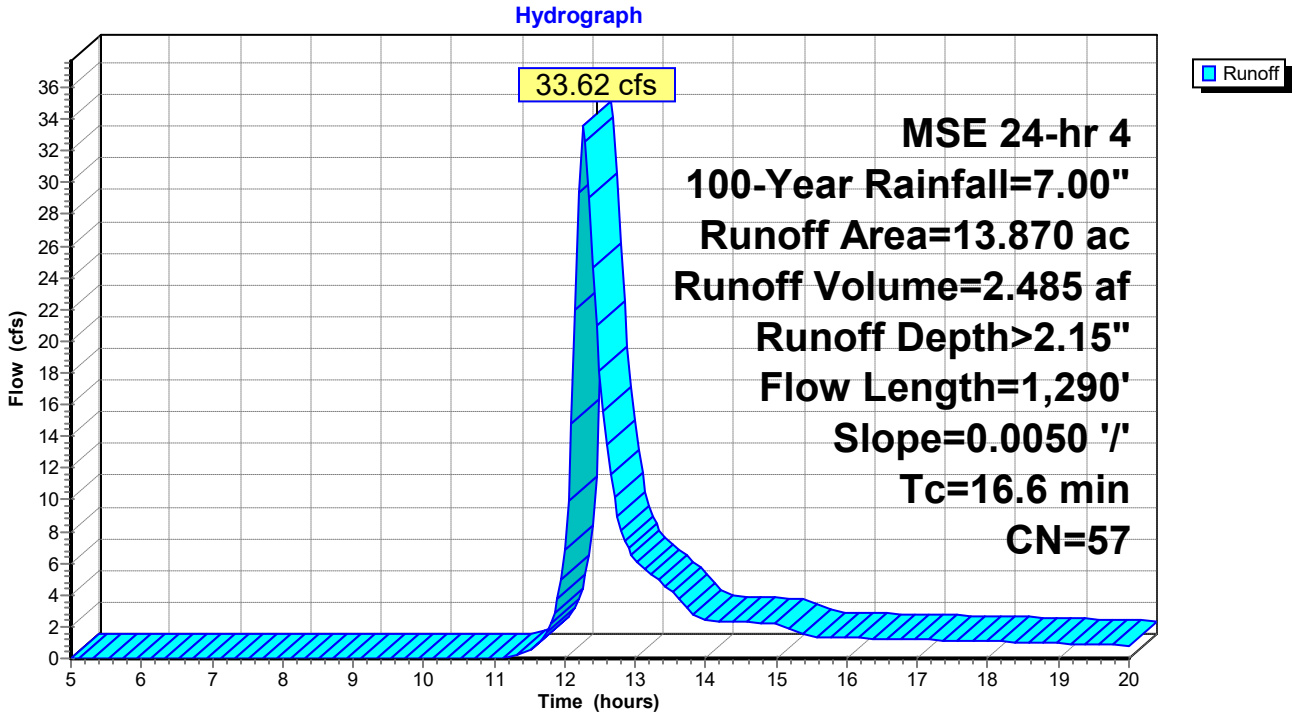
Runoff = 33.62 cfs @ 12.27 hrs, Volume= 2.485 af, Depth> 2.15"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	4.507	67	Row crops, straight row, good, HSG A
	3.124	39	Pasture/grassland/range, good, HSG A
	2.567	39	Pasture/grassland/range, good, HSG A
	1.654	74	Pasture/grassland/range, good, HSG C
	1.358	74	Pasture/grassland/range, good, HSG C
*	0.247	0	Paved; open ditches, 50% imp, HSG A
	0.216	96	Gravel surface, HSG A
	0.180	96	Gravel surface, HSG C
	0.016	80	Pasture/grassland/range, good, HSG D
	0.000	74	Pasture/grassland/range, good, HSG C
	13.870	57	Weighted Average
	13.746		99.11% Pervious Area
	0.124		0.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
1.1	76	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.0	1,114	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
16.6	1,290	Total			

Subcatchment 35: 35



Summary for Subcatchment 36: 36

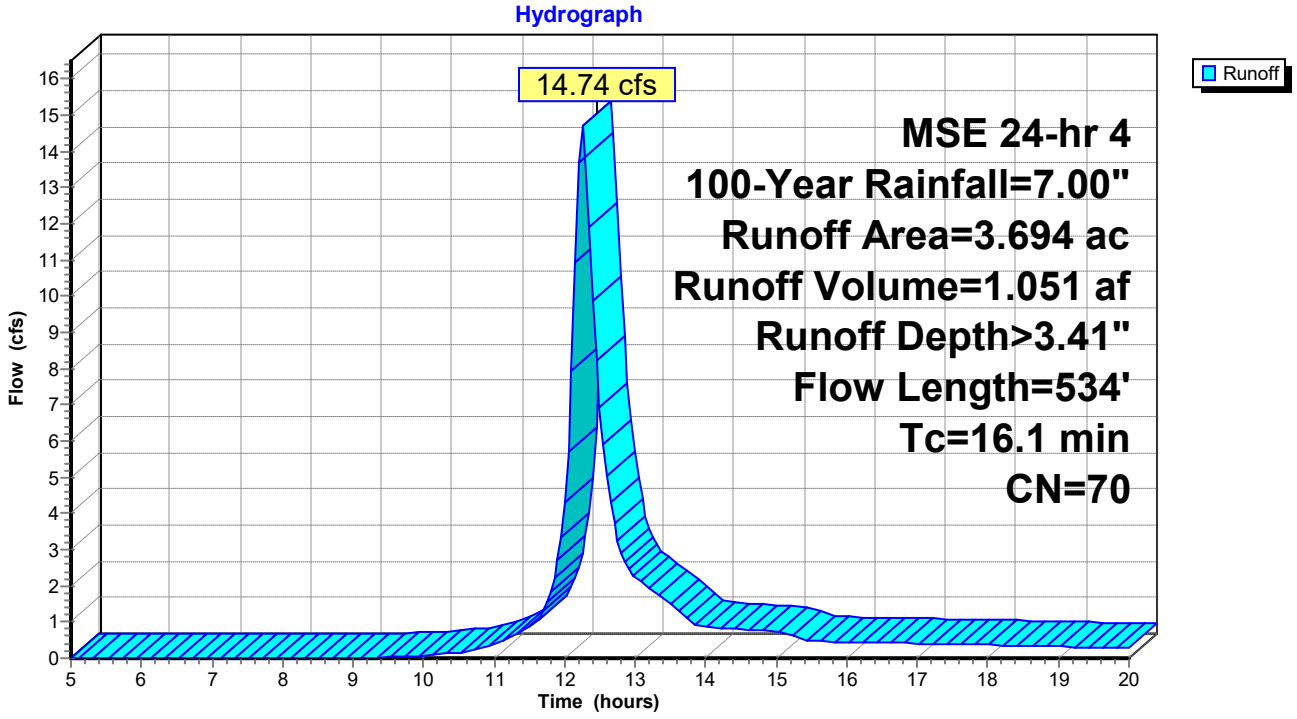
Runoff = 14.74 cfs @ 12.25 hrs, Volume= 1.051 af, Depth> 3.41"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
2.161	74	Pasture/grassland/range, good, HSG C
0.689	85	Row crops, straight row, good, HSG C
0.592	39	Pasture/grassland/range, good, HSG A
0.253	67	Row crops, straight row, good, HSG A
0.000	39	Pasture/grassland/range, good, HSG A
3.694	70	Weighted Average
3.694		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
7.6	434	0.0035	0.95		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
16.1	534	Total			

Subcatchment 36: 36



Summary for Subcatchment 37: 37

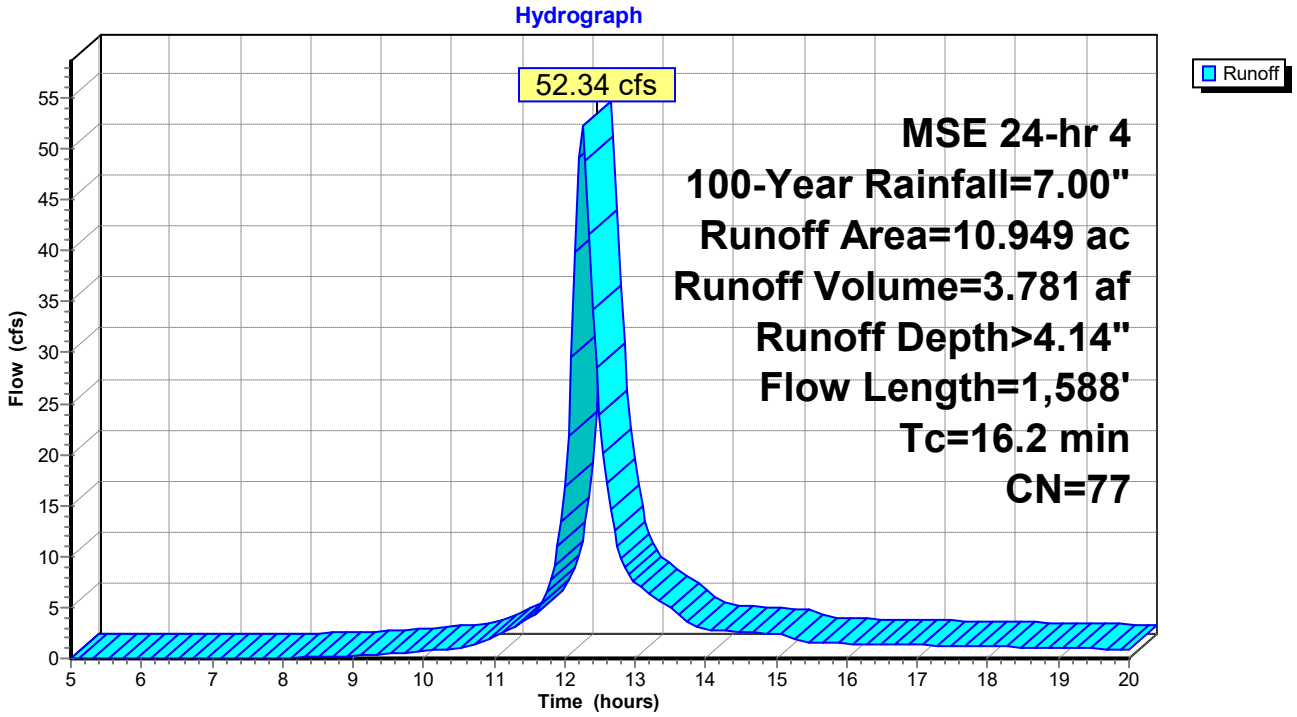
Runoff = 52.34 cfs @ 12.25 hrs, Volume= 3.781 af, Depth> 4.14"
Routed to Reach 2R : Drainage Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
7.039	74	Pasture/grassland/range, good, HSG C
1.384	85	Row crops, straight row, good, HSG C
1.293	80	Pasture/grassland/range, good, HSG D
0.689	89	Row crops, straight row, good, HSG D
0.382	74	Pasture/grassland/range, good, HSG C
0.158	96	Gravel surface, HSG C
0.004	74	Pasture/grassland/range, good, HSG C
0.000	74	Pasture/grassland/range, good, HSG C
10.949	77	Weighted Average
10.949		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0258	0.38		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
11.8	1,488	0.0171	2.11		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
16.2	1,588	Total			

Subcatchment 37: 37



Summary for Subcatchment 38: 38

[47] Hint: Peak is 551% of capacity of segment #3

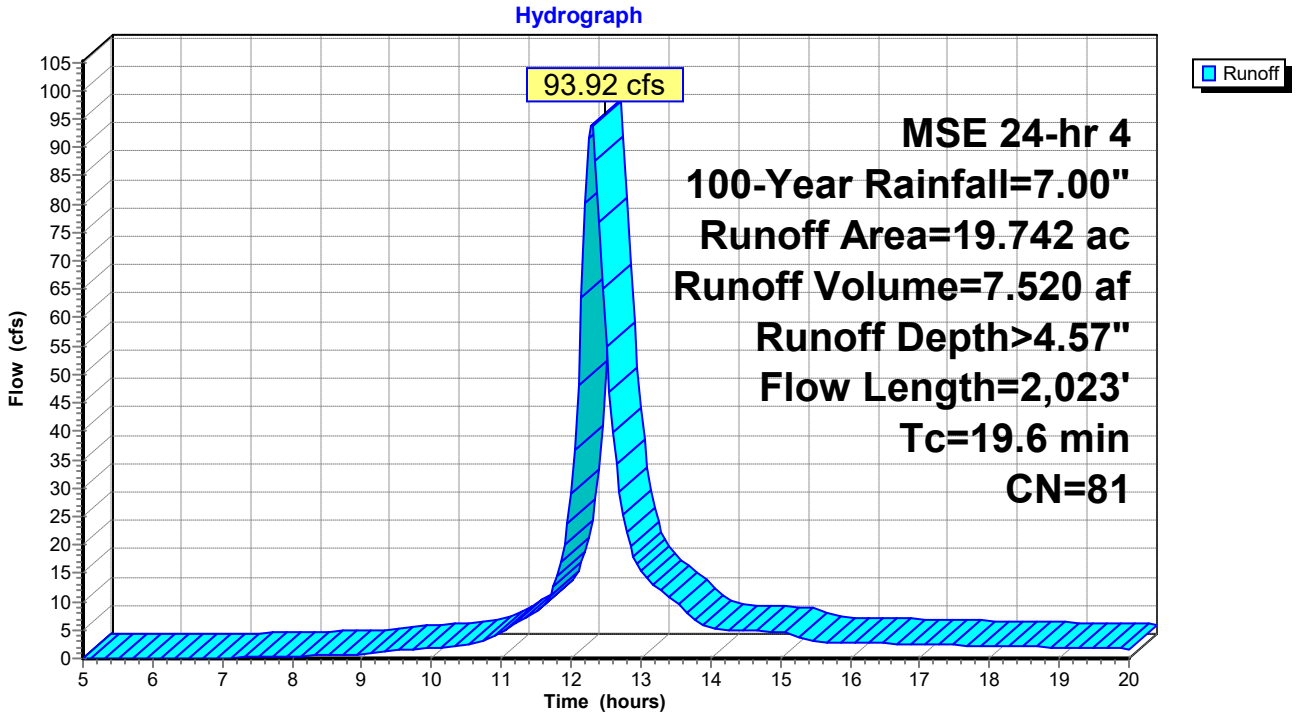
Runoff = 93.92 cfs @ 12.29 hrs, Volume= 7.520 af, Depth> 4.57"
Routed to Link 1L : 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.560	89	Row crops, straight row, good, HSG D
	3.158	80	Pasture/grassland/range, good, HSG D
	2.874	74	Pasture/grassland/range, good, HSG C
	2.109	80	Pasture/grassland/range, good, HSG D
	1.729	80	Pasture/grassland/range, good, HSG D
	1.519	61	Pasture/grassland/range, good, HSG B
	1.292	89	Row crops, straight row, good, HSG D
	1.229	89	Row crops, straight row, good, HSG D
	1.043	80	Pasture/grassland/range, good, HSG D
	0.730	89	Row crops, straight row, good, HSG D
	0.299	78	Row crops, straight row, good, HSG B
	0.072	67	Row crops, straight row, good, HSG A
	0.070	96	Gravel surface, HSG C
	0.021	39	Pasture/grassland/range, good, HSG A
	0.019	74	Pasture/grassland/range, good, HSG C
*	0.011	0	Paved; open ditches, 50% imp, HSG D
	0.004	74	Pasture/grassland/range, good, HSG C
	0.003	39	Pasture/grassland/range, good, HSG A
	0.000	89	Row crops, straight row, good, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	19.742	81	Weighted Average
	19.736		99.97% Pervious Area
	0.006		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0054	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.5	723	0.0187	2.20		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
5.9	1,200	0.0083	3.41	17.06	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.6	2,023	Total			

Subcatchment 38: 38



Summary for Subcatchment 39: 39

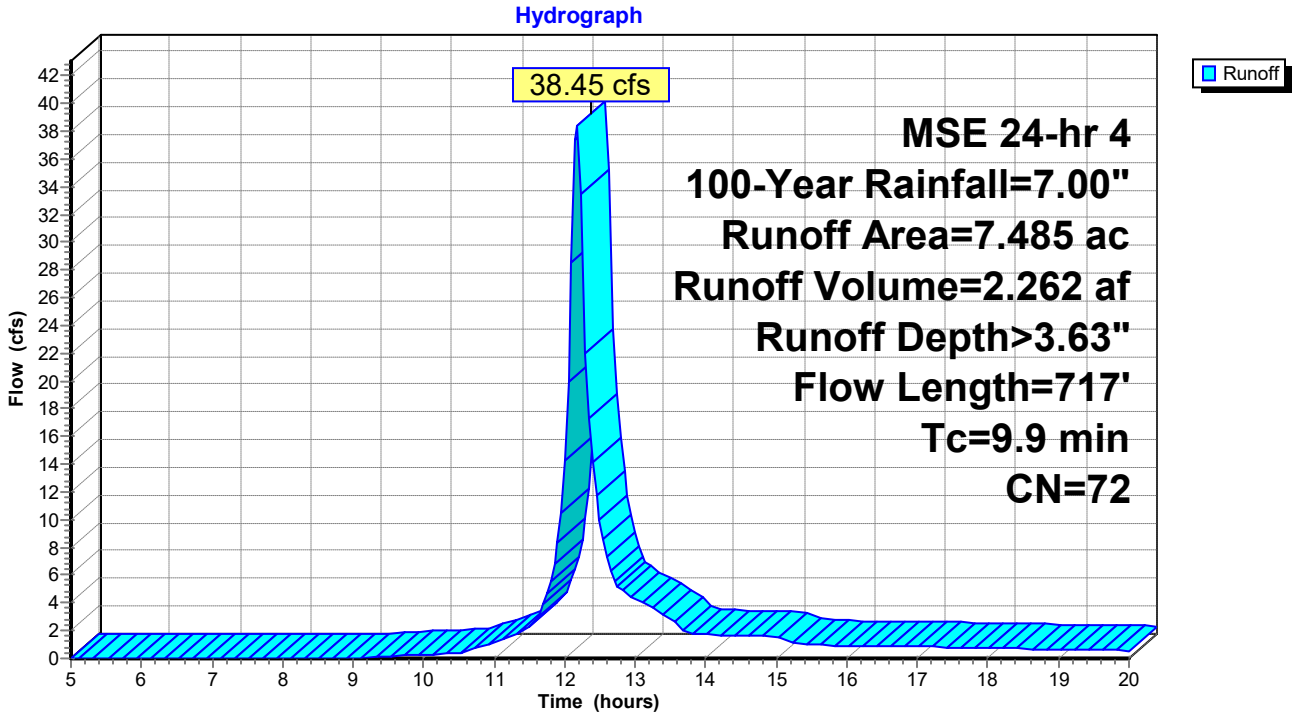
Runoff = 38.45 cfs @ 12.18 hrs, Volume= 2.262 af, Depth> 3.63"
Routed to Reach 1R : Ditch Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.303	80	Pasture/grassland/range, good, HSG D
	1.803	61	Pasture/grassland/range, good, HSG B
	0.918	78	Row crops, straight row, good, HSG B
	0.863	89	Row crops, straight row, good, HSG D
*	0.268	0	Paved; open ditches, 50% imp, HSG D
	0.204	89	Row crops, straight row, good, HSG D
*	0.099	0	Paved; open ditches, 50% imp, HSG B
*	0.028	0	Paved; open ditches, 50% imp, HSG D
	7.485	72	Weighted Average
	7.288		97.37% Pervious Area
	0.197		2.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0180	0.33		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.8	617	0.0177	2.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.9	717	Total			

Subcatchment 39: 39



Summary for Subcatchment 100: 100

[47] Hint: Peak is 121% of capacity of segment #3

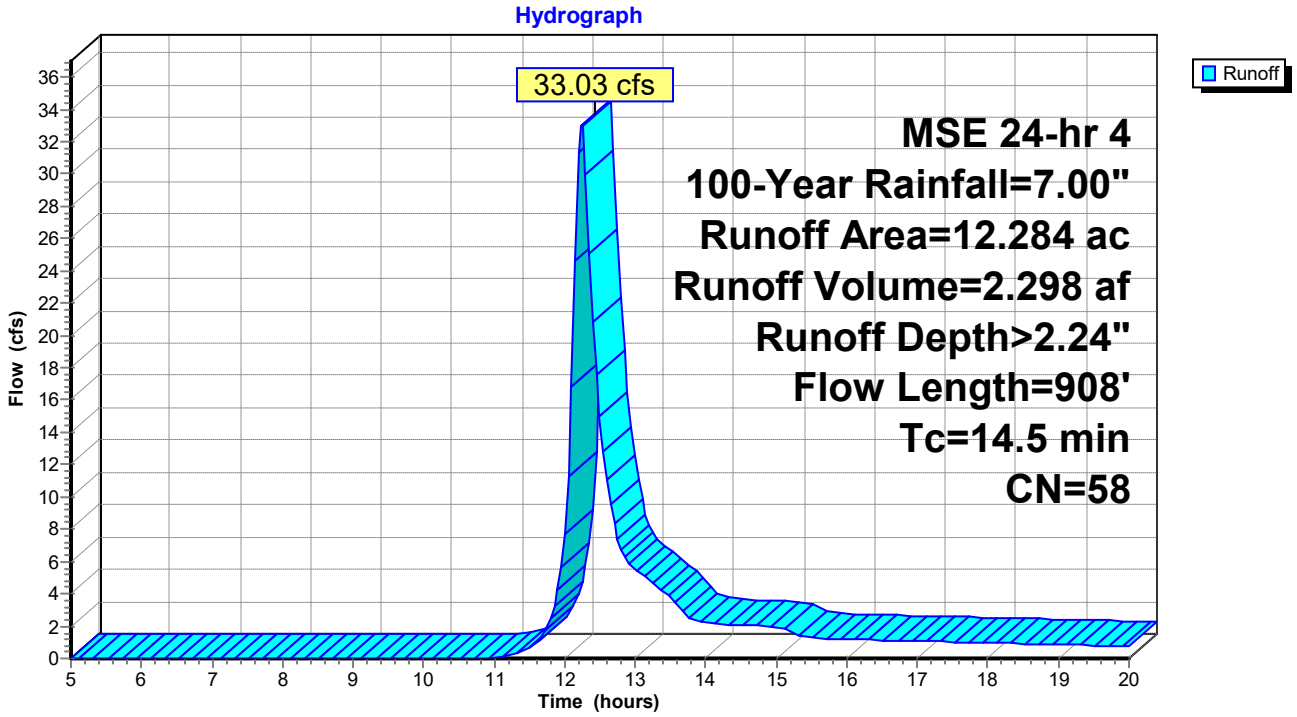
Runoff = 33.03 cfs @ 12.24 hrs, Volume= 2.298 af, Depth> 2.24"
Routed to Link 16L : 16L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	12.003	59	Farmsteads, HSG A
*	0.152	0	Paved; open ditches, 50% imp, HSG A
*	0.129	0	Paved; open ditches, 50% imp, HSG A
	12.284	58	Weighted Average
	12.143		98.86% Pervious Area
	0.141		1.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	100	0.0125	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
8.0	626	0.0066	1.31		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.6	182	0.0213	5.46	27.32	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
14.5	908	Total			

Subcatchment 100: 100



Summary for Subcatchment 101: 101

[47] Hint: Peak is 155% of capacity of segment #3

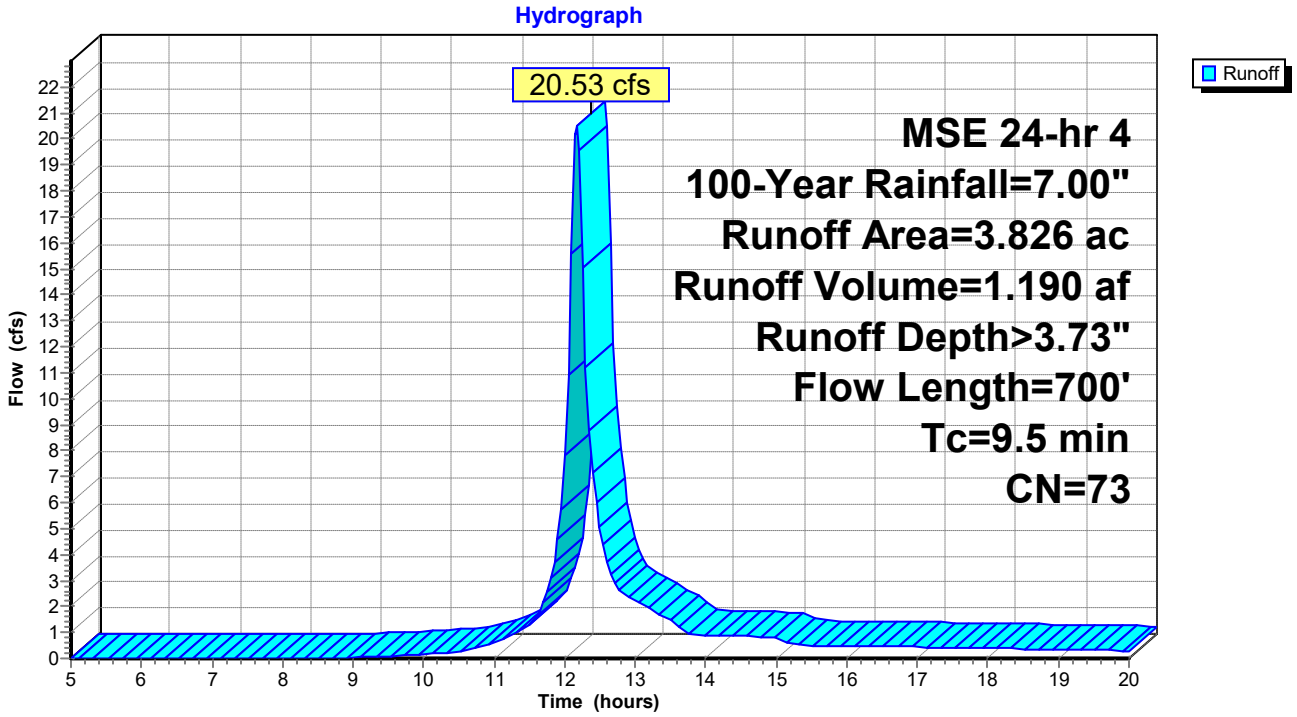
Runoff = 20.53 cfs @ 12.17 hrs, Volume= 1.190 af, Depth> 3.73"
Routed to Pond 10P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.395	82	Farmsteads, HSG C
*	0.240	0	Paved; open ditches, 50% imp, HSG C
*	0.192	0	Paved; open ditches, 50% imp, HSG C
	3.826	73	Weighted Average
	3.611		94.37% Pervious Area
	0.216		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0143	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
2.3	343	0.0231	2.45		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.6	257	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
9.5	700	Total			

Subcatchment 101: 101



Summary for Subcatchment 102: 102

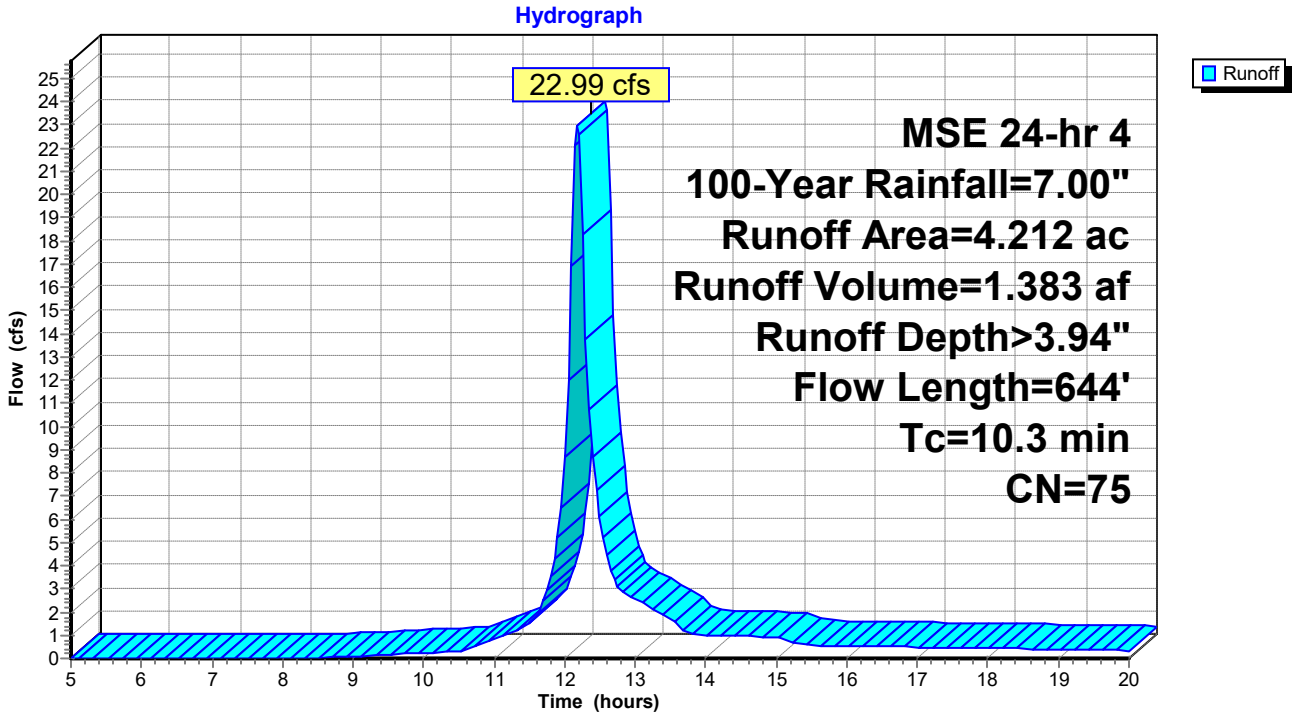
Runoff = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af, Depth> 3.94"
Routed to Pond 9P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	3.752	82	Farmsteads, HSG C
*	0.191	0	Paved; open ditches, 50% imp, HSG C
*	0.153	0	Paved; open ditches, 50% imp, HSG C
	0.081	86	Farmsteads, HSG D
*	0.023	0	Paved; open ditches, 50% imp, HSG C
*	0.008	0	Paved; open ditches, 50% imp, HSG D
	0.002	86	Farmsteads, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG D
	4.212	75	Weighted Average
	4.024		95.53% Pervious Area
	0.188		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0118	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
4.3	544	0.0174	2.12		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
10.3	644	Total			

Subcatchment 102: 102



Summary for Subcatchment 103: 103

[47] Hint: Peak is 240% of capacity of segment #3

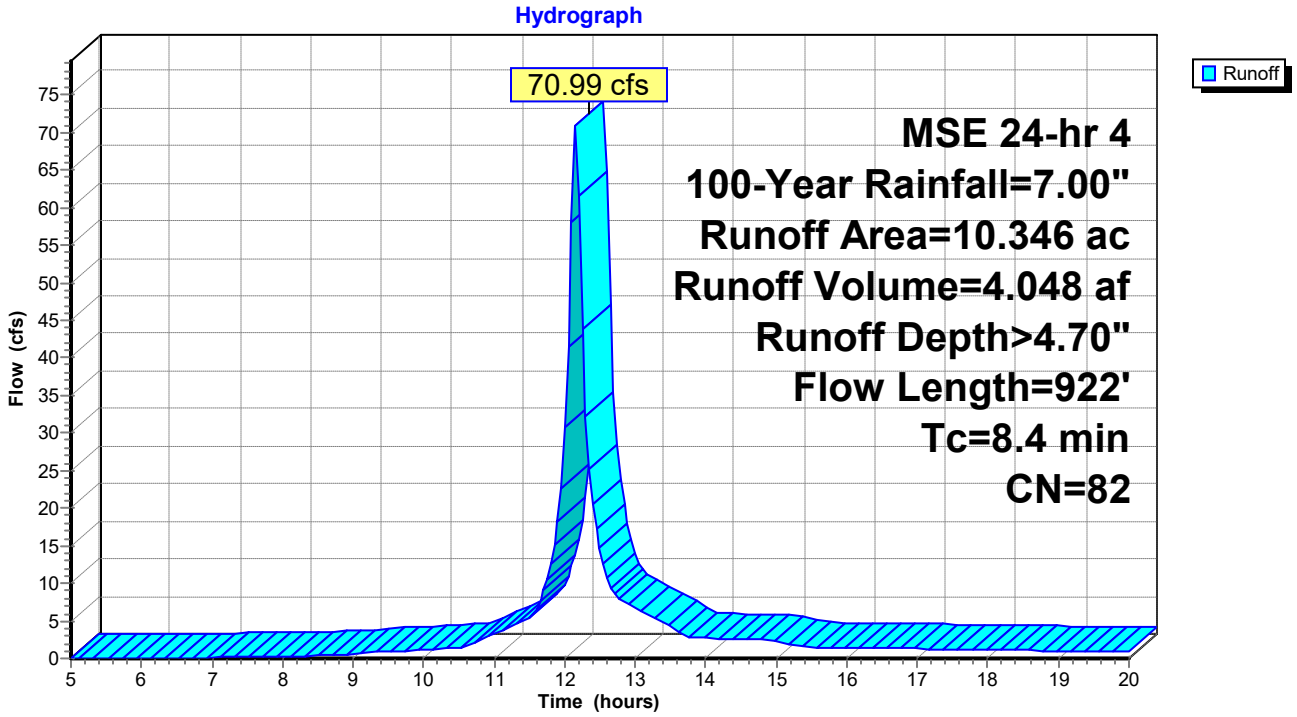
Runoff = 70.99 cfs @ 12.15 hrs, Volume= 4.048 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
10.228	82	Farmsteads, HSG C
0.069	86	Farmsteads, HSG D
0.049	82	Farmsteads, HSG C
0.000	86	Farmsteads, HSG D
0.000	86	Farmsteads, HSG D
10.346	82	Weighted Average
10.346		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	96	0.0341	0.42		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
3.7	493	0.0195	2.25		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.9	333	0.0250	5.92	29.60	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
8.4	922	Total			

Subcatchment 103: 103



Summary for Subcatchment 104: 104

[47] Hint: Peak is 400% of capacity of segment #3

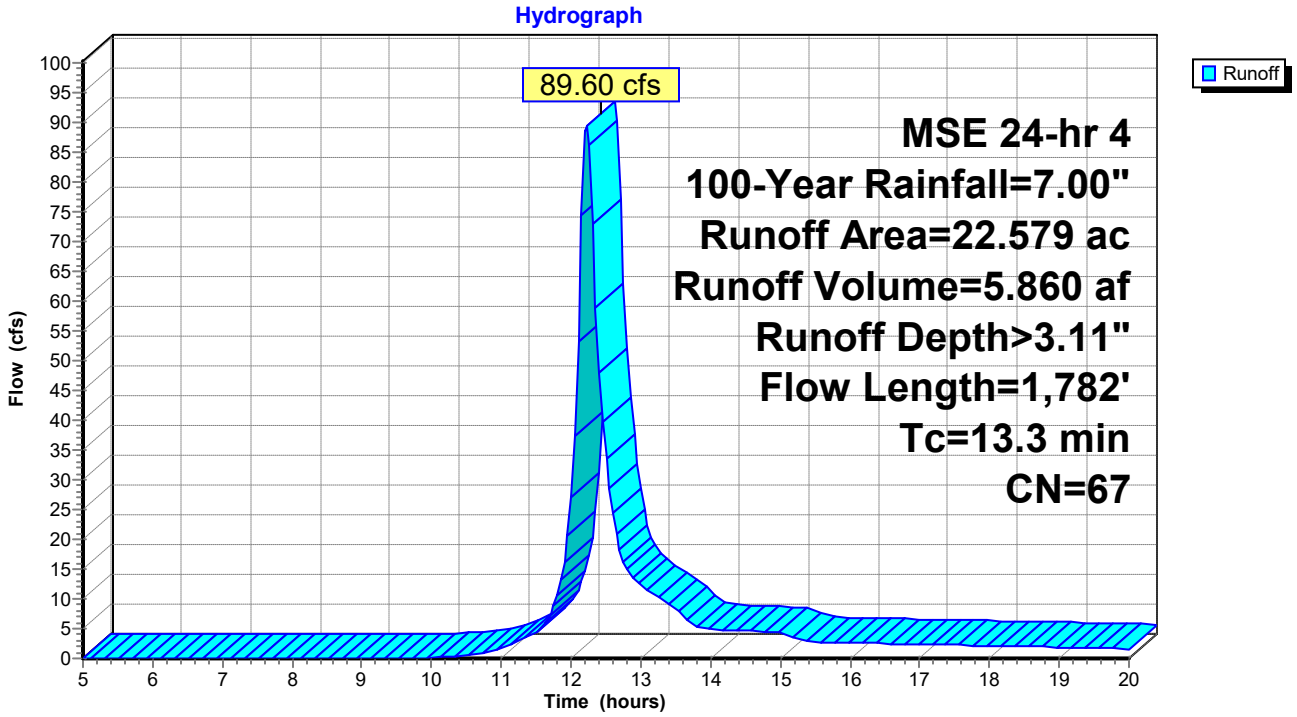
Runoff = 89.60 cfs @ 12.22 hrs, Volume= 5.860 af, Depth> 3.11"
Routed to Link 12L : 12L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
7.725	80	Pasture/grassland/range, good, HSG D
6.379	39	Pasture/grassland/range, good, HSG A
5.585	74	Pasture/grassland/range, good, HSG C
1.950	80	Pasture/grassland/range, good, HSG D
0.939	80	Pasture/grassland/range, good, HSG D
22.579	67	Weighted Average
22.579		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	100	0.0493	0.49		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
7.2	946	0.0185	2.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.7	736	0.0143	4.48	22.39	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
13.3	1,782	Total			

Subcatchment 104: 104



Summary for Subcatchment 105: 105

[47] Hint: Peak is 325% of capacity of segment #3

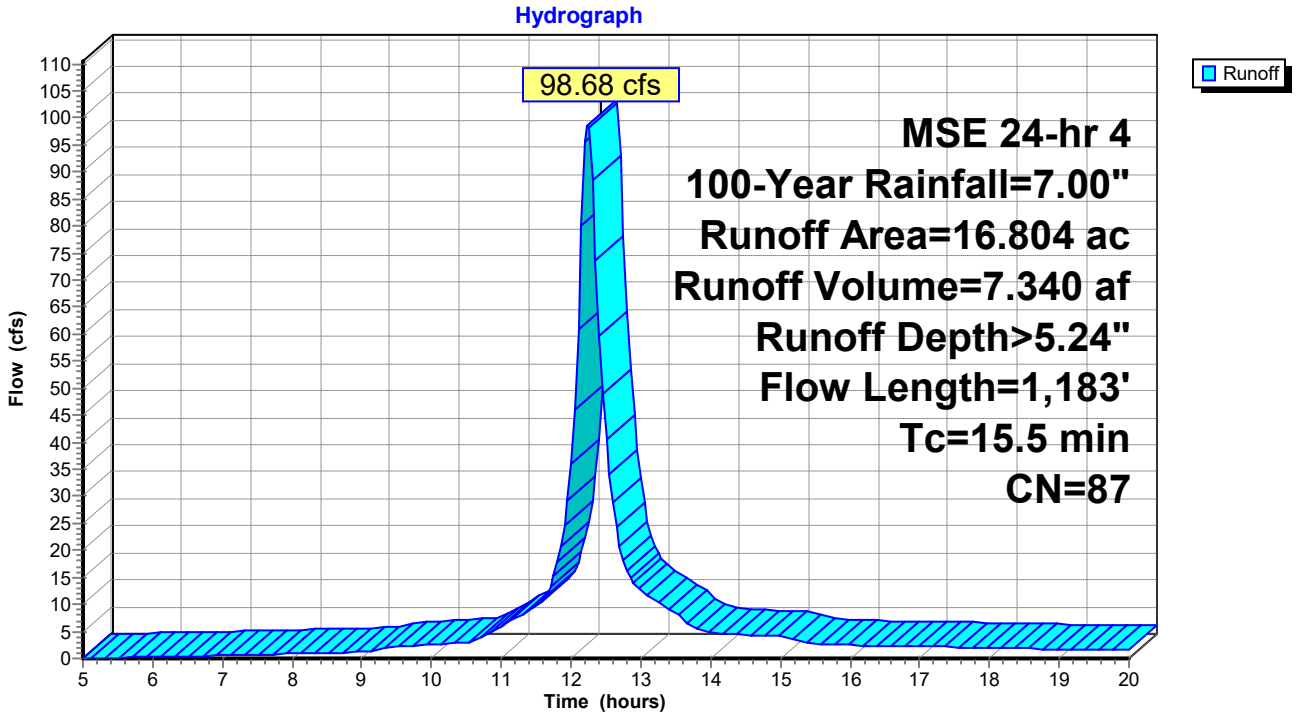
Runoff = 98.68 cfs @ 12.24 hrs, Volume= 7.340 af, Depth> 5.24"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
8.674	89	Row crops, straight row, good, HSG D
3.375	89	Row crops, straight row, good, HSG D
2.026	77	Woods, Good, HSG D
1.749	89	Row crops, straight row, good, HSG D
0.909	77	Woods, Good, HSG D
0.049	77	Woods, Good, HSG D
0.022	70	Woods, Good, HSG C
16.804	87	Weighted Average
16.804		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0050	0.20		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
5.3	475	0.0085	1.48		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.7	608	0.0263	6.07	30.36	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.5	1,183	Total			

Subcatchment 105: 105



Summary for Subcatchment 106: 106

[47] Hint: Peak is 289% of capacity of segment #3

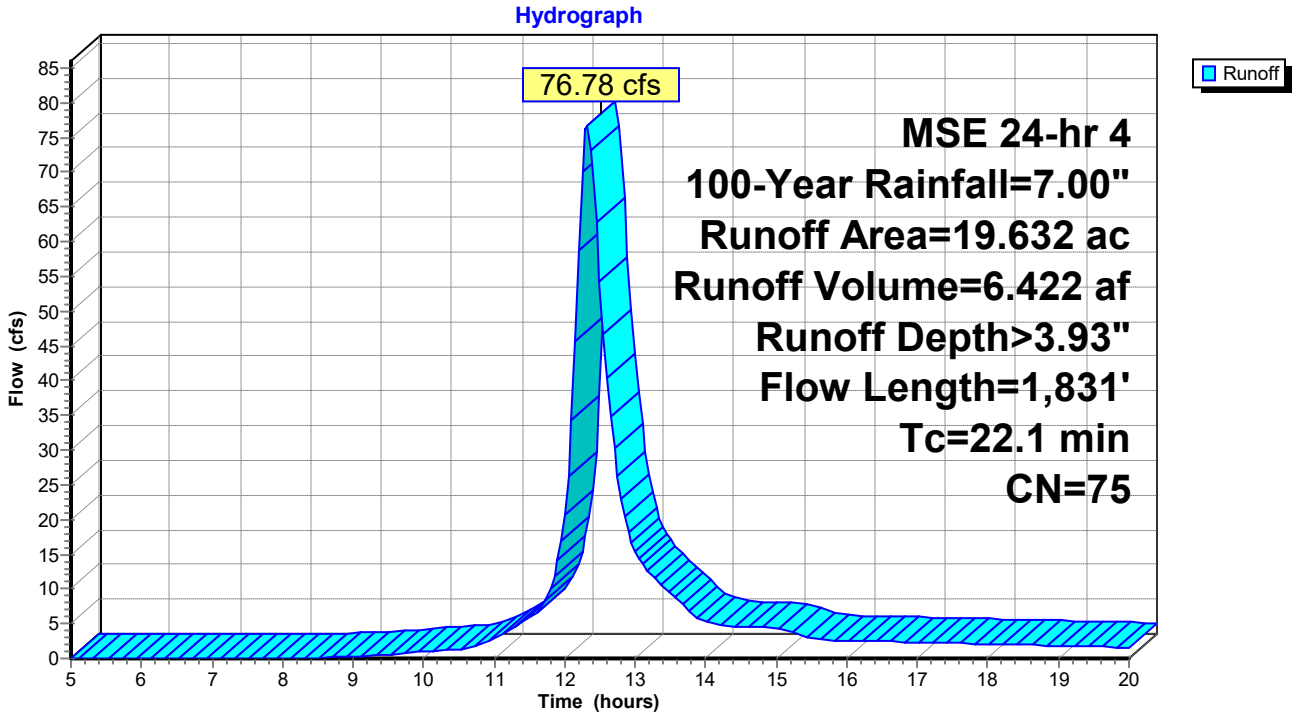
Runoff = 76.78 cfs @ 12.32 hrs, Volume= 6.422 af, Depth> 3.93"
Routed to Link 15L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
7.546	77	Woods, Good, HSG D
2.850	77	Woods, Good, HSG D
2.355	77	Woods, Good, HSG D
1.589	89	Row crops, straight row, good, HSG D
1.102	89	Row crops, straight row, good, HSG D
1.039	30	Woods, Good, HSG A
0.917	30	Woods, Good, HSG A
0.903	89	Row crops, straight row, good, HSG D
0.870	77	Woods, Good, HSG D
0.437	77	Woods, Good, HSG D
0.013	77	Woods, Good, HSG D
0.012	77	Woods, Good, HSG D
19.632	75	Weighted Average
19.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0143	0.30		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
14.1	961	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.4	770	0.0201	5.31	26.54	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
22.1	1,831	Total			

Subcatchment 106: 106



Summary for Subcatchment 107: 107

[47] Hint: Peak is 1347% of capacity of segment #3

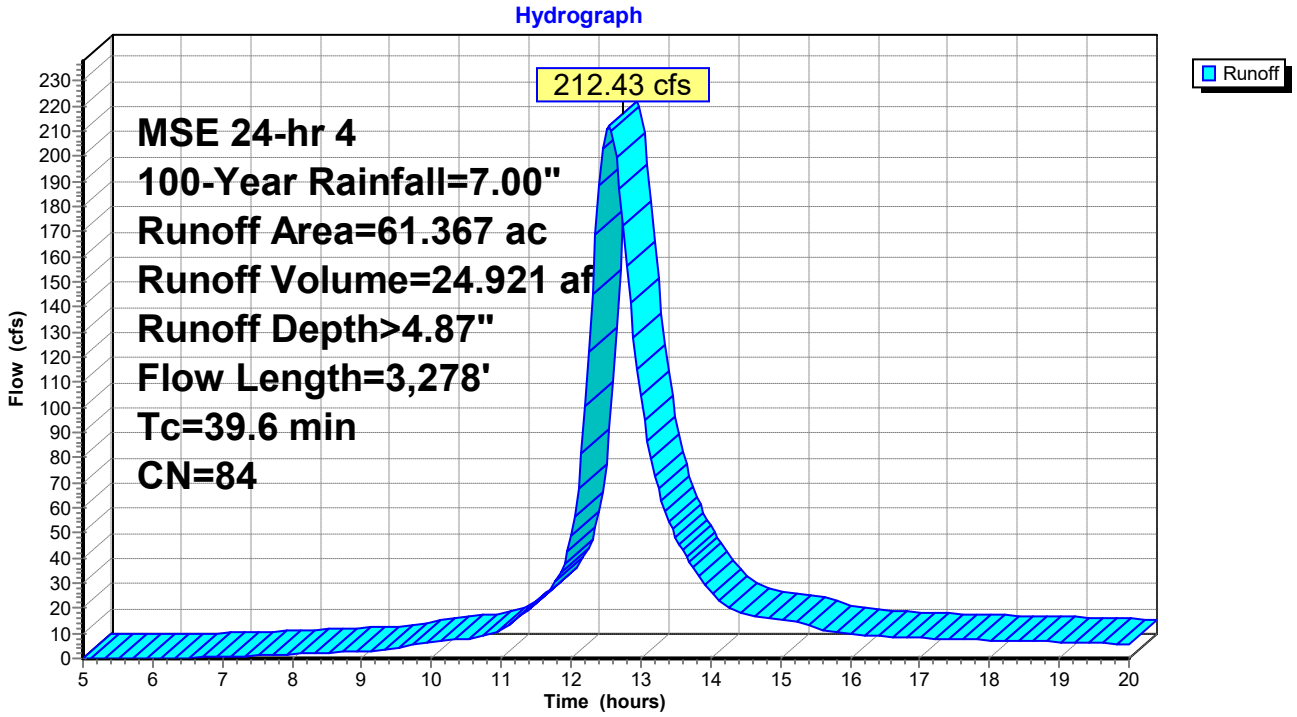
Runoff = 212.43 cfs @ 12.54 hrs, Volume= 24.921 af, Depth> 4.87"
Routed to Pond 7P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	34.615	85	Row crops, straight row, good, HSG C
	6.964	89	Row crops, straight row, good, HSG D
	5.178	89	Row crops, straight row, good, HSG D
	3.768	82	Farmsteads, HSG C
	2.416	89	Row crops, straight row, good, HSG D
	2.015	89	Row crops, straight row, good, HSG D
	1.761	89	Row crops, straight row, good, HSG D
*	1.435	0	Paved; open ditches, 50% imp, HSG C
	1.405	82	Farmsteads, HSG C
	0.695	86	Farmsteads, HSG D
	0.311	89	Row crops, straight row, good, HSG D
*	0.224	0	Paved; open ditches, 50% imp, HSG D
	0.209	89	Row crops, straight row, good, HSG D
	0.138	85	Row crops, straight row, good, HSG C
	0.136	89	Row crops, straight row, good, HSG D
*	0.085	0	Paved; open ditches, 50% imp, HSG D
	0.010	85	Row crops, straight row, good, HSG C
	0.001	82	Farmsteads, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
*	0.000	0	Paved; open ditches, 50% imp, HSG C
	61.367	84	Weighted Average
	60.495		98.58% Pervious Area
	0.872		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0033	0.17		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
17.3	850	0.0026	0.82		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
12.3	2,328	0.0071	3.16	15.78	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
39.6	3,278	Total			

Subcatchment 107: 107



Summary for Subcatchment 108: 108

[47] Hint: Peak is 2284% of capacity of segment #3

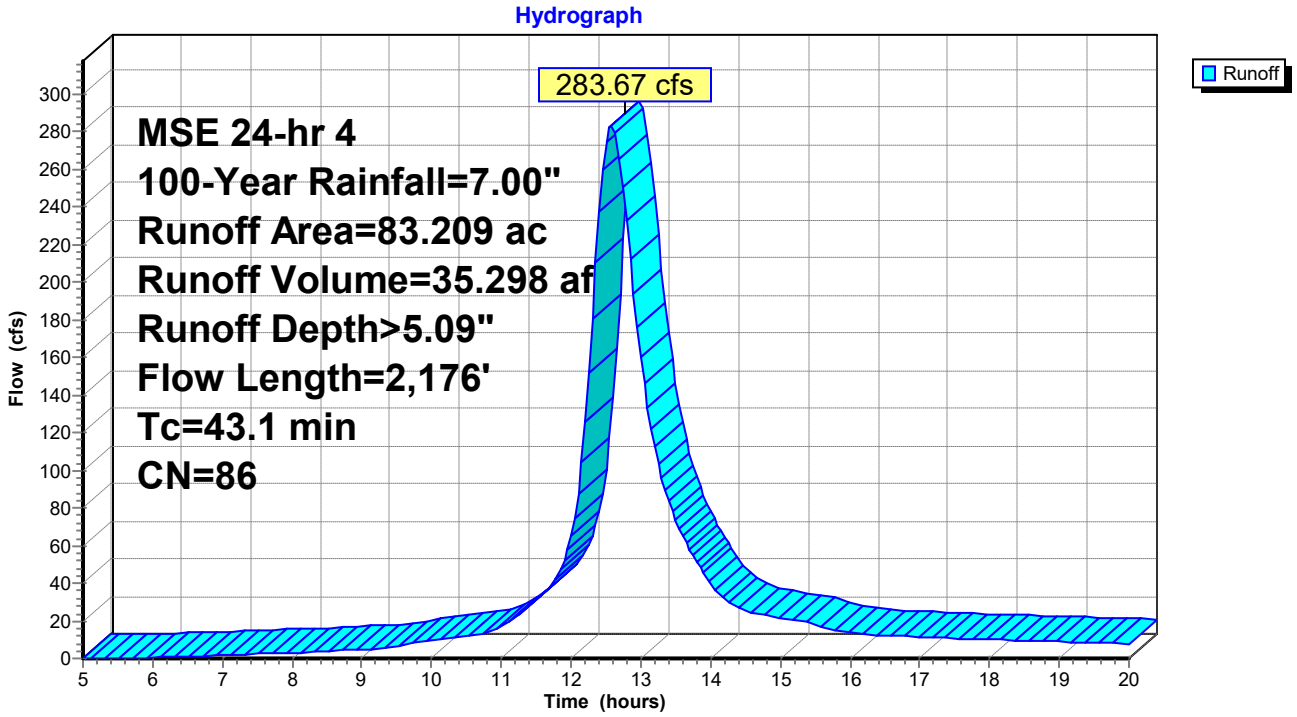
Runoff = 283.67 cfs @ 12.58 hrs, Volume= 35.298 af, Depth> 5.09"
Routed to Reach 4R : Drainage Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
36.028	89	Row crops, straight row, good, HSG D
9.706	85	Row crops, straight row, good, HSG C
9.379	85	Row crops, straight row, good, HSG C
6.286	89	Row crops, straight row, good, HSG D
5.022	89	Row crops, straight row, good, HSG D
3.900	89	Row crops, straight row, good, HSG D
3.733	77	Woods, Good, HSG D
2.875	82	Farmsteads, HSG C
2.504	77	Woods, Good, HSG D
1.834	30	Woods, Good, HSG A
1.133	89	Row crops, straight row, good, HSG D
0.745	89	Row crops, straight row, good, HSG D
0.063	89	Row crops, straight row, good, HSG D
0.001	85	Row crops, straight row, good, HSG C
0.001	82	Farmsteads, HSG C
0.000	89	Row crops, straight row, good, HSG D
83.209	86	Weighted Average
83.209		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	83	0.1259	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
28.9	1,557	0.0031	0.90		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.6	536	0.0044	2.48	12.42	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
43.1	2,176	Total			

Subcatchment 108: 108



Summary for Subcatchment 109: 109

[47] Hint: Peak is 332% of capacity of segment #3

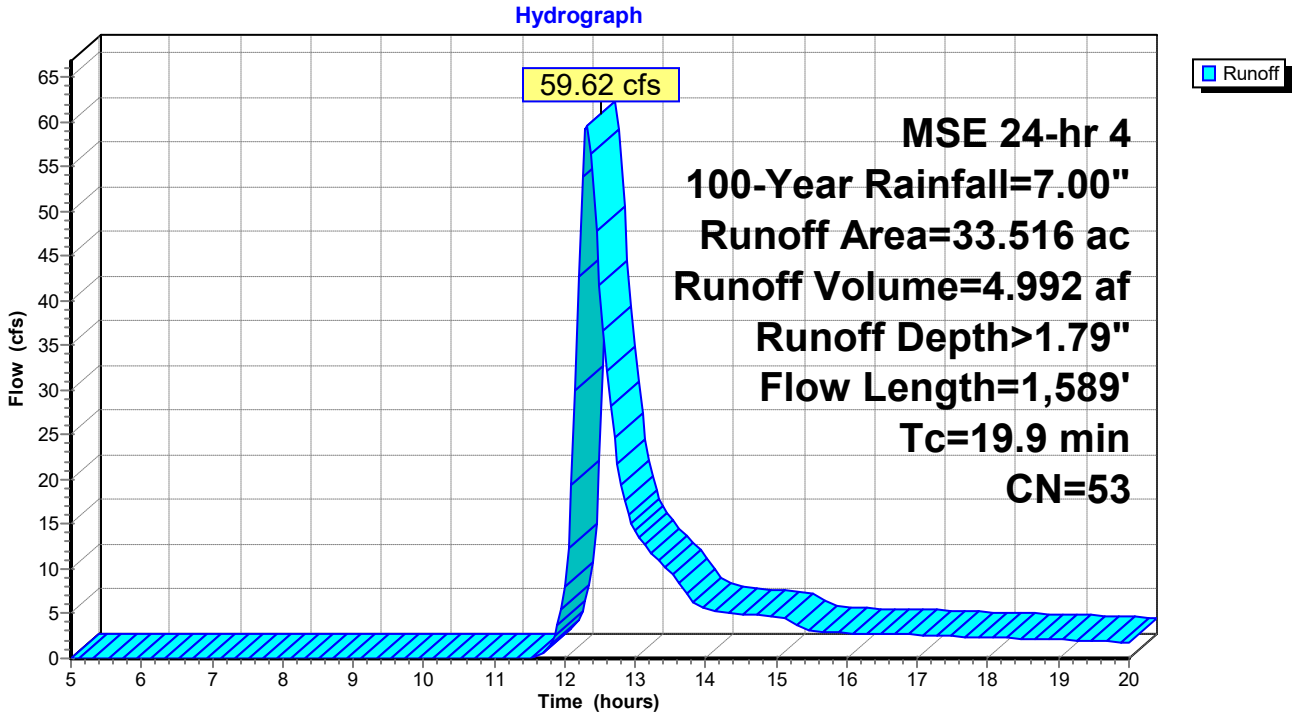
Runoff = 59.62 cfs @ 12.32 hrs, Volume= 4.992 af, Depth> 1.79"
Routed to Pond 3P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	11.589	39	Pasture/grassland/range, good, HSG A
	7.123	61	Pasture/grassland/range, good, HSG B
	3.251	59	Farmsteads, HSG A
	2.798	80	Pasture/grassland/range, good, HSG D
	2.567	67	Row crops, straight row, good, HSG A
	1.919	59	Farmsteads, HSG A
	1.557	59	Farmsteads, HSG A
	1.148	59	Farmsteads, HSG A
*	0.962	0	Paved; open ditches, 50% imp, HSG A
	0.432	59	Farmsteads, HSG A
	0.167	39	Pasture/grassland/range, good, HSG A
	0.001	74	Pasture/grassland/range, good, HSG C
	0.001	67	Row crops, straight row, good, HSG A
	0.000	67	Row crops, straight row, good, HSG A
	0.000	67	Row crops, straight row, good, HSG A
	33.516	53	Weighted Average
	33.035		98.56% Pervious Area
	0.481		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	100	0.0123	0.28		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
13.4	1,353	0.0109	1.68		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
0.6	136	0.0092	3.59	17.96	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
19.9	1,589	Total			

Subcatchment 109: 109



Summary for Subcatchment 110: 110

[47] Hint: Peak is 1807% of capacity of segment #3

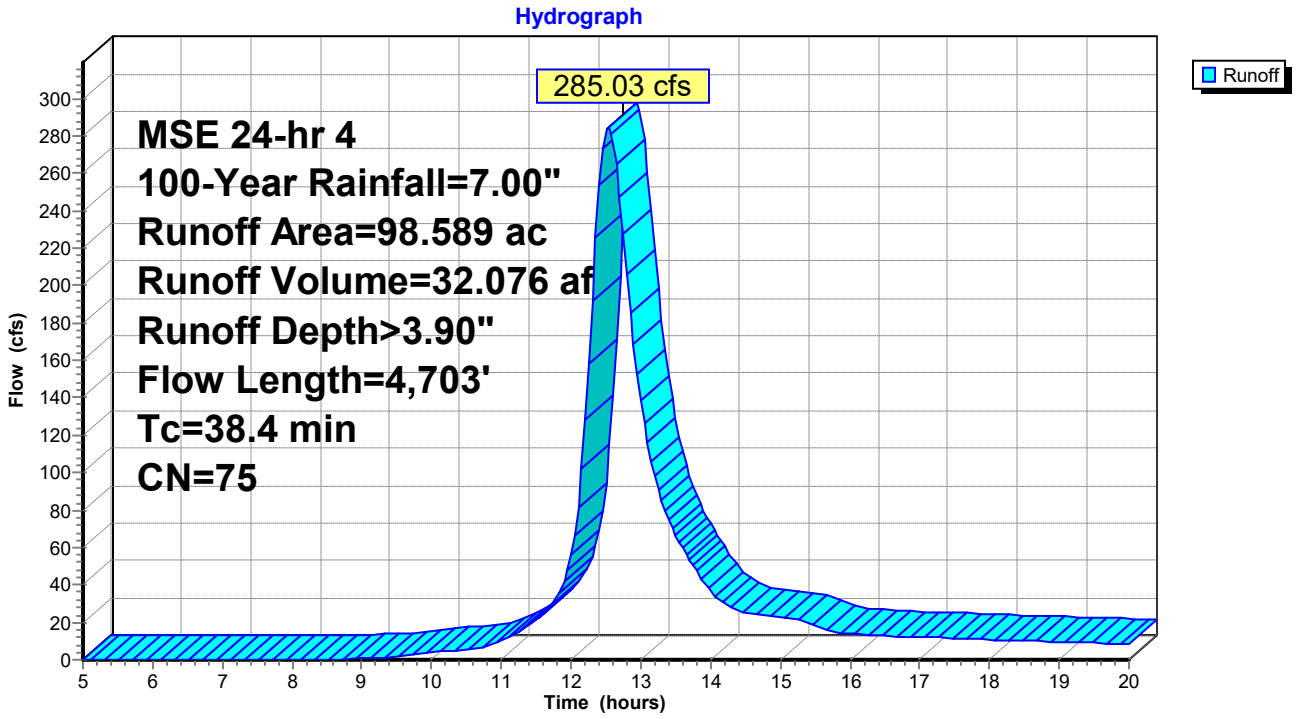
Runoff = 285.03 cfs @ 12.53 hrs, Volume= 32.076 af, Depth> 3.90"
Routed to Link 2L : 2L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	15.058	59	Farmsteads, HSG A
	14.174	89	Row crops, straight row, good, HSG D
	13.678	85	Row crops, straight row, good, HSG C
	11.904	67	Row crops, straight row, good, HSG A
	11.170	89	Row crops, straight row, good, HSG D
	5.733	85	Row crops, straight row, good, HSG C
	5.320	85	Row crops, straight row, good, HSG C
	4.651	80	Pasture/grassland/range, good, HSG D
	4.633	74	Pasture/grassland/range, good, HSG C
	2.944	74	Pasture/grassland/range, good, HSG C
	2.844	39	Pasture/grassland/range, good, HSG A
	1.641	85	Row crops, straight row, good, HSG C
*	1.409	0	Paved; open ditches, 50% imp, HSG C
	1.299	85	Row crops, straight row, good, HSG C
*	1.006	0	Paved; open ditches, 50% imp, HSG A
	0.311	80	Pasture/grassland/range, good, HSG D
*	0.169	0	Paved; open ditches, 50% imp, HSG D
	0.149	89	Row crops, straight row, good, HSG D
*	0.108	0	Paved; open ditches, 50% imp, HSG A
	0.107	85	Row crops, straight row, good, HSG C
	0.094	59	Farmsteads, HSG A
	0.070	39	Pasture/grassland/range, good, HSG A
	0.038	85	Row crops, straight row, good, HSG C
	0.031	85	Row crops, straight row, good, HSG C
	0.012	74	Pasture/grassland/range, good, HSG C
	0.011	85	Row crops, straight row, good, HSG C
	0.008	85	Row crops, straight row, good, HSG C
	0.007	85	Row crops, straight row, good, HSG C
	0.006	89	Row crops, straight row, good, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG D
	0.002	85	Row crops, straight row, good, HSG C
	0.001	89	Row crops, straight row, good, HSG D
	0.001	89	Row crops, straight row, good, HSG D
	98.589	75	Weighted Average
	97.241		98.63% Pervious Area
	1.348		1.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0125	0.12		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
2.0	375	0.0393	3.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
22.3	4,228	0.0071	3.16	15.78	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
38.4	4,703	Total			

Subcatchment 110: 110



Summary for Subcatchment 111: 111

[47] Hint: Peak is 413% of capacity of segment #3

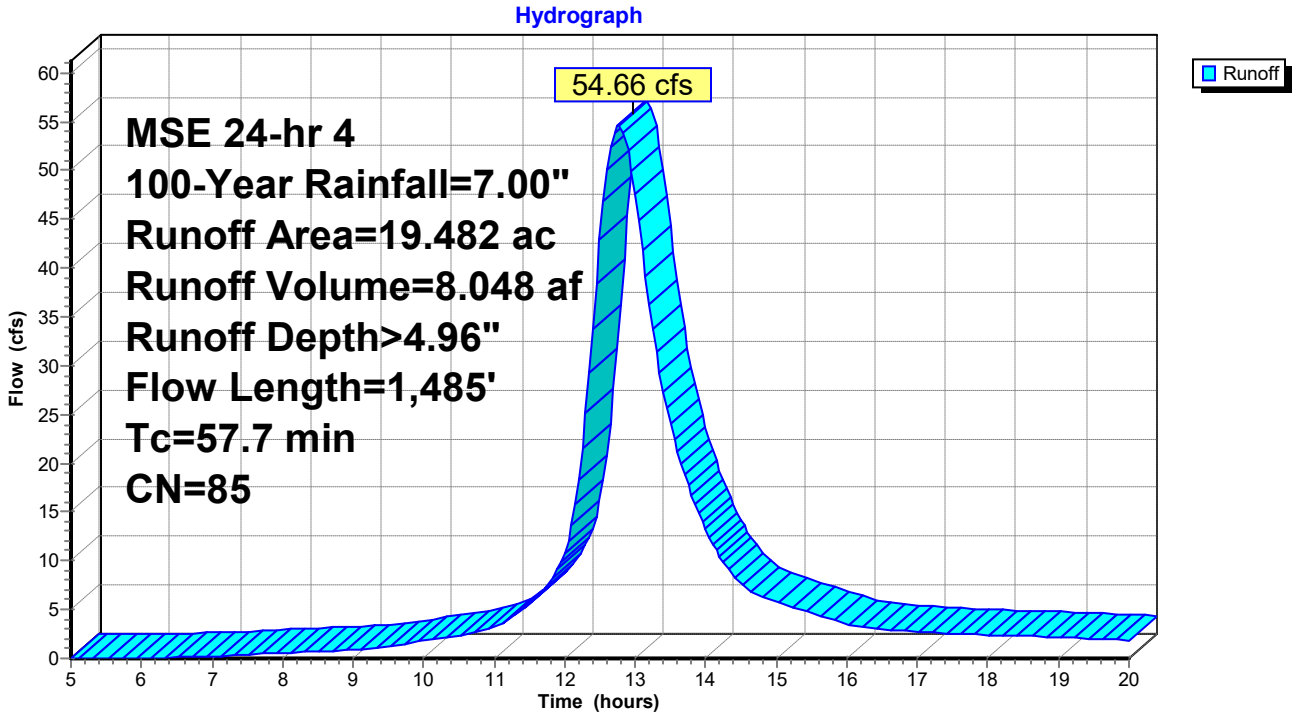
Runoff = 54.66 cfs @ 12.76 hrs, Volume= 8.048 af, Depth> 4.96"
Routed to Link 6L : 6L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	9.708	86	Farmsteads, HSG D
	9.136	89	Row crops, straight row, good, HSG D
*	0.638	0	Paved; open ditches, 50% imp, HSG D
	19.482	85	Weighted Average
	19.163		98.36% Pervious Area
	0.319		1.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.7	100	0.0050	0.04		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
11.5	1,142	0.0105	1.65		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	243	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
57.7	1,485	Total			

Subcatchment 111: 111



Summary for Subcatchment 112: 112

[47] Hint: Peak is 1853% of capacity of segment #3

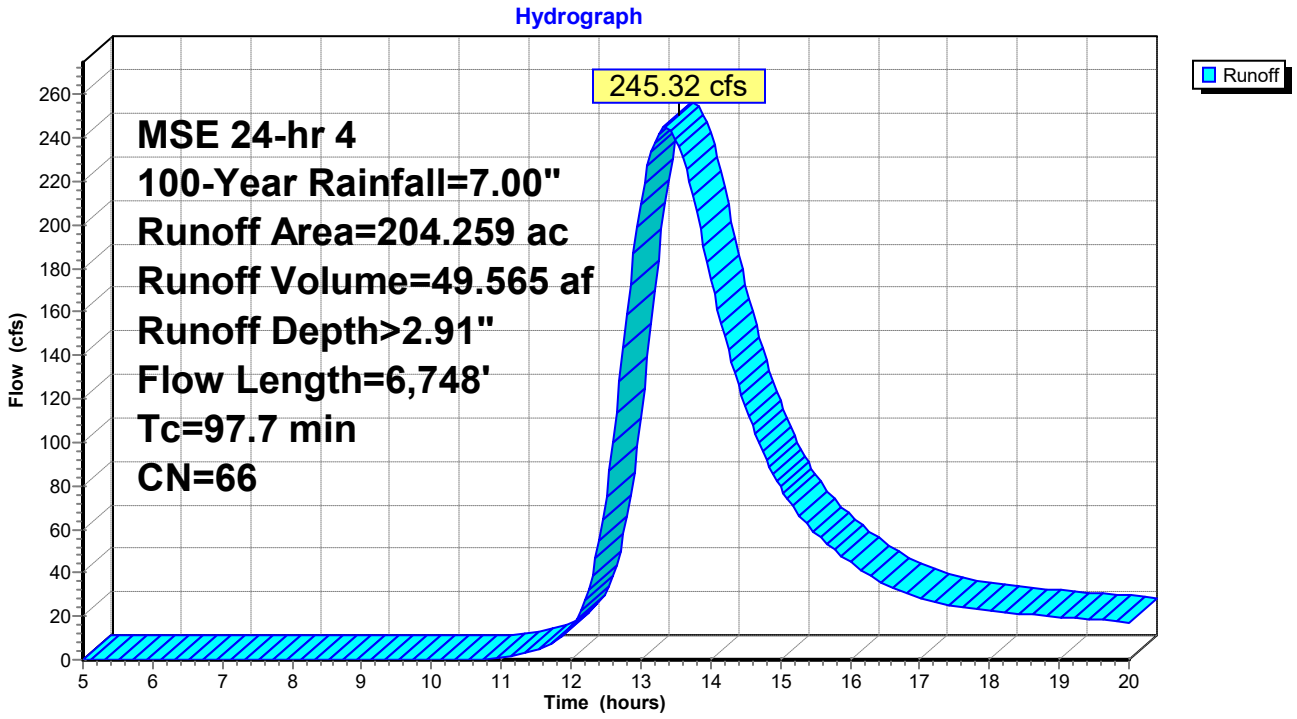
Runoff = 245.32 cfs @ 13.35 hrs, Volume= 49.565 af, Depth> 2.91"
Routed to Reach 6R : Ditch Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	30.412	77	Woods, Good, HSG D
	22.374	30	Woods, Good, HSG A
	18.655	77	Woods, Good, HSG D
	16.666	77	Woods, Good, HSG D
	13.799	77	Woods, Good, HSG D
	12.472	77	Woods, Good, HSG D
	11.911	77	Woods, Good, HSG D
	8.761	77	Woods, Good, HSG D
	8.699	86	Farmsteads, HSG D
	7.918	59	Farmsteads, HSG A
	6.651	77	Woods, Good, HSG D
	6.215	30	Woods, Good, HSG A
	6.146	86	Farmsteads, HSG D
	4.859	30	Woods, Good, HSG A
	4.565	80	Pasture/grassland/range, good, HSG D
	3.600	86	Farmsteads, HSG D
	3.483	86	Farmsteads, HSG D
	3.205	80	Pasture/grassland/range, good, HSG D
*	2.465	0	Paved; open ditches, 50% imp, HSG D
	1.725	80	Pasture/grassland/range, good, HSG D
*	1.505	0	Paved; open ditches, 50% imp, HSG A
	1.485	30	Woods, Good, HSG A
	1.342	30	Woods, Good, HSG A
*	0.954	0	Paved; open ditches, 50% imp, HSG A
*	0.835	0	Paved; open ditches, 50% imp, HSG D
*	0.646	0	Paved; open ditches, 50% imp, HSG D
*	0.626	0	Paved; open ditches, 50% imp, HSG A
*	0.463	0	Paved; open ditches, 50% imp, HSG D
*	0.460	0	Paved; open ditches, 50% imp, HSG A
	0.401	30	Woods, Good, HSG A
	0.313	30	Woods, Good, HSG A
*	0.268	0	Paved; open ditches, 50% imp, HSG D
*	0.149	0	Paved; open ditches, 50% imp, HSG D
*	0.119	0	Paved; open ditches, 50% imp, HSG D
	0.046	77	Woods, Good, HSG D
	0.032	77	Woods, Good, HSG D
	0.019	77	Woods, Good, HSG D
	0.012	30	Woods, Good, HSG A
	0.002	77	Woods, Good, HSG D
	0.001	86	Farmsteads, HSG D
	0.000	77	Woods, Good, HSG D
	0.000	77	Woods, Good, HSG D
	204.259	66	Weighted Average
	200.015		97.92% Pervious Area
	4.245		2.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.2	91	0.0087	0.05		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
39.6	2,704	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
24.9	3,953	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
97.7	6,748	Total			

Subcatchment 112: 112



Summary for Subcatchment 113: 113

[47] Hint: Peak is 2924% of capacity of segment #3

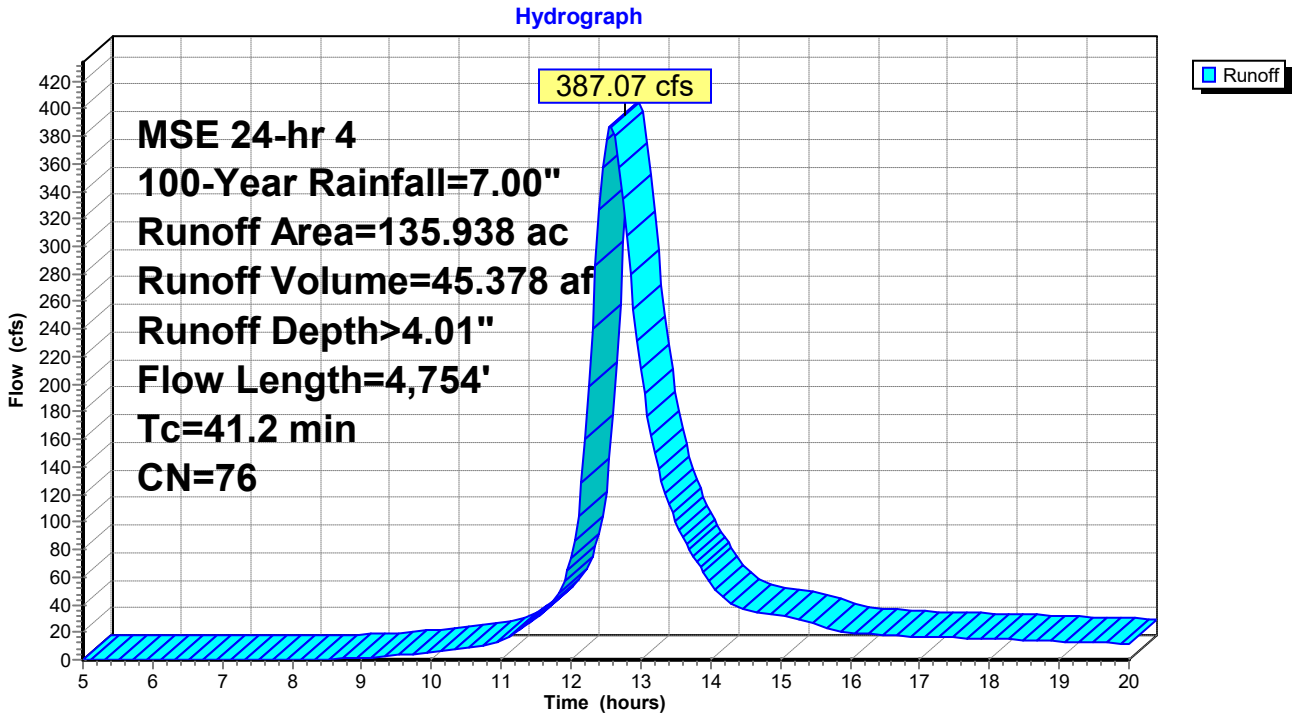
Runoff = 387.07 cfs @ 12.57 hrs, Volume= 45.378 af, Depth> 4.01"
Routed to Pond 12P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	38.486	74	Pasture/grassland/range, good, HSG C
	25.010	80	Pasture/grassland/range, good, HSG D
	15.234	80	Pasture/grassland/range, good, HSG D
	10.069	77	Woods, Good, HSG D
	6.022	80	Pasture/grassland/range, good, HSG D
	5.590	80	Pasture/grassland/range, good, HSG D
	5.089	80	Pasture/grassland/range, good, HSG D
	3.891	61	Pasture/grassland/range, good, HSG B
	3.808	86	Farmsteads, HSG D
	3.240	86	Farmsteads, HSG D
	2.929	86	Farmsteads, HSG D
	2.495	82	Farmsteads, HSG C
	2.333	80	Pasture/grassland/range, good, HSG D
	2.099	86	Farmsteads, HSG D
*	1.456	0	Paved; open ditches, 50% imp, HSG D
	1.451	39	Pasture/grassland/range, good, HSG A
	1.391	86	Farmsteads, HSG D
*	1.237	0	Paved; open ditches, 50% imp, HSG D
	1.017	80	Pasture/grassland/range, good, HSG D
	0.844	86	Farmsteads, HSG D
	0.368	80	Pasture/grassland/range, good, HSG D
	0.253	86	Farmsteads, HSG D
	0.235	80	Pasture/grassland/range, good, HSG D
*	0.229	0	Paved; open ditches, 50% imp, HSG D
*	0.222	0	Paved; open ditches, 50% imp, HSG D
*	0.183	0	Paved; open ditches, 50% imp, HSG D
*	0.161	0	Paved; open ditches, 50% imp, HSG D
	0.150	80	Pasture/grassland/range, good, HSG D
*	0.123	0	Paved; open ditches, 50% imp, HSG D
	0.082	80	Pasture/grassland/range, good, HSG D
*	0.072	0	Paved; open ditches, 50% imp, HSG B
	0.055	80	Pasture/grassland/range, good, HSG D
*	0.046	0	Paved; open ditches, 50% imp, HSG B
*	0.045	0	Paved; open ditches, 50% imp, HSG D
*	0.022	0	Paved; open ditches, 50% imp, HSG D
	135.938	76	Weighted Average
	134.040		98.60% Pervious Area
	1.898		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	91	0.0165	0.31		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 2.24"
16.7	1,551	0.0092	1.54		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
19.6	3,112	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.2	4,754	Total			

Subcatchment 113: 113



Summary for Subcatchment 114: 114

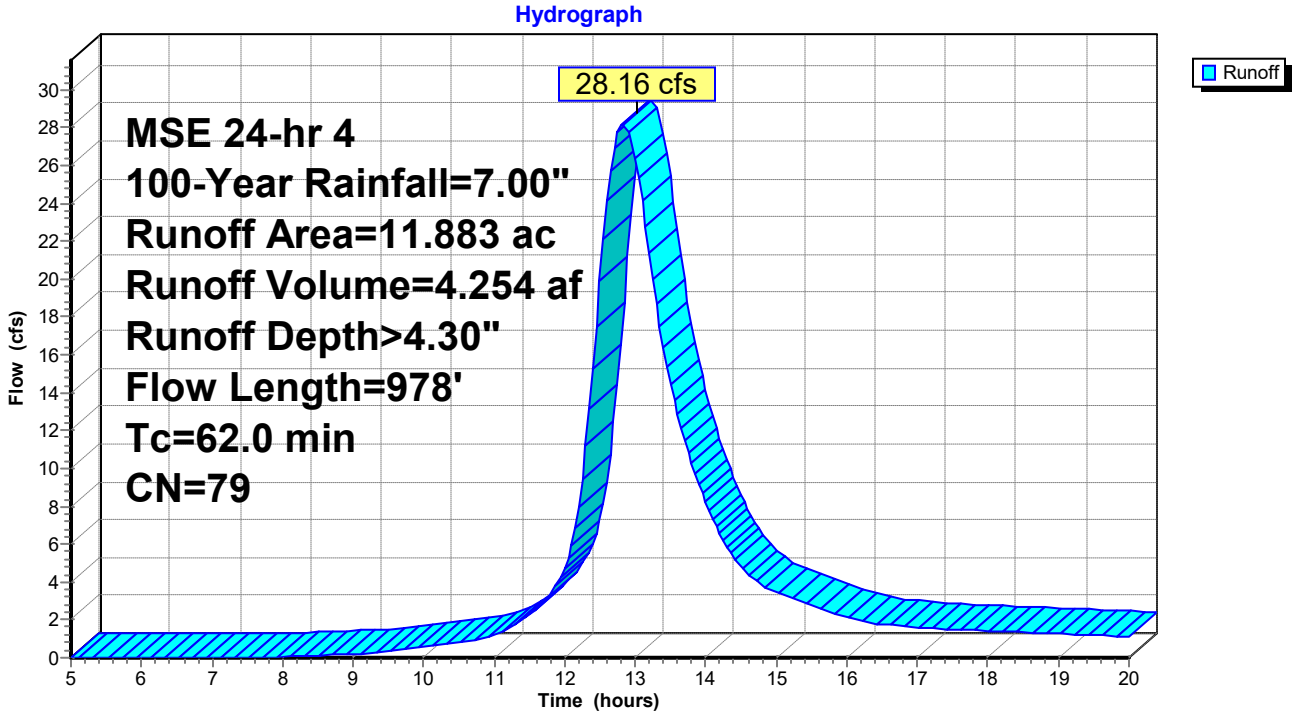
Runoff = 28.16 cfs @ 12.83 hrs, Volume= 4.254 af, Depth> 4.30"
Routed to Link 8L : 8L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
4.884	77	Woods, Good, HSG D
4.566	77	Woods, Good, HSG D
2.312	89	Row crops, straight row, good, HSG D
0.061	89	Row crops, straight row, good, HSG D
0.060	89	Row crops, straight row, good, HSG D
0.001	77	Woods, Good, HSG D
11.883	79	Weighted Average
11.883		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.7	96	0.0032	0.03		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.24"
10.3	882	0.0079	1.43		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
62.0	978	Total			

Subcatchment 114: 114



Summary for Subcatchment 116: 116

[47] Hint: Peak is 3246% of capacity of segment #3

Runoff = 429.77 cfs @ 12.73 hrs, Volume= 61.410 af, Depth> 4.96"
Routed to Reach 7R : Ditch Channel

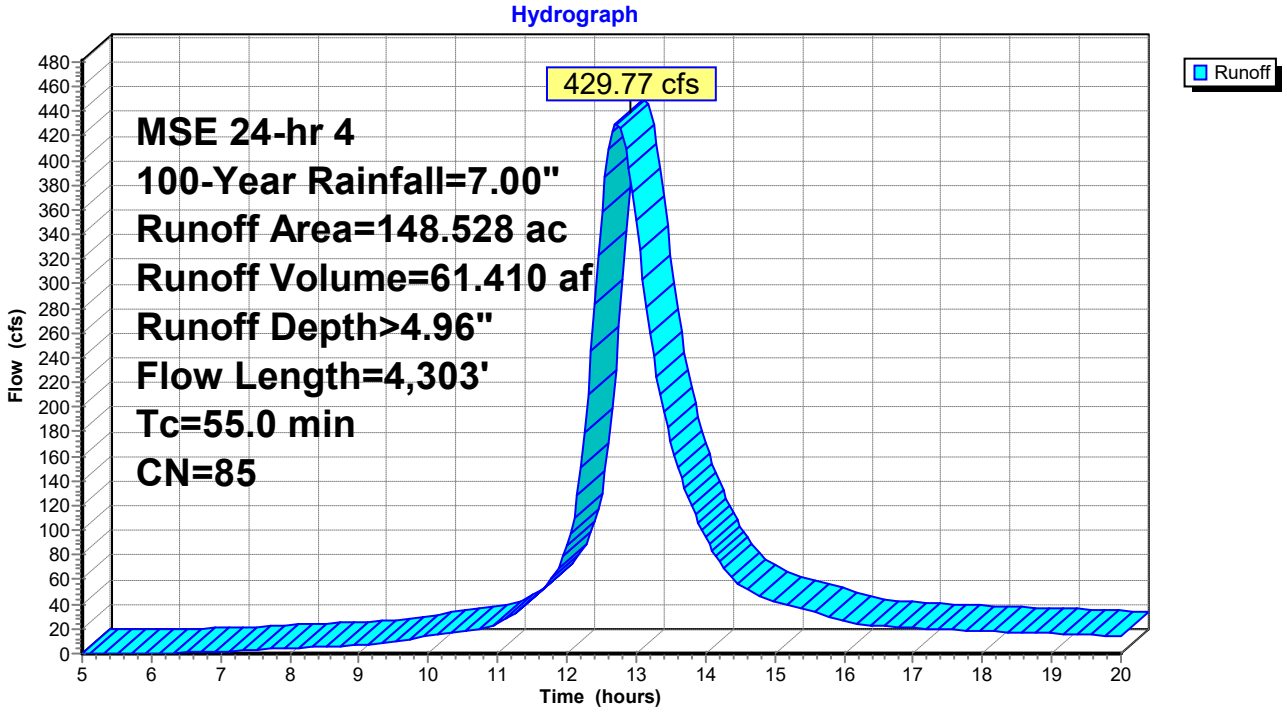
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	36.344	89	Row crops, straight row, good, HSG D
	27.424	89	Row crops, straight row, good, HSG D
	19.826	89	Row crops, straight row, good, HSG D
	13.179	80	Pasture/grassland/range, good, HSG D
	9.135	77	Woods, Good, HSG D
	6.601	77	Woods, Good, HSG D
	4.008	86	Farmsteads, HSG D
	3.616	86	Farmsteads, HSG D
	3.329	74	Pasture/grassland/range, good, HSG C
	2.942	89	Row crops, straight row, good, HSG D
	2.528	89	Row crops, straight row, good, HSG D
	2.361	80	Pasture/grassland/range, good, HSG D
	2.205	89	Row crops, straight row, good, HSG D
	2.195	89	Row crops, straight row, good, HSG D
	1.985	82	Farmsteads, HSG C
	1.883	89	Row crops, straight row, good, HSG D
	1.554	86	Farmsteads, HSG D
	1.100	89	Row crops, straight row, good, HSG D
	0.969	89	Row crops, straight row, good, HSG D
	0.832	77	Woods, Good, HSG D
*	0.501	0	Paved; open ditches, 50% imp, HSG D
*	0.485	0	Paved; open ditches, 50% imp, HSG D
	0.457	86	Farmsteads, HSG D
	0.396	86	Farmsteads, HSG D
*	0.370	0	Paved; open ditches, 50% imp, HSG C
*	0.261	0	Paved; open ditches, 50% imp, HSG D
*	0.253	0	Paved; open ditches, 50% imp, HSG C
*	0.231	0	Paved; open ditches, 50% imp, HSG D
	0.186	86	Farmsteads, HSG D
	0.179	77	Woods, Good, HSG D
	0.170	86	Farmsteads, HSG D
	0.154	77	Woods, Good, HSG D
	0.149	80	Pasture/grassland/range, good, HSG D
	0.099	89	Row crops, straight row, good, HSG D
	0.087	86	Farmsteads, HSG D
*	0.083	0	Paved; open ditches, 50% imp, HSG D
*	0.079	0	Paved; open ditches, 50% imp, HSG D
	0.077	77	Woods, Good, HSG D
	0.066	89	Row crops, straight row, good, HSG D
*	0.059	0	Paved; open ditches, 50% imp, HSG D
	0.054	86	Farmsteads, HSG D
*	0.030	0	Paved; open ditches, 50% imp, HSG D
*	0.027	0	Paved; open ditches, 50% imp, HSG D
	0.014	89	Row crops, straight row, good, HSG D
	0.010	86	Farmsteads, HSG D
*	0.010	0	Paved; open ditches, 50% imp, HSG D
*	0.005	0	Paved; open ditches, 50% imp, HSG D
*	0.005	0	Paved; open ditches, 50% imp, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG C
*	0.002	0	Paved; open ditches, 50% imp, HSG D
*	0.002	0	Paved; open ditches, 50% imp, HSG D

	0.002	89	Row crops, straight row, good, HSG D
	0.002	77	Woods, Good, HSG D
	0.001	89	Row crops, straight row, good, HSG D
*	0.001	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
	0.000	86	Farmsteads, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
	0.000	89	Row crops, straight row, good, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
	148.528	85	Weighted Average
	147.324		99.19% Pervious Area
	1.204		0.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
27.2	3,021	0.0132	1.85		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
7.4	1,182	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
55.0	4,303	Total			

Subcatchment 116: 116



Summary for Subcatchment 184: 184

[47] Hint: Peak is 114% of capacity of segment #3

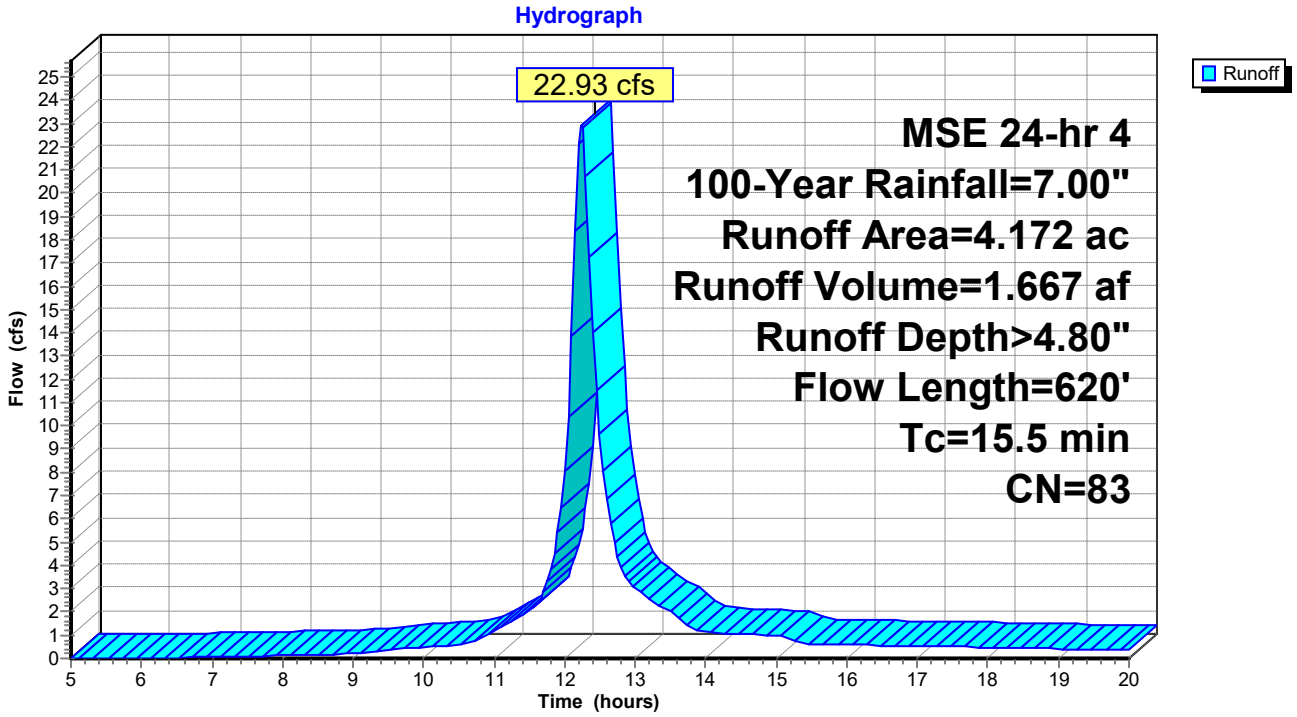
Runoff = 22.93 cfs @ 12.24 hrs, Volume= 1.667 af, Depth> 4.80"
Routed to Pond 2P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	1.723	89	Row crops, straight row, good, HSG D
	1.212	89	Row crops, straight row, good, HSG D
	0.529	78	Row crops, straight row, good, HSG B
	0.359	67	Row crops, straight row, good, HSG A
	0.112	89	Row crops, straight row, good, HSG D
*	0.090	0	Paved; open ditches, 50% imp, HSG D
	0.089	67	Row crops, straight row, good, HSG A
	0.029	78	Row crops, straight row, good, HSG B
*	0.028	0	Paved; open ditches, 50% imp, HSG A
	0.001	89	Row crops, straight row, good, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	4.172	83	Weighted Average
	4.112		98.58% Pervious Area
	0.059		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0169	0.13		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
1.5	170	0.0139	1.90		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	350	0.0115	4.02	20.08	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
15.5	620	Total			

Subcatchment 184: 184



Summary for Subcatchment 185: 185

[47] Hint: Peak is 221% of capacity of segment #3

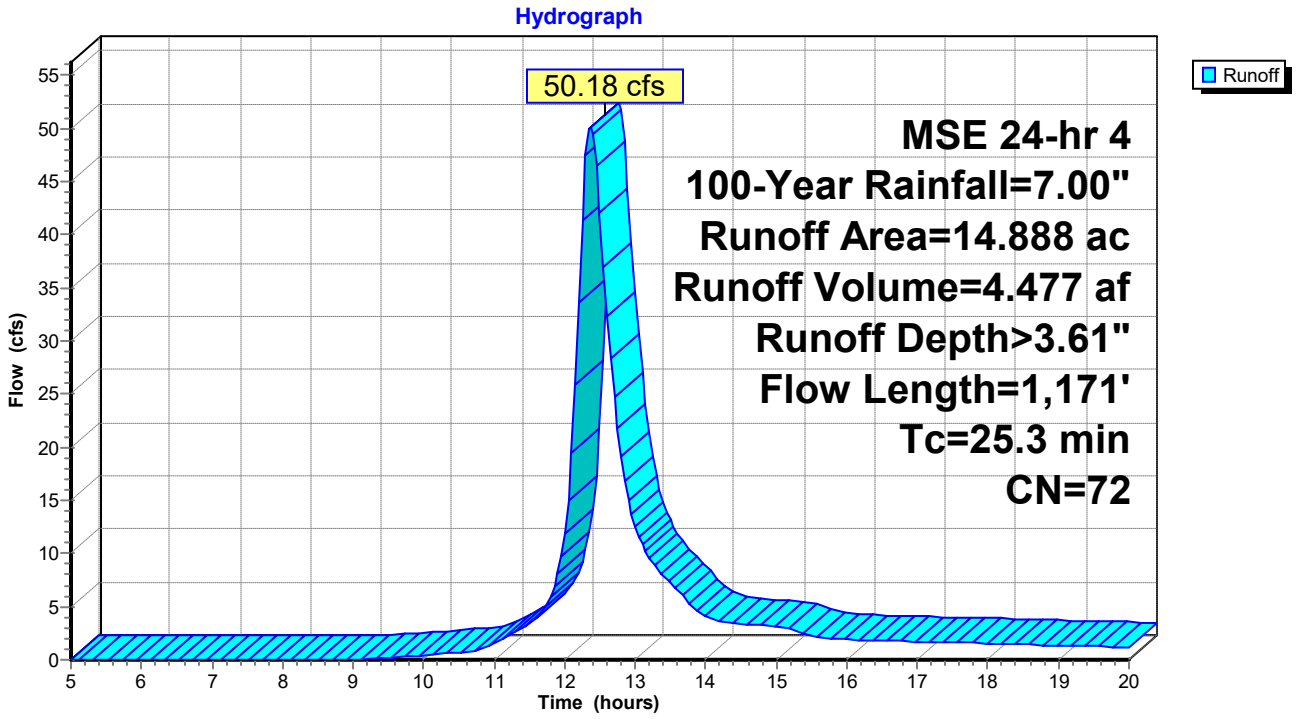
Runoff = 50.18 cfs @ 12.37 hrs, Volume= 4.477 af, Depth> 3.61"
Routed to Pond 1P : Culvert Crossing

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	5.333	77	Woods, Good, HSG D
	1.856	86	Farmsteads, HSG D
	1.437	70	Woods, Good, HSG C
	1.000	77	Woods, Good, HSG D
	0.993	82	Farmsteads, HSG C
	0.721	77	Woods, Good, HSG D
	0.558	86	Farmsteads, HSG D
	0.517	77	Woods, Good, HSG D
	0.500	86	Farmsteads, HSG D
*	0.470	0	Paved; open ditches, 50% imp, HSG D
*	0.331	0	Paved; open ditches, 50% imp, HSG D
	0.214	86	Farmsteads, HSG D
	0.213	86	Farmsteads, HSG D
*	0.151	0	Paved; open ditches, 50% imp, HSG D
*	0.111	0	Paved; open ditches, 50% imp, HSG D
*	0.102	0	Paved; open ditches, 50% imp, HSG D
	0.091	89	Row crops, straight row, good, HSG D
*	0.085	0	Paved; open ditches, 50% imp, HSG D
	0.072	86	Farmsteads, HSG D
	0.060	70	Woods, Good, HSG C
	0.040	89	Row crops, straight row, good, HSG D
	0.011	70	Woods, Good, HSG C
	0.007	77	Woods, Good, HSG D
	0.006	89	Row crops, straight row, good, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG D
	0.002	70	Woods, Good, HSG C
	0.001	86	Farmsteads, HSG D
	0.001	77	Woods, Good, HSG D
	0.001	89	Row crops, straight row, good, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
	14.888	72	Weighted Average
	14.261		95.79% Pervious Area
	0.627		4.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
2.6	449	0.0331	2.93		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.3	622	0.0147	4.54	22.70	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
25.3	1,171	Total			

Subcatchment 185: 185



Summary for Subcatchment 186: 186

[47] Hint: Peak is 3740% of capacity of segment #3

Runoff = 573.09 cfs @ 12.58 hrs, Volume= 67.558 af, Depth> 3.79"
Routed to Link 14L : 14L

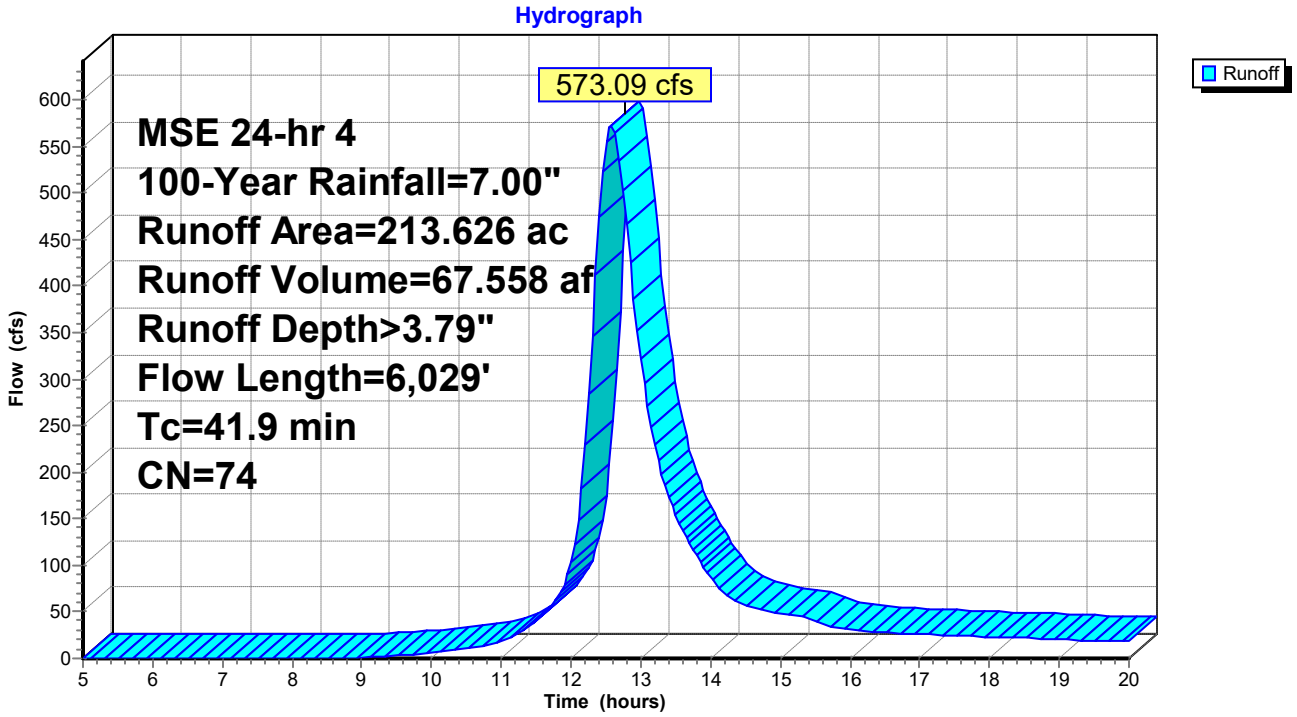
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	24.948	89	Row crops, straight row, good, HSG D
	22.350	80	Pasture/grassland/range, good, HSG D
	18.052	80	Pasture/grassland/range, good, HSG D
	14.181	80	Pasture/grassland/range, good, HSG D
	11.733	89	Row crops, straight row, good, HSG D
	11.213	30	Woods, Good, HSG A
	9.730	80	Pasture/grassland/range, good, HSG D
	8.623	80	Pasture/grassland/range, good, HSG D
	7.287	89	Row crops, straight row, good, HSG D
	7.021	67	Row crops, straight row, good, HSG A
	6.566	39	Pasture/grassland/range, good, HSG A
	5.283	80	Pasture/grassland/range, good, HSG D
	3.492	80	Pasture/grassland/range, good, HSG D
	3.338	86	Farmsteads, HSG D
	3.252	80	Pasture/grassland/range, good, HSG D
	3.167	89	Row crops, straight row, good, HSG D
	3.135	39	Pasture/grassland/range, good, HSG A
	3.117	80	Pasture/grassland/range, good, HSG D
	2.885	59	Farmsteads, HSG A
	2.820	86	Farmsteads, HSG D
	2.721	89	Row crops, straight row, good, HSG D
	2.701	80	Pasture/grassland/range, good, HSG D
	2.519	86	Farmsteads, HSG D
	2.389	77	Woods, Good, HSG D
	2.184	80	Pasture/grassland/range, good, HSG D
	1.974	86	Farmsteads, HSG D
	1.887	30	Woods, Good, HSG A
	1.625	85	Row crops, straight row, good, HSG C
*	1.560	0	Paved; open ditches, 50% imp, HSG D
	1.426	86	Farmsteads, HSG D
	1.410	39	Pasture/grassland/range, good, HSG A
	1.352	30	Woods, Good, HSG A
	1.324	89	Row crops, straight row, good, HSG D
	1.323	59	Farmsteads, HSG A
	1.214	86	Farmsteads, HSG D
	1.199	67	Row crops, straight row, good, HSG A
	1.159	80	Pasture/grassland/range, good, HSG D
	1.125	89	Row crops, straight row, good, HSG D
	1.070	89	Row crops, straight row, good, HSG D
	1.029	80	Pasture/grassland/range, good, HSG D
*	0.987	0	Paved; open ditches, 50% imp, HSG D
	0.939	89	Row crops, straight row, good, HSG D
	0.663	67	Row crops, straight row, good, HSG A
	0.553	86	Farmsteads, HSG D
*	0.503	0	Paved; open ditches, 50% imp, HSG D
	0.499	80	Pasture/grassland/range, good, HSG D
	0.465	39	Pasture/grassland/range, good, HSG A
	0.419	30	Woods, Good, HSG A
	0.401	77	Woods, Good, HSG D
*	0.349	0	Paved; open ditches, 50% imp, HSG D
*	0.327	0	Paved; open ditches, 50% imp, HSG D

*	0.327	0	Paved; open ditches, 50% imp, HSG A
*	0.291	0	Paved; open ditches, 50% imp, HSG C
	0.229	77	Woods, Good, HSG D
*	0.223	0	Paved; open ditches, 50% imp, HSG D
	0.136	86	Farmsteads, HSG D
*	0.126	0	Paved; open ditches, 50% imp, HSG D
	0.125	86	Farmsteads, HSG D
*	0.118	0	Paved; open ditches, 50% imp, HSG D
	0.090	89	Row crops, straight row, good, HSG D
	0.070	89	Row crops, straight row, good, HSG D
*	0.068	0	Paved; open ditches, 50% imp, HSG D
*	0.065	0	Paved; open ditches, 50% imp, HSG D
*	0.055	0	Paved; open ditches, 50% imp, HSG C
	0.038	89	Row crops, straight row, good, HSG D
	0.029	80	Pasture/grassland/range, good, HSG D
*	0.027	0	Paved; open ditches, 50% imp, HSG A
	0.025	89	Row crops, straight row, good, HSG D
*	0.020	0	Paved; open ditches, 50% imp, HSG D
	0.018	80	Pasture/grassland/range, good, HSG D
	0.011	80	Pasture/grassland/range, good, HSG D
	0.008	77	Woods, Good, HSG D
*	0.007	0	Paved; open ditches, 50% imp, HSG D
*	0.007	0	Paved; open ditches, 50% imp, HSG D
*	0.005	0	Paved; open ditches, 50% imp, HSG D
*	0.005	0	Paved; open ditches, 50% imp, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG C
*	0.004	0	Paved; open ditches, 50% imp, HSG D
*	0.002	0	Paved; open ditches, 50% imp, HSG D
*	0.002	0	Paved; open ditches, 50% imp, HSG D
*	0.002	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG D
	213.626	74	Weighted Average
	211.083		98.81% Pervious Area
	2.543		1.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0458	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
7.7	1,176	0.0250	2.55		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
25.8	4,753	0.0067	3.06	15.32	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
41.9	6,029	Total			

Subcatchment 186: 186



Summary for Subcatchment 187: 187

[47] Hint: Peak is 1163% of capacity of segment #3

Runoff = 153.91 cfs @ 12.92 hrs, Volume= 24.683 af, Depth> 4.18"
Routed to Link 9L : 9L

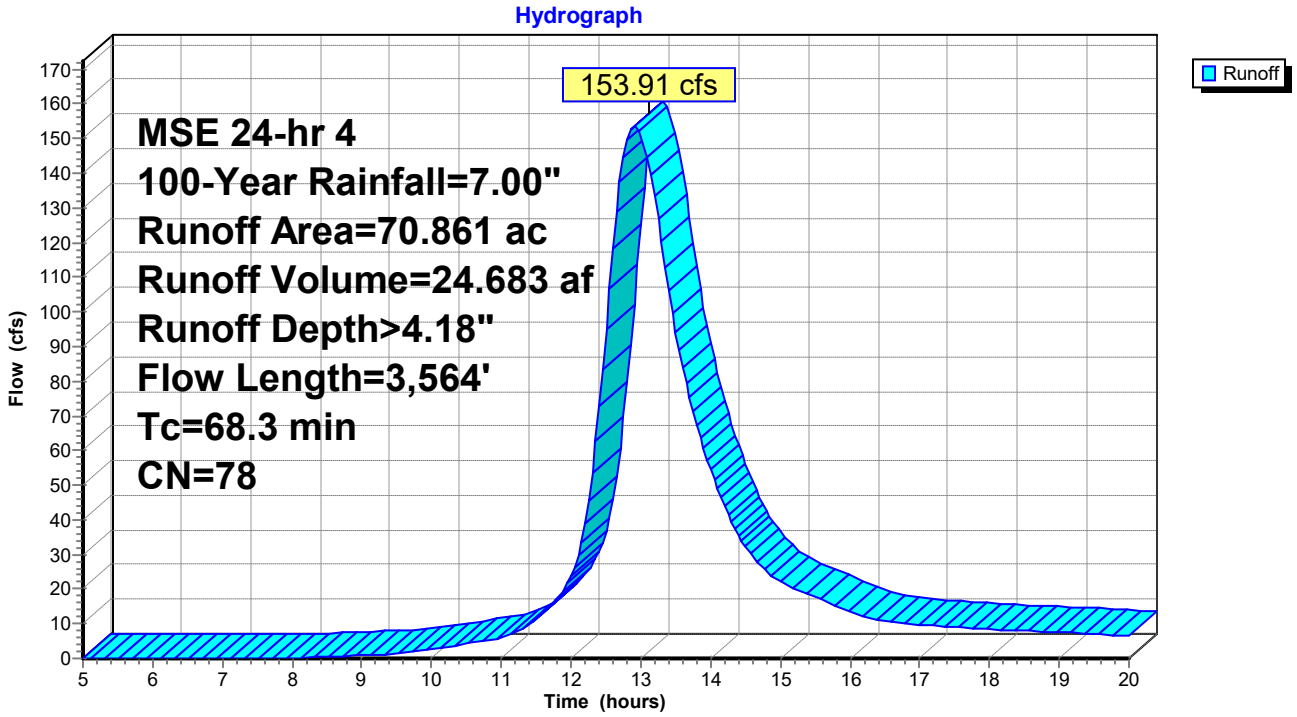
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	8.367	80	Pasture/grassland/range, good, HSG D
	6.623	89	Row crops, straight row, good, HSG D
	4.300	80	Pasture/grassland/range, good, HSG D
	4.249	80	Pasture/grassland/range, good, HSG D
	4.201	80	Pasture/grassland/range, good, HSG D
	3.449	89	Row crops, straight row, good, HSG D
	3.124	80	Pasture/grassland/range, good, HSG D
	3.095	74	Pasture/grassland/range, good, HSG C
	2.888	61	Pasture/grassland/range, good, HSG B
	2.653	80	Pasture/grassland/range, good, HSG D
	2.554	89	Row crops, straight row, good, HSG D
	2.399	89	Row crops, straight row, good, HSG D
	1.931	78	Row crops, straight row, good, HSG B
	1.849	89	Row crops, straight row, good, HSG D
	1.784	89	Row crops, straight row, good, HSG D
	1.605	89	Row crops, straight row, good, HSG D
	1.586	80	Pasture/grassland/range, good, HSG D
	1.174	89	Row crops, straight row, good, HSG D
	1.146	80	Pasture/grassland/range, good, HSG D
	1.127	85	Row crops, straight row, good, HSG C
*	0.809	0	Paved; open ditches, 50% imp, HSG C
	0.622	89	Row crops, straight row, good, HSG D
*	0.601	0	Paved; open ditches, 50% imp, HSG D
	0.585	89	Row crops, straight row, good, HSG D
	0.585	61	Pasture/grassland/range, good, HSG B
	0.569	74	Pasture/grassland/range, good, HSG C
	0.512	80	Pasture/grassland/range, good, HSG D
*	0.493	0	Paved; open ditches, 50% imp, HSG D
	0.454	80	Pasture/grassland/range, good, HSG D
	0.410	74	Pasture/grassland/range, good, HSG C
	0.384	74	Pasture/grassland/range, good, HSG C
	0.374	80	Pasture/grassland/range, good, HSG D
*	0.332	0	Paved; open ditches, 50% imp, HSG C
*	0.325	0	Paved; open ditches, 50% imp, HSG D
*	0.324	0	Paved; open ditches, 50% imp, HSG B
*	0.315	0	Paved; open ditches, 50% imp, HSG B
	0.314	96	Gravel surface, HSG D
	0.270	89	Row crops, straight row, good, HSG D
	0.259	74	Pasture/grassland/range, good, HSG C
	0.237	96	Gravel surface, HSG D
	0.203	80	Pasture/grassland/range, good, HSG D
	0.160	80	Pasture/grassland/range, good, HSG D
	0.158	80	Pasture/grassland/range, good, HSG D
*	0.129	0	Paved; open ditches, 50% imp, HSG D
	0.128	80	Pasture/grassland/range, good, HSG D
*	0.118	0	Paved; open ditches, 50% imp, HSG B
	0.106	96	Gravel surface, HSG D
	0.104	80	Pasture/grassland/range, good, HSG D
	0.098	96	Gravel surface, HSG D
	0.092	74	Pasture/grassland/range, good, HSG C
	0.090	96	Gravel surface, HSG D

	0.089	89	Row crops, straight row, good, HSG D
	0.083	96	Gravel surface, HSG D
	0.055	96	Gravel surface, HSG D
*	0.046	0	Paved; open ditches, 50% imp, HSG B
	0.046	89	Row crops, straight row, good, HSG D
*	0.040	0	Paved; open ditches, 50% imp, HSG D
	0.033	80	Pasture/grassland/range, good, HSG D
*	0.026	0	Paved; open ditches, 50% imp, HSG D
*	0.024	0	Paved; open ditches, 50% imp, HSG C
	0.021	80	Pasture/grassland/range, good, HSG D
	0.020	80	Pasture/grassland/range, good, HSG D
	0.019	96	Gravel surface, HSG D
	0.019	89	Row crops, straight row, good, HSG D
	0.015	96	Gravel surface, HSG D
	0.014	80	Pasture/grassland/range, good, HSG D
	0.010	89	Row crops, straight row, good, HSG D
*	0.010	0	Paved; open ditches, 50% imp, HSG D
	0.006	74	Pasture/grassland/range, good, HSG C
	0.004	96	Gravel surface, HSG C
	0.004	80	Pasture/grassland/range, good, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG D
*	0.003	0	Paved; open ditches, 50% imp, HSG C
	0.002	89	Row crops, straight row, good, HSG D
*	0.000	0	Paved; open ditches, 50% imp, HSG B
	70.861	78	Weighted Average
	69.062		97.46% Pervious Area
	1.799		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7	99	0.0042	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
43.5	2,969	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.1	496	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
68.3	3,564	Total			

Subcatchment 187: 187



Summary for Subcatchment 188: 188

[47] Hint: Peak is 806% of capacity of segment #3

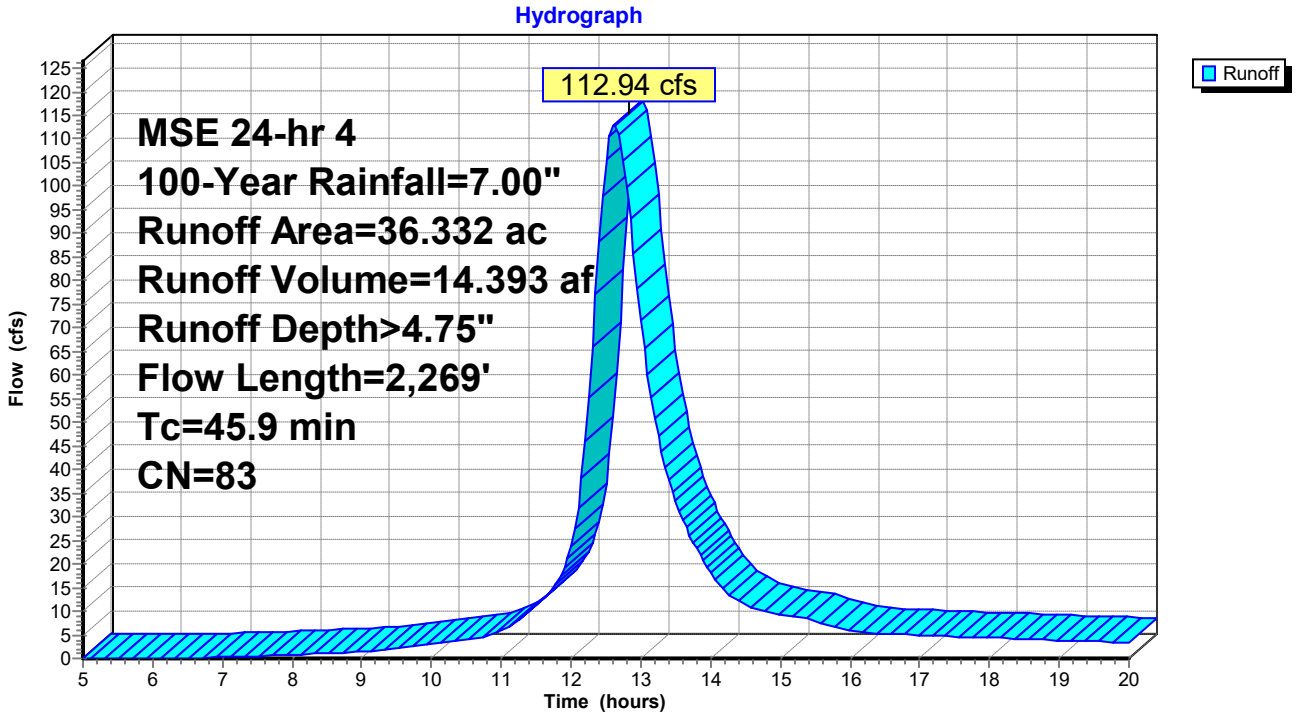
Runoff = 112.94 cfs @ 12.62 hrs, Volume= 14.393 af, Depth> 4.75"
Routed to Link 8L : 8L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	9.546	80	Pasture/grassland/range, good, HSG D
	7.261	80	Pasture/grassland/range, good, HSG D
	5.753	89	Row crops, straight row, good, HSG D
	3.444	80	Pasture/grassland/range, good, HSG D
	2.995	80	Pasture/grassland/range, good, HSG D
	2.883	89	Row crops, straight row, good, HSG D
	1.606	89	Row crops, straight row, good, HSG D
	0.890	80	Pasture/grassland/range, good, HSG D
	0.821	89	Row crops, straight row, good, HSG D
	0.440	89	Row crops, straight row, good, HSG D
	0.399	96	Gravel surface, HSG D
	0.168	96	Gravel surface, HSG D
	0.080	80	Pasture/grassland/range, good, HSG D
*	0.041	0	Paved; open ditches, 50% imp, HSG D
	0.008	89	Row crops, straight row, good, HSG D
	36.332	83	Weighted Average
	36.311		99.94% Pervious Area
	0.020		0.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	99	0.0072	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
26.9	1,926	0.0055	1.19		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.5	244	0.0056	2.80	14.01	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
45.9	2,269	Total			

Subcatchment 188: 188



Summary for Subcatchment 189: 189

[47] Hint: Peak is 409% of capacity of segment #3

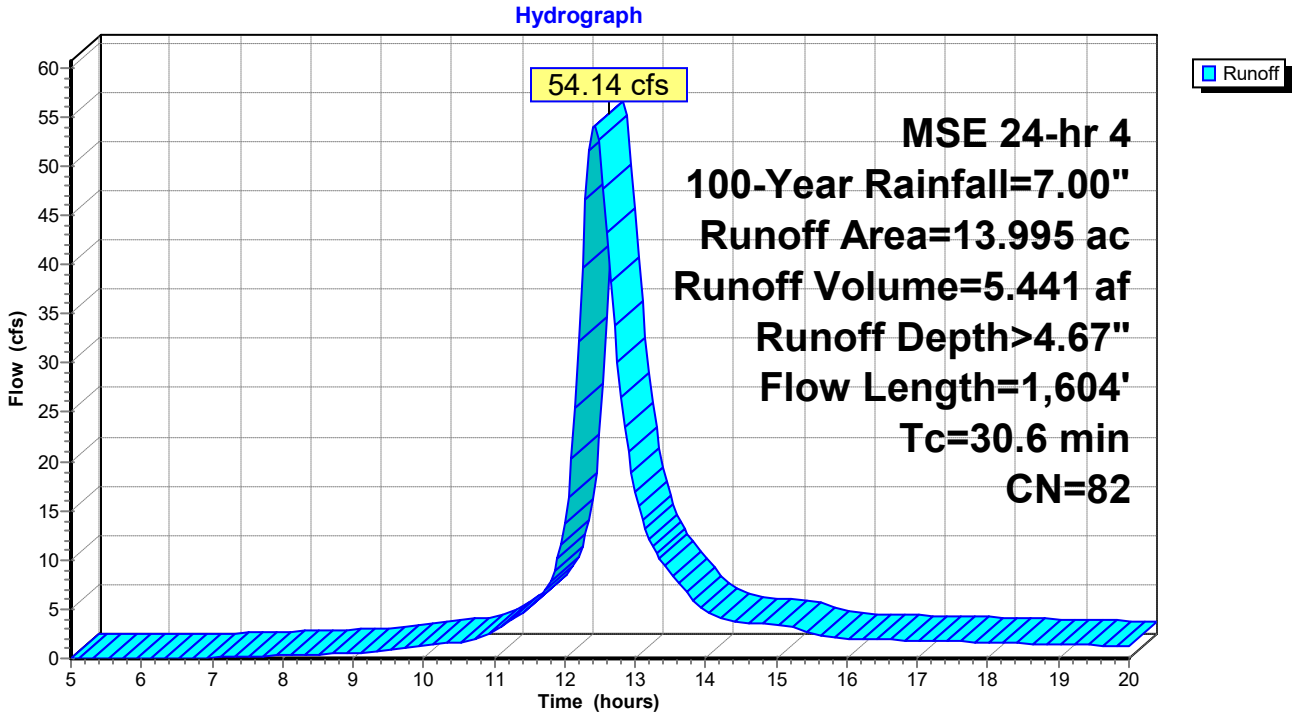
Runoff = 54.14 cfs @ 12.42 hrs, Volume= 5.441 af, Depth> 4.67"
Routed to Link 7L : 7L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.495	80	Pasture/grassland/range, good, HSG D
3.165	80	Pasture/grassland/range, good, HSG D
2.510	80	Pasture/grassland/range, good, HSG D
2.212	89	Row crops, straight row, good, HSG D
1.503	80	Pasture/grassland/range, good, HSG D
0.573	89	Row crops, straight row, good, HSG D
0.221	96	Gravel surface, HSG D
0.198	89	Row crops, straight row, good, HSG D
0.118	89	Row crops, straight row, good, HSG D
13.995	82	Weighted Average
13.995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	100	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
11.9	1,093	0.0090	1.53		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
2.6	411	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
30.6	1,604	Total			

Subcatchment 189: 189



Summary for Subcatchment 190: 190

[47] Hint: Peak is 796% of capacity of segment #3

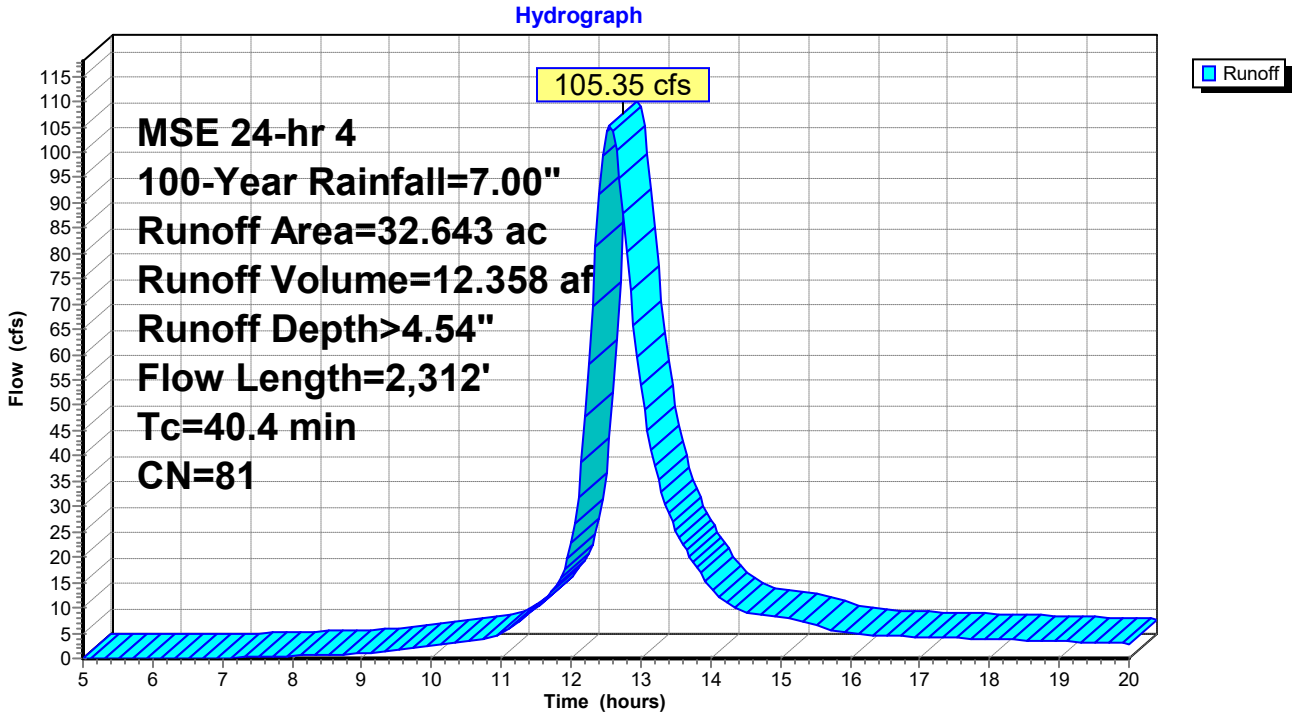
Runoff = 105.35 cfs @ 12.55 hrs, Volume= 12.358 af, Depth> 4.54"
Routed to Link 6L : 6L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
9.479	80	Pasture/grassland/range, good, HSG D
8.394	77	Woods, Good, HSG D
3.707	89	Row crops, straight row, good, HSG D
3.188	89	Row crops, straight row, good, HSG D
2.372	80	Pasture/grassland/range, good, HSG D
1.838	89	Row crops, straight row, good, HSG D
1.730	77	Woods, Good, HSG D
1.122	77	Woods, Good, HSG D
0.484	77	Woods, Good, HSG D
0.174	30	Woods, Good, HSG A
0.094	96	Gravel surface, HSG D
0.051	89	Row crops, straight row, good, HSG D
0.010	96	Gravel surface, HSG D
32.643	81	Weighted Average
32.643		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	100	0.0179	0.14		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
25.0	1,711	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
3.2	501	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
40.4	2,312	Total			

Subcatchment 190: 190



Summary for Subcatchment 195: 195

[47] Hint: Peak is 712% of capacity of segment #3

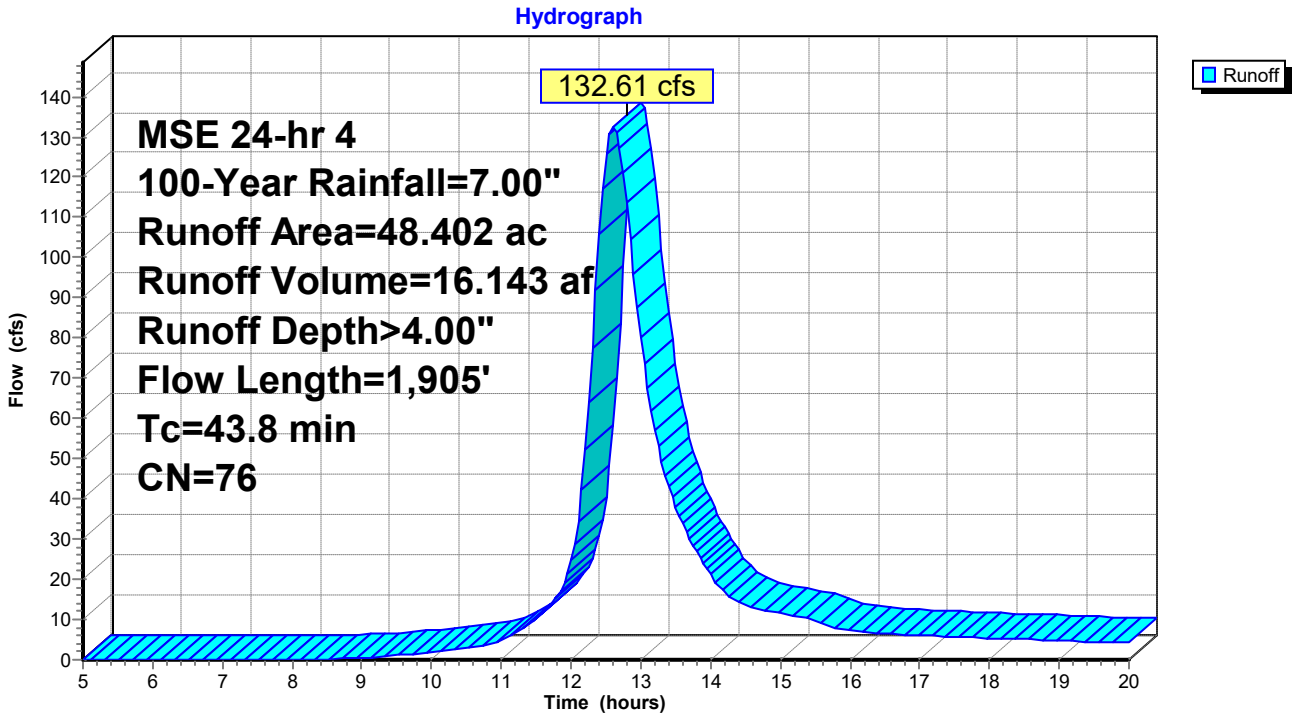
Runoff = 132.61 cfs @ 12.60 hrs, Volume= 16.143 af, Depth> 4.00"
Routed to Link 10L : 10L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	9.019	78	Row crops, straight row, good, HSG B
	5.423	61	Pasture/grassland/range, good, HSG B
	4.404	74	Farmsteads, HSG B
	4.297	80	Pasture/grassland/range, good, HSG D
	4.192	89	Row crops, straight row, good, HSG D
	3.604	61	Pasture/grassland/range, good, HSG B
	3.200	82	Farmsteads, HSG C
	2.881	74	Pasture/grassland/range, good, HSG C
	2.562	80	Pasture/grassland/range, good, HSG D
	2.197	89	Row crops, straight row, good, HSG D
	1.757	80	Pasture/grassland/range, good, HSG D
	1.118	61	Pasture/grassland/range, good, HSG B
	0.851	86	Farmsteads, HSG D
	0.808	85	Row crops, straight row, good, HSG C
	0.615	74	Pasture/grassland/range, good, HSG C
	0.319	82	Farmsteads, HSG C
	0.272	96	Gravel surface, HSG B
	0.203	80	Pasture/grassland/range, good, HSG D
*	0.142	0	Paved; open ditches, 50% imp, HSG D
	0.124	85	Row crops, straight row, good, HSG C
	0.093	96	Gravel surface, HSG B
	0.071	96	Gravel surface, HSG B
	0.066	96	Gravel surface, HSG C
*	0.048	0	Paved; open ditches, 50% imp, HSG D
	0.046	96	Gravel surface, HSG C
	0.042	74	Pasture/grassland/range, good, HSG C
	0.020	74	Pasture/grassland/range, good, HSG C
	0.014	86	Farmsteads, HSG D
*	0.010	0	Paved; open ditches, 50% imp, HSG B
*	0.002	0	Paved; open ditches, 50% imp, HSG D
	0.001	80	Pasture/grassland/range, good, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	48.402	76	Weighted Average
	48.301		99.79% Pervious Area
	0.101		0.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
22.0	1,500	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
1.4	305	0.0099	3.73	18.63	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
43.8	1,905	Total			

Subcatchment 195: 195



Summary for Subcatchment 198: 198

[47] Hint: Peak is 1903% of capacity of segment #3

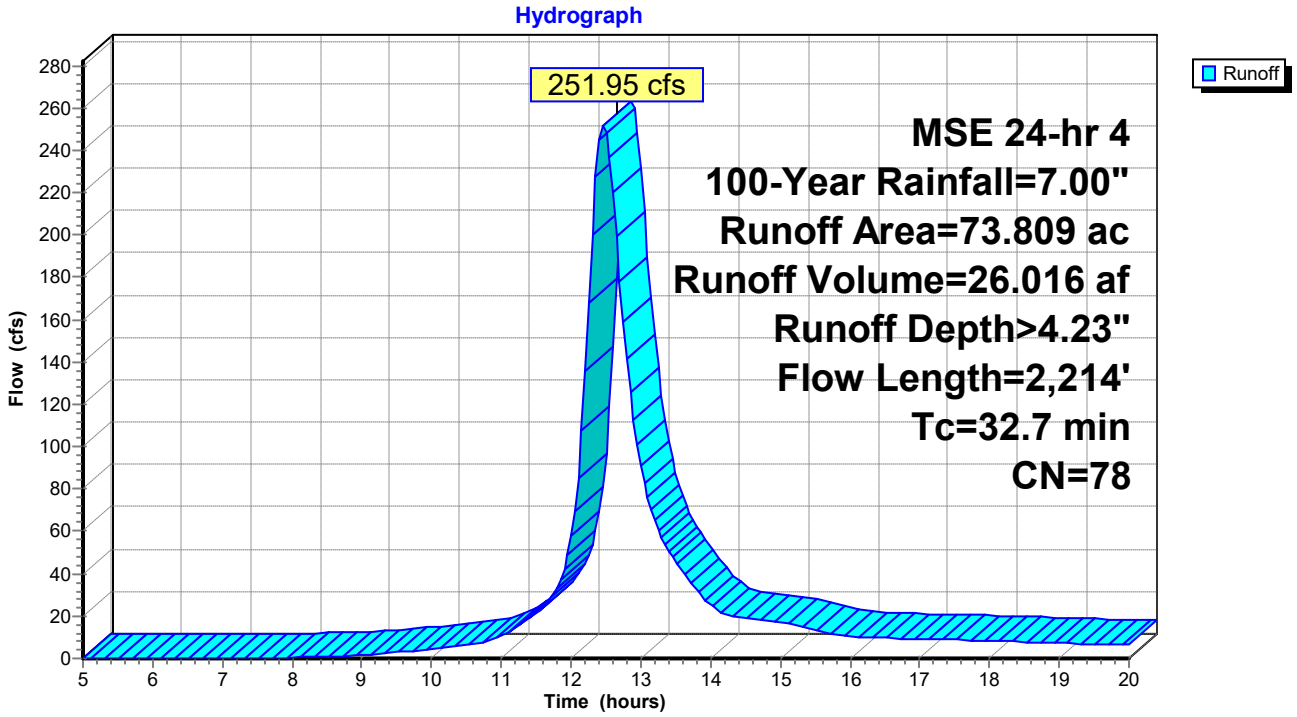
Runoff = 251.95 cfs @ 12.46 hrs, Volume= 26.016 af, Depth> 4.23"
Routed to Link 5L : 5L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	22.791	89	Row crops, straight row, good, HSG D
	10.741	39	Pasture/grassland/range, good, HSG A
	10.407	89	Row crops, straight row, good, HSG D
	9.262	89	Row crops, straight row, good, HSG D
	5.827	80	Pasture/grassland/range, good, HSG D
	3.589	89	Row crops, straight row, good, HSG D
	2.761	89	Row crops, straight row, good, HSG D
	2.467	89	Row crops, straight row, good, HSG D
	1.886	80	Pasture/grassland/range, good, HSG D
*	1.182	0	Paved; open ditches, 50% imp, HSG D
	0.941	67	Row crops, straight row, good, HSG A
	0.523	67	Row crops, straight row, good, HSG A
	0.452	67	Row crops, straight row, good, HSG A
*	0.412	0	Paved; open ditches, 50% imp, HSG D
*	0.230	0	Paved; open ditches, 50% imp, HSG D
	0.167	96	Gravel surface, HSG A
*	0.073	0	Paved; open ditches, 50% imp, HSG A
	0.072	96	Gravel surface, HSG A
*	0.017	0	Paved; open ditches, 50% imp, HSG D
*	0.007	0	Paved; open ditches, 50% imp, HSG A
*	0.002	0	Paved; open ditches, 50% imp, HSG D
	0.001	96	Gravel surface, HSG D
	73.809	78	Weighted Average
	72.848		98.70% Pervious Area
	0.961		1.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0087	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
7.0	624	0.0086	1.49		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
9.4	1,490	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
32.7	2,214	Total			

Subcatchment 198: 198



Summary for Subcatchment 199: 199

[47] Hint: Peak is 2898% of capacity of segment #3

Runoff = 383.62 cfs @ 12.89 hrs, Volume= 61.407 af, Depth> 4.61"
Routed to Link 13L : 13L

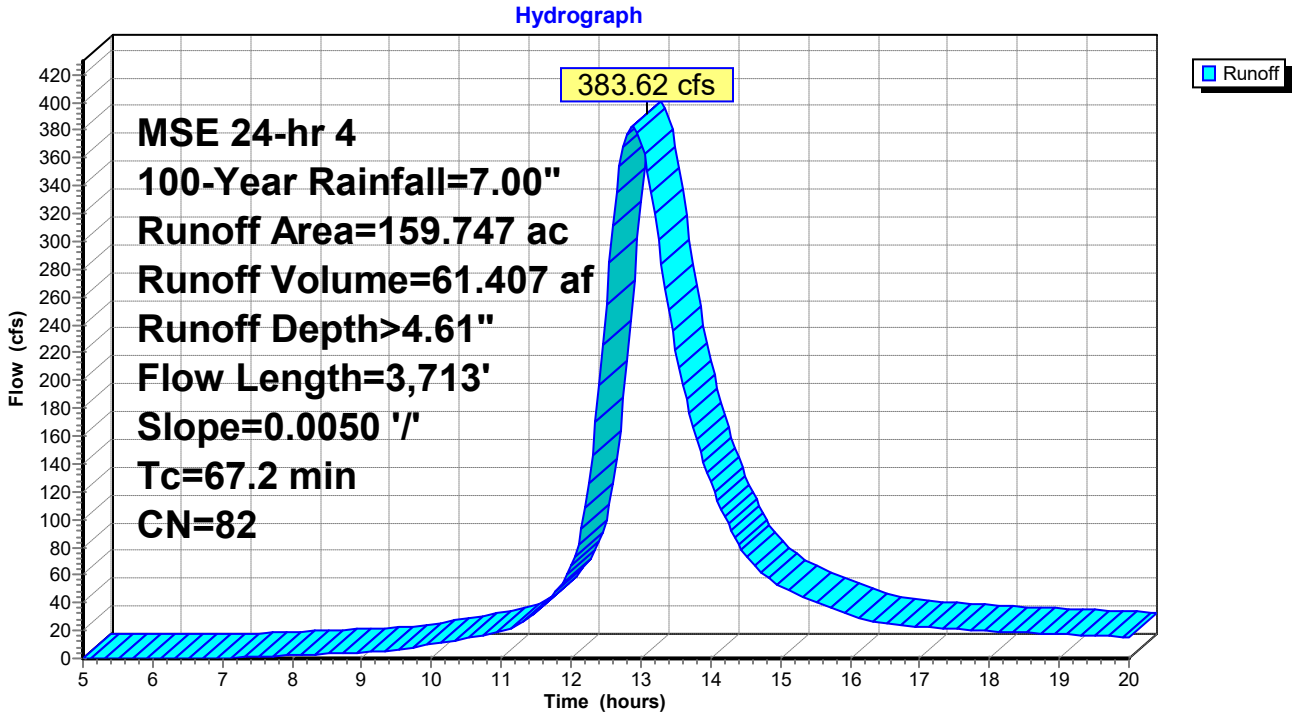
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	36.453	89	Row crops, straight row, good, HSG D
	11.468	89	Row crops, straight row, good, HSG D
	10.356	80	Pasture/grassland/range, good, HSG D
	8.113	80	Pasture/grassland/range, good, HSG D
	7.324	80	Pasture/grassland/range, good, HSG D
	6.862	89	Row crops, straight row, good, HSG D
	6.818	80	Pasture/grassland/range, good, HSG D
	6.683	77	Woods, Good, HSG D
	6.359	89	Row crops, straight row, good, HSG D
	5.862	80	Pasture/grassland/range, good, HSG D
	5.120	86	Farmsteads, HSG D
	4.857	80	Pasture/grassland/range, good, HSG D
	4.801	80	Pasture/grassland/range, good, HSG D
	4.488	39	Pasture/grassland/range, good, HSG A
	4.196	89	Row crops, straight row, good, HSG D
	3.489	89	Row crops, straight row, good, HSG D
	3.172	67	Row crops, straight row, good, HSG A
	2.714	80	Pasture/grassland/range, good, HSG D
	2.198	89	Row crops, straight row, good, HSG D
	1.894	89	Row crops, straight row, good, HSG D
	1.641	77	Woods, Good, HSG D
	1.637	80	Pasture/grassland/range, good, HSG D
	1.076	80	Pasture/grassland/range, good, HSG D
	0.965	80	Pasture/grassland/range, good, HSG D
	0.914	89	Row crops, straight row, good, HSG D
	0.843	77	Woods, Good, HSG D
	0.839	80	Pasture/grassland/range, good, HSG D
	0.825	80	Pasture/grassland/range, good, HSG D
	0.767	39	Pasture/grassland/range, good, HSG A
*	0.660	0	Paved; open ditches, 50% imp, HSG D
	0.514	89	Row crops, straight row, good, HSG D
	0.483	39	Pasture/grassland/range, good, HSG A
*	0.372	0	Paved; open ditches, 50% imp, HSG D
	0.370	80	Pasture/grassland/range, good, HSG D
	0.345	96	Gravel surface, HSG D
	0.343	39	Pasture/grassland/range, good, HSG A
	0.298	89	Row crops, straight row, good, HSG D
	0.293	77	Woods, Good, HSG D
	0.265	80	Pasture/grassland/range, good, HSG D
	0.217	96	Gravel surface, HSG D
	0.204	96	Gravel surface, HSG A
	0.196	89	Row crops, straight row, good, HSG D
	0.186	86	Farmsteads, HSG D
	0.176	86	Farmsteads, HSG D
	0.176	89	Row crops, straight row, good, HSG D
	0.162	96	Gravel surface, HSG D
	0.157	96	Gravel surface, HSG D
	0.112	89	Row crops, straight row, good, HSG D
	0.111	96	Gravel surface, HSG A
*	0.111	0	Paved; open ditches, 50% imp, HSG D
	0.102	89	Row crops, straight row, good, HSG D

	0.100	39	Pasture/grassland/range, good, HSG A
	0.100	96	Gravel surface, HSG D
*	0.086	0	Paved; open ditches, 50% imp, HSG D
	0.086	96	Gravel surface, HSG D
	0.077	96	Gravel surface, HSG D
	0.068	80	Pasture/grassland/range, good, HSG D
	0.066	89	Row crops, straight row, good, HSG D
	0.065	89	Row crops, straight row, good, HSG D
	0.064	77	Woods, Good, HSG D
*	0.059	0	Paved; open ditches, 50% imp, HSG D
	0.059	96	Gravel surface, HSG D
*	0.050	0	Paved; open ditches, 50% imp, HSG D
	0.049	96	Gravel surface, HSG D
	0.048	80	Pasture/grassland/range, good, HSG D
*	0.046	0	Paved; open ditches, 50% imp, HSG D
	0.041	96	Gravel surface, HSG D
	0.031	77	Woods, Good, HSG D
	0.015	96	Gravel surface, HSG A
*	0.014	0	Paved; open ditches, 50% imp, HSG D
	0.012	80	Pasture/grassland/range, good, HSG D
*	0.007	0	Paved; open ditches, 50% imp, HSG D
*	0.004	0	Paved; open ditches, 50% imp, HSG D
*	0.003	0	Paved; open ditches, 50% imp, HSG D
	0.003	89	Row crops, straight row, good, HSG D
	0.002	86	Farmsteads, HSG D
	0.002	80	Pasture/grassland/range, good, HSG D
	0.002	77	Woods, Good, HSG D
	0.001	96	Gravel surface, HSG D
	0.001	77	Woods, Good, HSG D
	0.001	86	Farmsteads, HSG D
	0.001	89	Row crops, straight row, good, HSG D
	0.000	86	Farmsteads, HSG D
	0.000	89	Row crops, straight row, good, HSG D
	159.747	82	Weighted Average
	159.041		99.56% Pervious Area
	0.706		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	100	0.0050	0.08		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.24"
42.2	2,884	0.0050	1.14		**Shallow Concentrated Flow, Shallow Concentrated Flow** Kv= 16.1 fps
4.6	729	0.0050	2.65	13.24	**Channel Flow, Channel Flow** Area= 5.0 sf Perim= 10.0' r= 0.50' n= 0.025 Earth, clean & winding
67.2	3,713	Total			

Subcatchment 199: 199



Summary for Subcatchment 1877: 1877

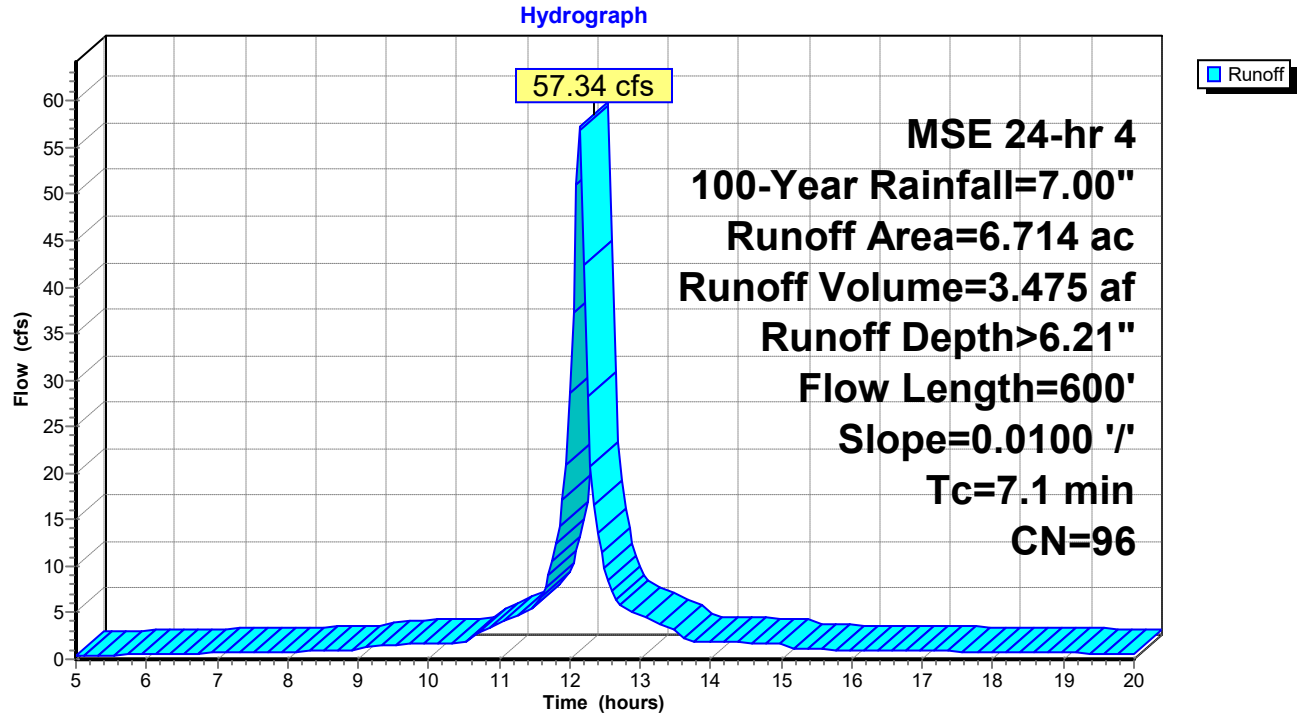
Runoff = 57.34 cfs @ 12.14 hrs, Volume= 3.475 af, Depth> 6.21"
Routed to Pond 198P : Substation & Switchgear Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.508	96	Gravel surface, HSG C
2.182	96	Gravel surface, HSG C
1.180	96	Gravel surface, HSG D
1.099	96	Gravel surface, HSG B
0.430	96	Gravel surface, HSG C
0.239	96	Gravel surface, HSG D
0.075	80	Pasture/grassland/range, good, HSG D
6.714	96	Weighted Average
6.714		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0100	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.24"
5.2	500	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.1	600	Total			

Subcatchment 1877: 1877



Summary for Subcatchment 1878: 1878

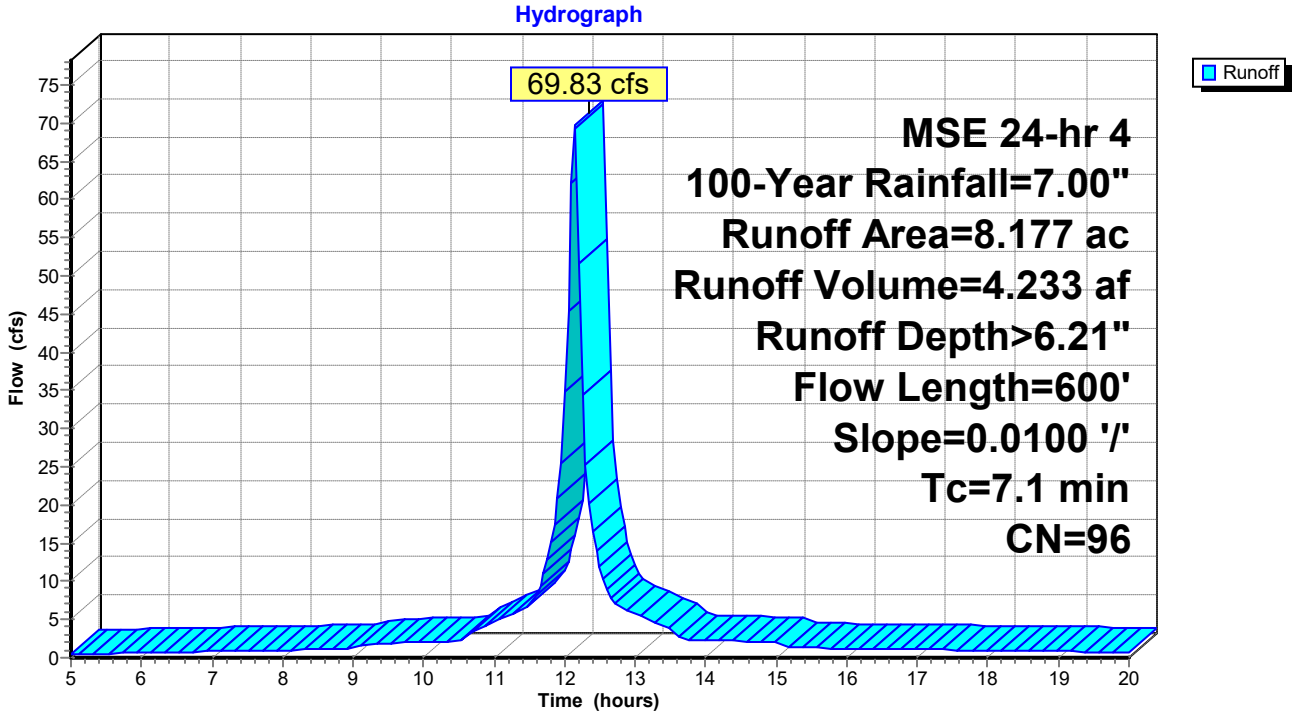
Runoff = 69.83 cfs @ 12.14 hrs, Volume= 4.233 af, Depth> 6.21"
Routed to Pond 199P : BESS Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.00"

Area (ac)	CN	Description
6.998	96	Gravel surface, HSG D
0.544	96	Gravel surface, HSG D
0.469	96	Gravel surface, HSG D
0.110	80	Pasture/grassland/range, good, HSG D
0.038	96	Gravel surface, HSG C
0.019	96	Gravel surface, HSG D
8.177	96	Weighted Average
8.177		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	100	0.0100	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.24"
5.2	500	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.1	600	Total			

Subcatchment 1878: 1878



Summary for Reach 1R: Ditch Channel

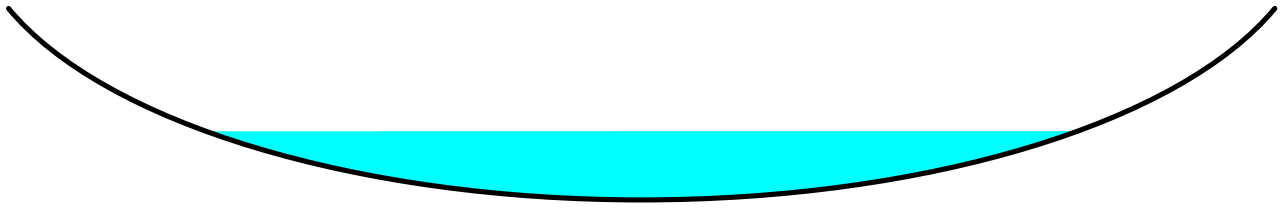
[65] Warning: Inlet elevation not specified

Inflow Area = 11.657 ac, 2.20% Impervious, Inflow Depth > 4.05" for 100-Year event
Inflow = 59.72 cfs @ 12.19 hrs, Volume= 3.930 af
Outflow = 43.01 cfs @ 12.30 hrs, Volume= 3.876 af, Atten= 28%, Lag= 6.8 min
Routed to Link 1L : 1L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.34 fps, Min. Travel Time= 12.5 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 35.5 min

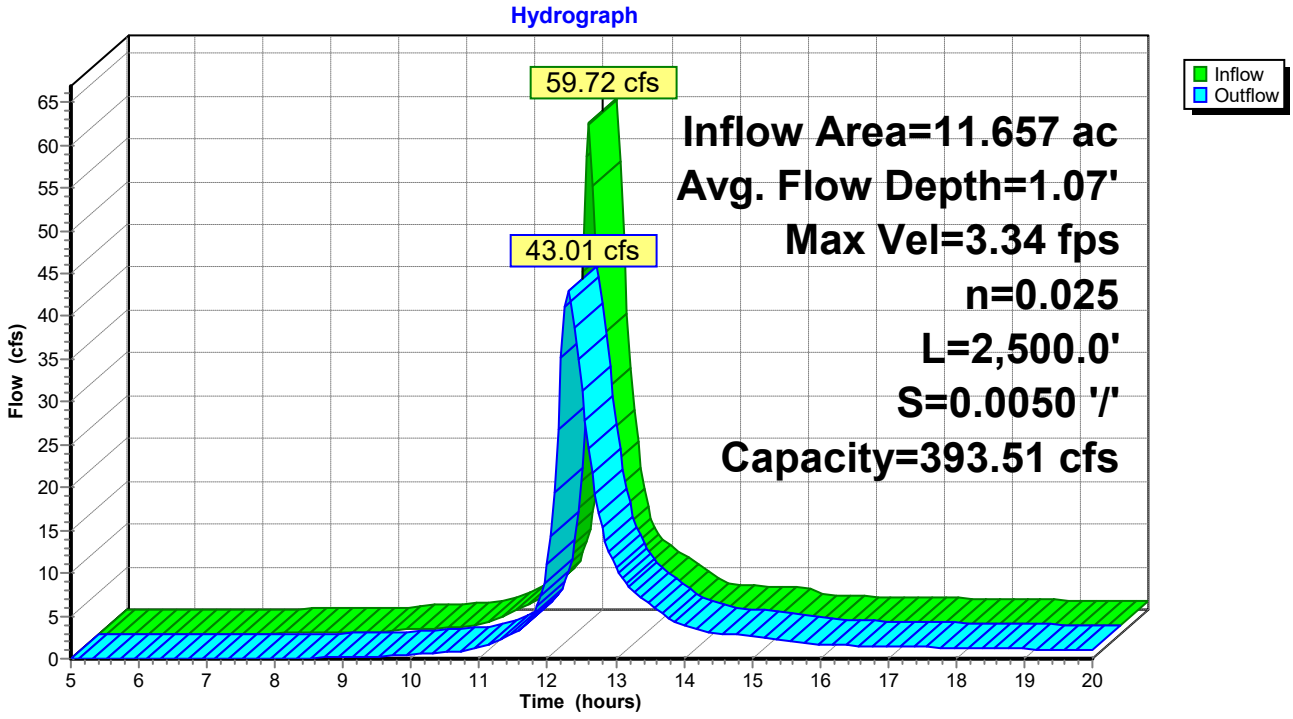
Peak Storage= 32,153 cf @ 12.30 hrs
Average Depth at Peak Storage= 1.07' , Surface Width= 17.95'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.51 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,500.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -12.50'



‡

Reach 1R: Ditch Channel



Summary for Reach 2R: Drainage Channel

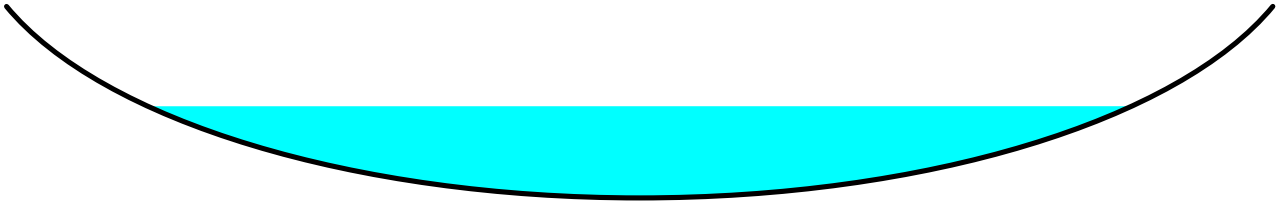
[65] Warning: Inlet elevation not specified
[80] Warning: Exceeded Pond 1P by 0.02' @ 8.25 hrs (0.00 cfs 0.000 af)

Inflow Area = 25.837 ac, 2.43% Impervious, Inflow Depth > 3.84" for 100-Year event
Inflow = 96.25 cfs @ 12.29 hrs, Volume= 8.258 af
Outflow = 80.64 cfs @ 12.42 hrs, Volume= 8.158 af, Atten= 16%, Lag= 7.7 min
Routed to Link 1L : 1L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.05 fps, Min. Travel Time= 11.0 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 28.7 min

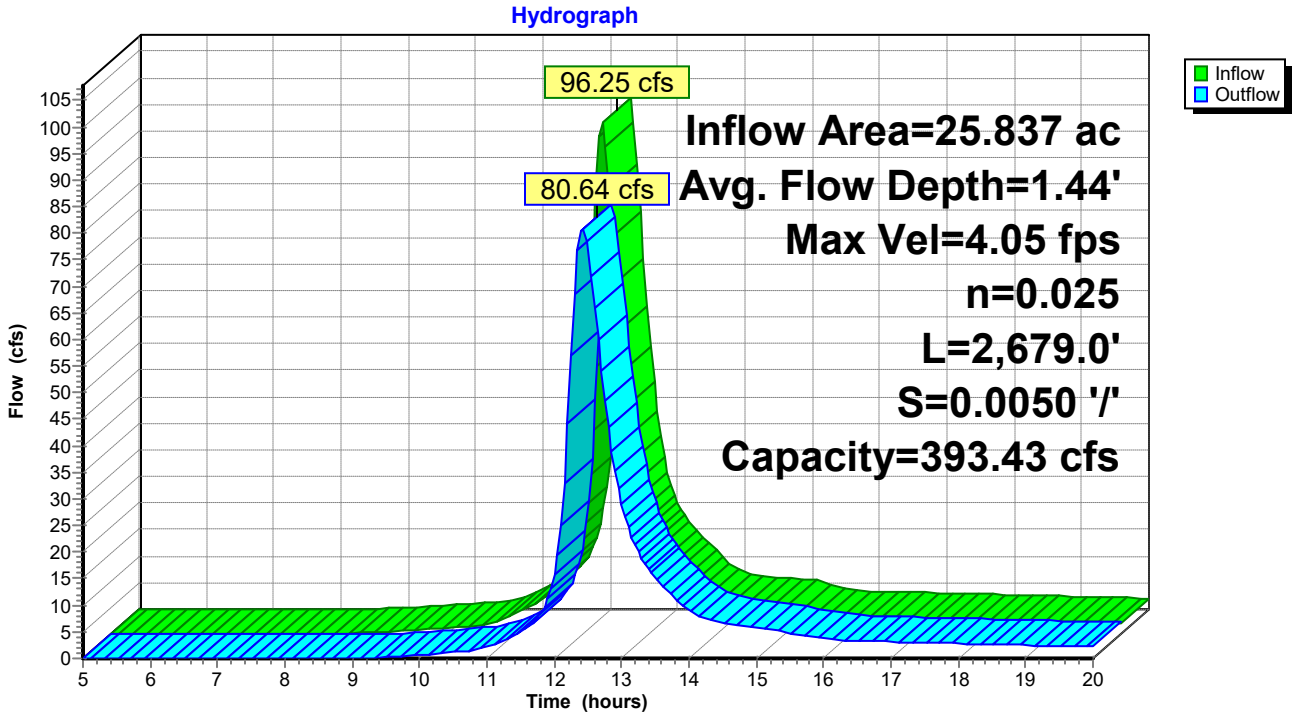
Peak Storage= 53,328 cf @ 12.42 hrs
Average Depth at Peak Storage= 1.44' , Surface Width= 20.77'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.43 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,679.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -13.39'



‡

Reach 2R: Drainage Channel



Summary for Reach 3R: Drainage Ditch

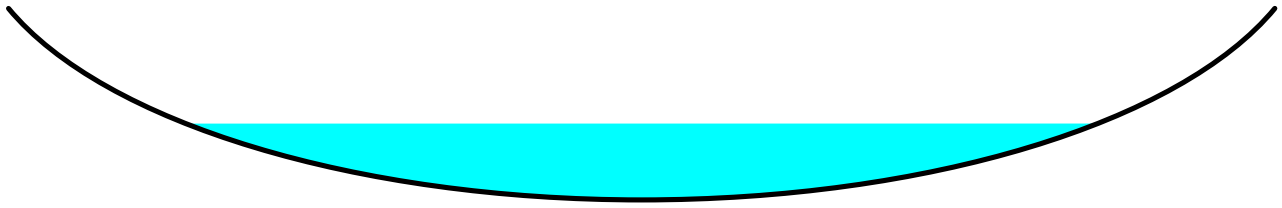
[65] Warning: Inlet elevation not specified

Inflow Area = 14.886 ac, 0.00% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 83.27 cfs @ 12.20 hrs, Volume= 5.413 af
Outflow = 54.08 cfs @ 12.33 hrs, Volume= 5.318 af, Atten= 35%, Lag= 7.6 min
Routed to Link 2L : 2L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.58 fps, Min. Travel Time= 16.5 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 43.5 min

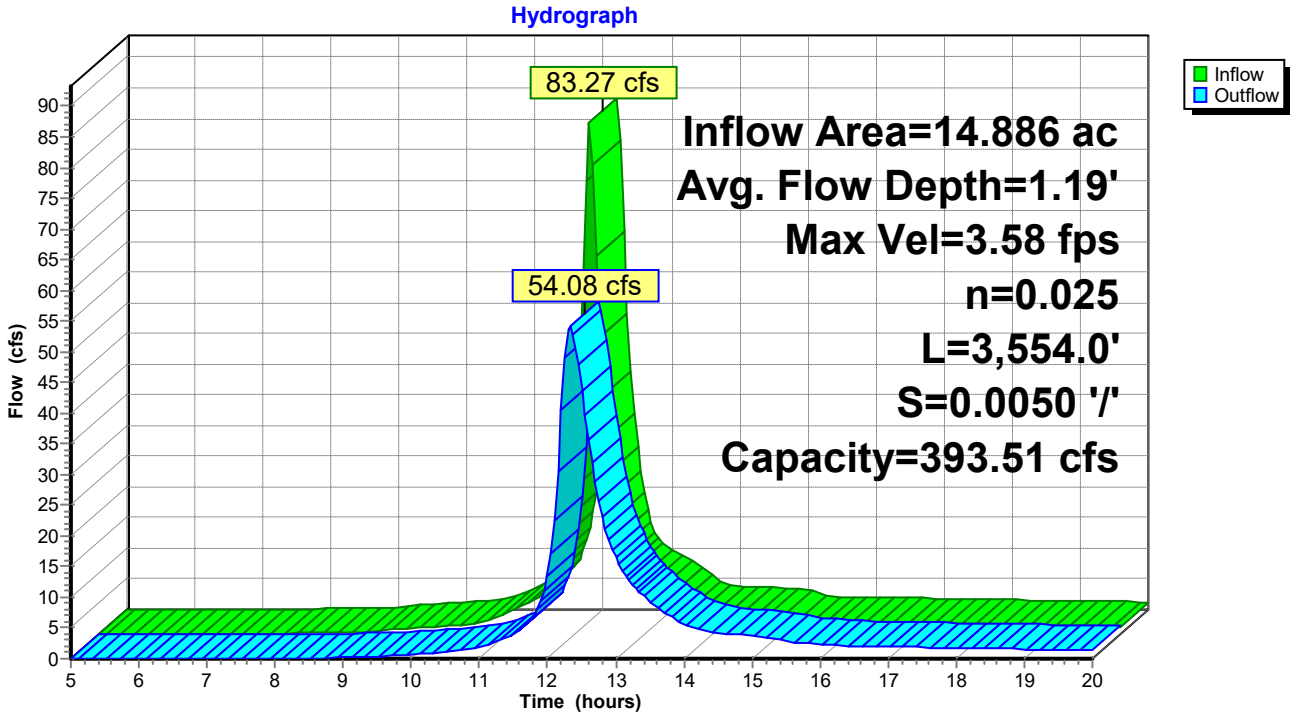
Peak Storage= 53,588 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.19' , Surface Width= 18.93'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.51 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,554.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -17.77'



‡

Reach 3R: Drainage Ditch



Summary for Reach 4R: Drainage Channel

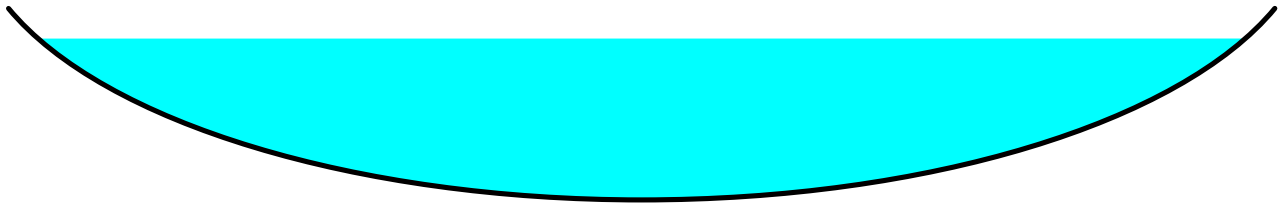
[65] Warning: Inlet elevation not specified

Inflow Area = 83.209 ac, 0.00% Impervious, Inflow Depth > 5.09" for 100-Year event
Inflow = 283.67 cfs @ 12.58 hrs, Volume= 35.298 af
Outflow = 272.77 cfs @ 12.67 hrs, Volume= 35.052 af, Atten= 4%, Lag= 5.5 min
Routed to Pond 6P : Culvert Crossing

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.87 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 19.1 min

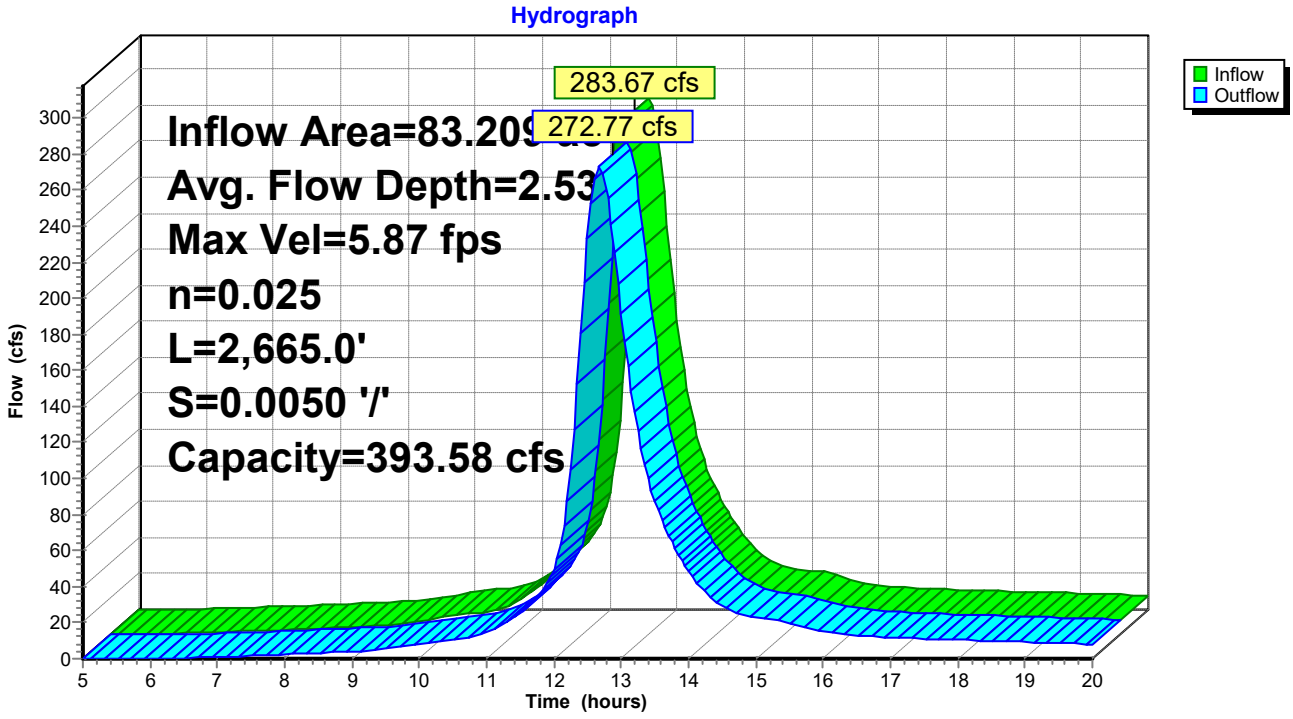
Peak Storage= 123,828 cf @ 12.67 hrs
Average Depth at Peak Storage= 2.53' , Surface Width= 27.55'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.58 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 2,665.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -13.33'



‡

Reach 4R: Drainage Channel



Summary for Reach 5R: Ditch Channel

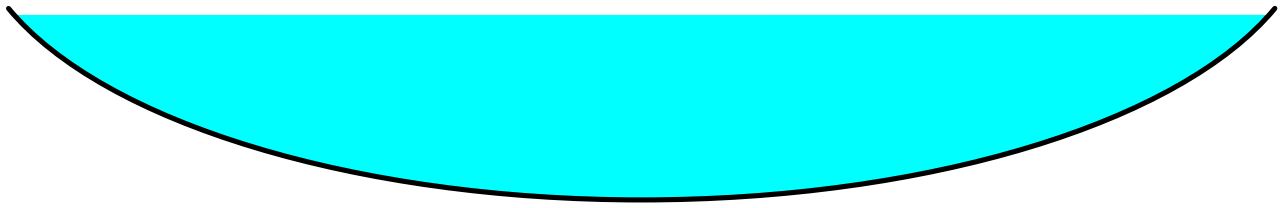
[65] Warning: Inlet elevation not specified

Inflow Area = 135.938 ac, 1.40% Impervious, Inflow Depth > 4.01" for 100-Year event
Inflow = 387.07 cfs @ 12.57 hrs, Volume= 45.378 af
Outflow = 365.83 cfs @ 12.68 hrs, Volume= 44.964 af, Atten= 5%, Lag= 6.5 min
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.41 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 21.1 min

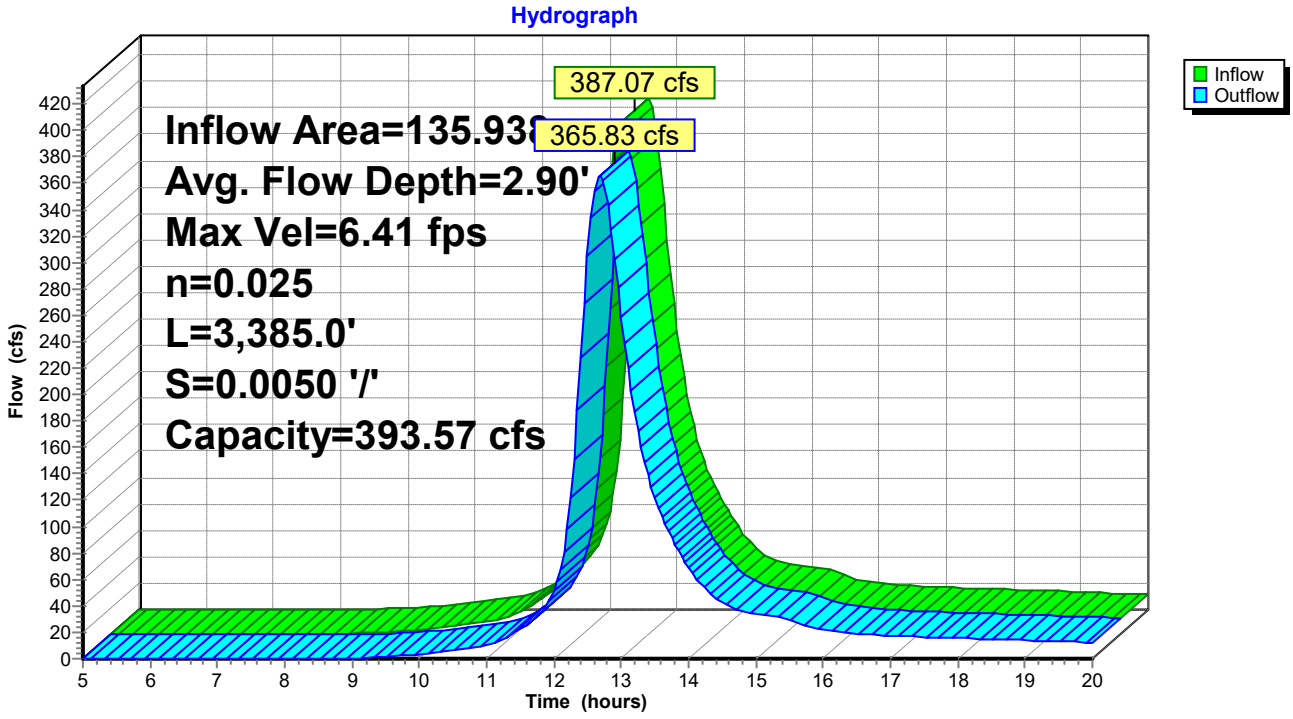
Peak Storage= 193,005 cf @ 12.68 hrs
Average Depth at Peak Storage= 2.90' , Surface Width= 29.49'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.57 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,385.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -16.93'



‡

Reach 5R: Ditch Channel



Summary for Reach 6R: Ditch Channel

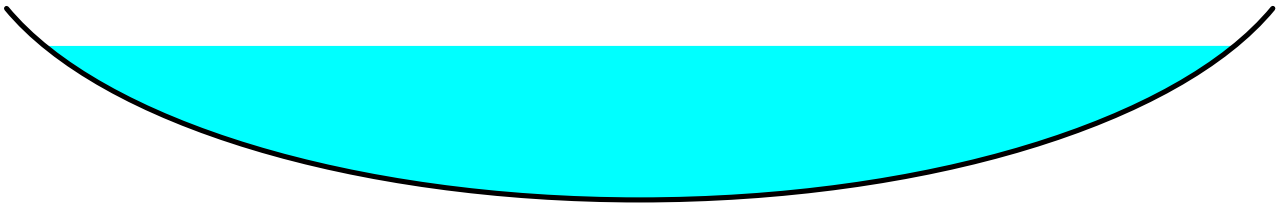
[65] Warning: Inlet elevation not specified

Inflow Area = 208.271 ac, 2.06% Impervious, Inflow Depth > 2.96" for 100-Year event
Inflow = 247.81 cfs @ 13.35 hrs, Volume= 51.314 af
Outflow = 246.47 cfs @ 13.40 hrs, Volume= 51.043 af, Atten= 1%, Lag= 3.2 min
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.69 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 12.2 min

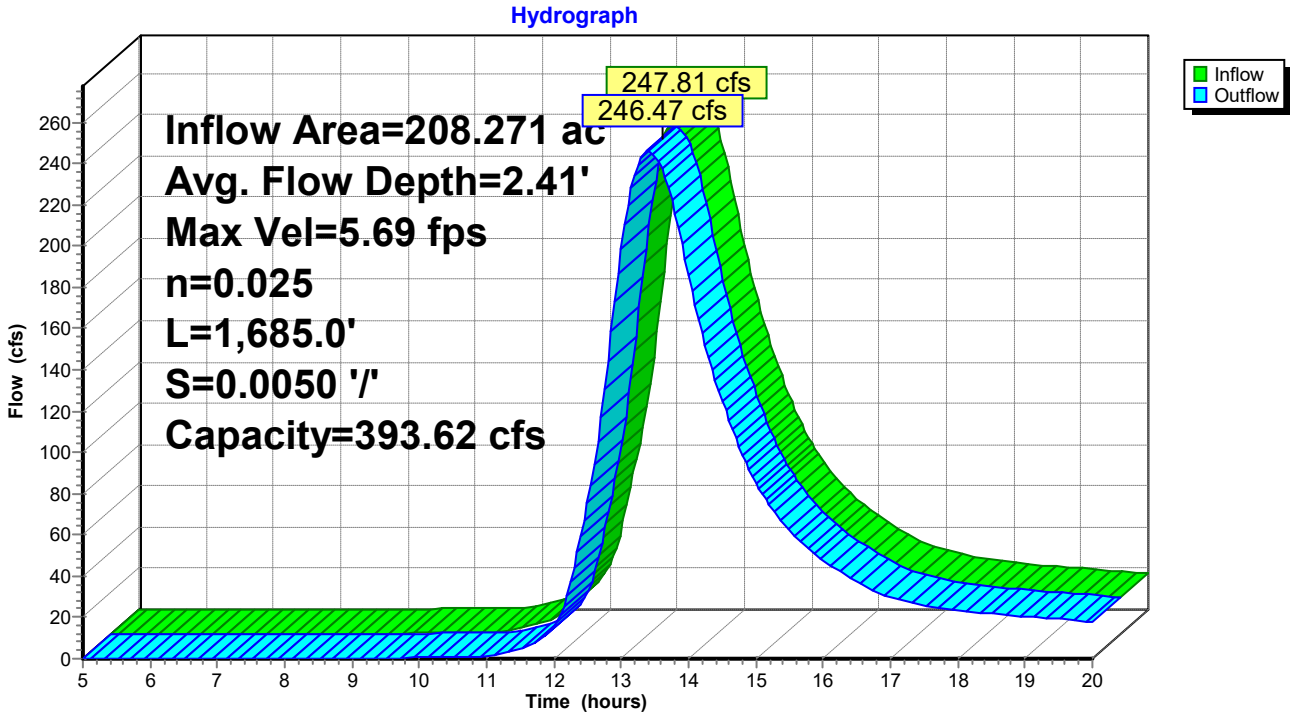
Peak Storage= 72,947 cf @ 13.40 hrs
Average Depth at Peak Storage= 2.41' , Surface Width= 26.91'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.62 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 1,685.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -8.43'



‡

Reach 6R: Ditch Channel



Summary for Reach 7R: Ditch Channel

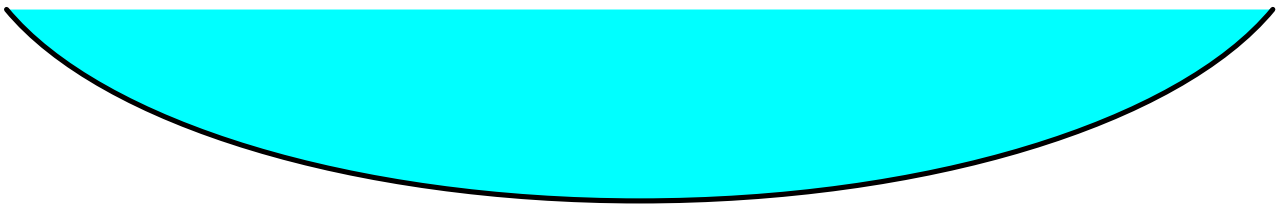
[65] Warning: Inlet elevation not specified
[91] Warning: Storage range exceeded by 0.08'
[55] Hint: Peak inflow is 109% of Manning's capacity

Inflow Area = 148.528 ac, 0.81% Impervious, Inflow Depth > 4.96" for 100-Year event
Inflow = 429.77 cfs @ 12.73 hrs, Volume= 61.410 af
Outflow = 415.57 cfs @ 12.83 hrs, Volume= 60.931 af, Atten= 3%, Lag= 6.2 min
Routed to Link 13L : 13L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.66 fps, Min. Travel Time= 8.6 min
Avg. Velocity = 2.75 fps, Avg. Travel Time= 20.7 min

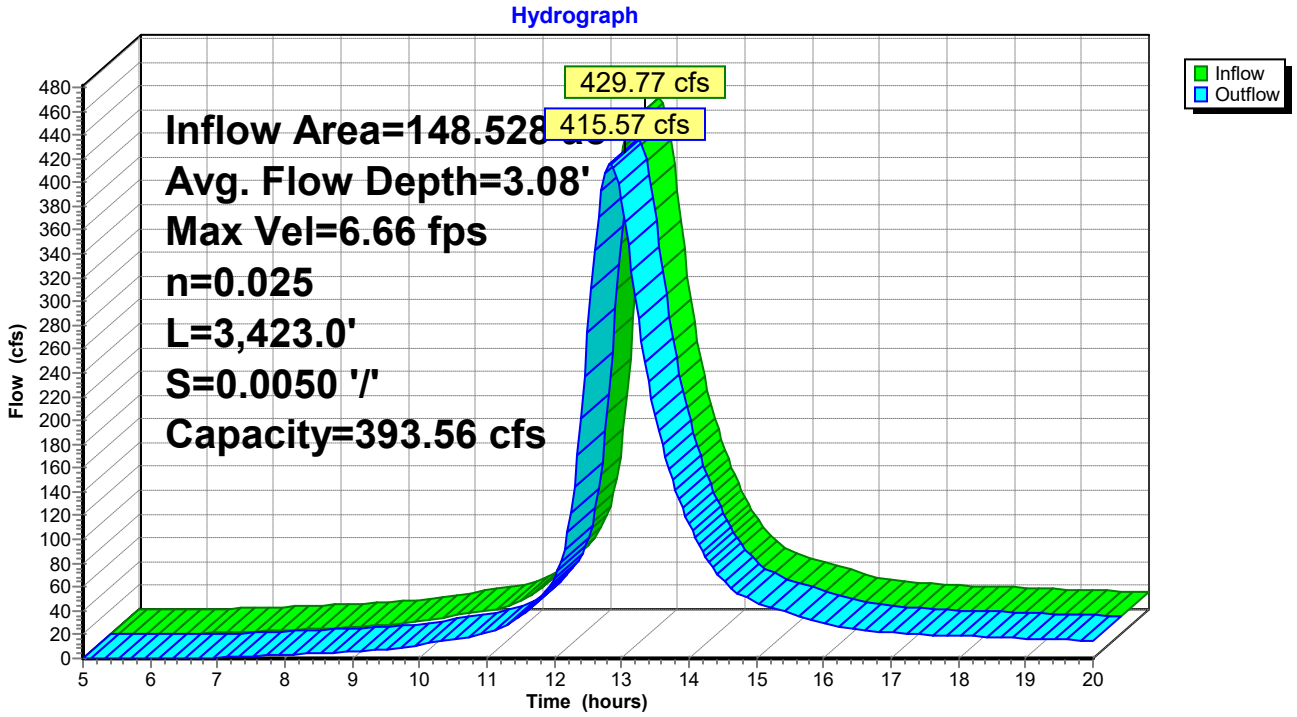
Peak Storage= 213,417 cf @ 12.83 hrs
Average Depth at Peak Storage= 3.08' , Surface Width= 30.39'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 393.56 cfs

30.00' x 3.00' deep Parabolic Channel, n= 0.025 Earth, clean & winding
Length= 3,423.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -17.12'



‡

Reach 7R: Ditch Channel



Summary for Pond 1P: Culvert Crossing

[57] Hint: Peaked at 21.06' (Flood elevation advised)

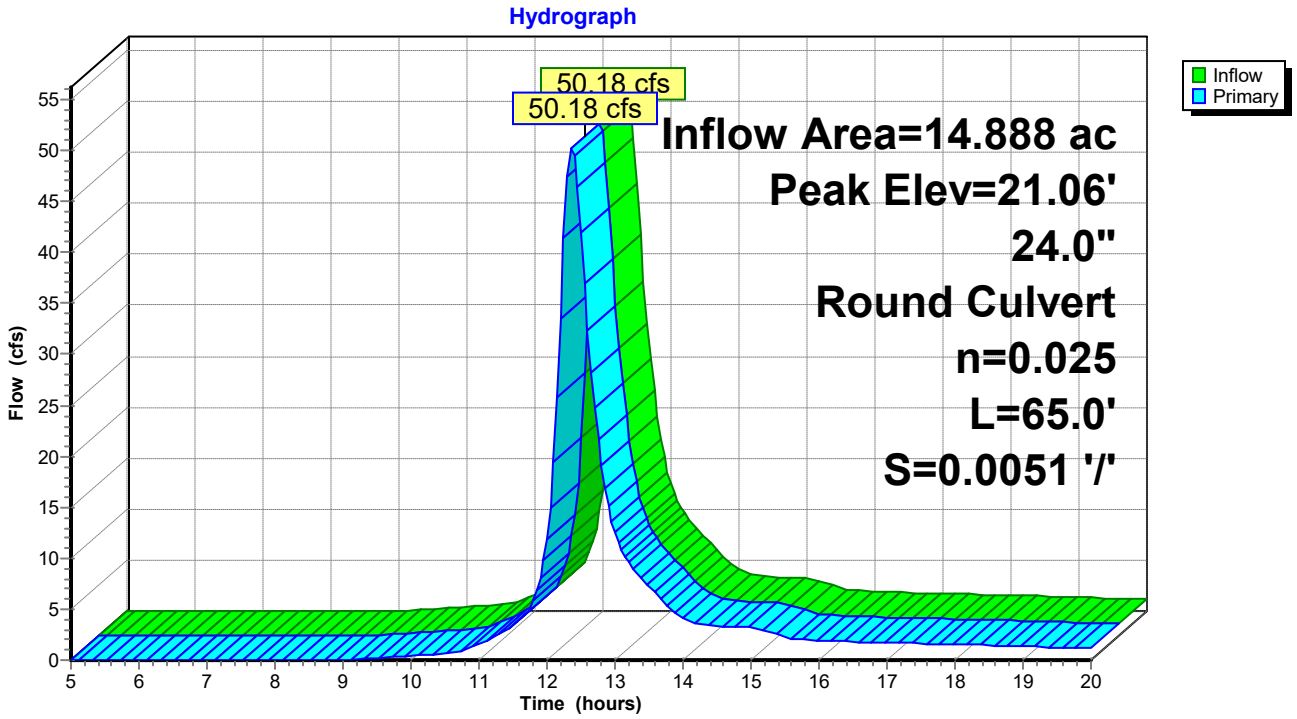
Inflow Area = 14.888 ac, 4.21% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 50.18 cfs @ 12.37 hrs, Volume= 4.477 af
Outflow = 50.18 cfs @ 12.37 hrs, Volume= 4.477 af, Atten= 0%, Lag= 0.0 min
Primary = 50.18 cfs @ 12.37 hrs, Volume= 4.477 af
Routed to Reach 2R : Drainage Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 21.06' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=49.83 cfs @ 12.37 hrs HW=20.80' TW=1.41' (Dynamic Tailwater)
1=Culvert (Barrel Controls 49.83 cfs @ 15.86 fps)

Pond 1P: Culvert Crossing



Summary for Pond 2P: Culvert Crossing

[57] Hint: Peaked at 5.72' (Flood elevation advised)

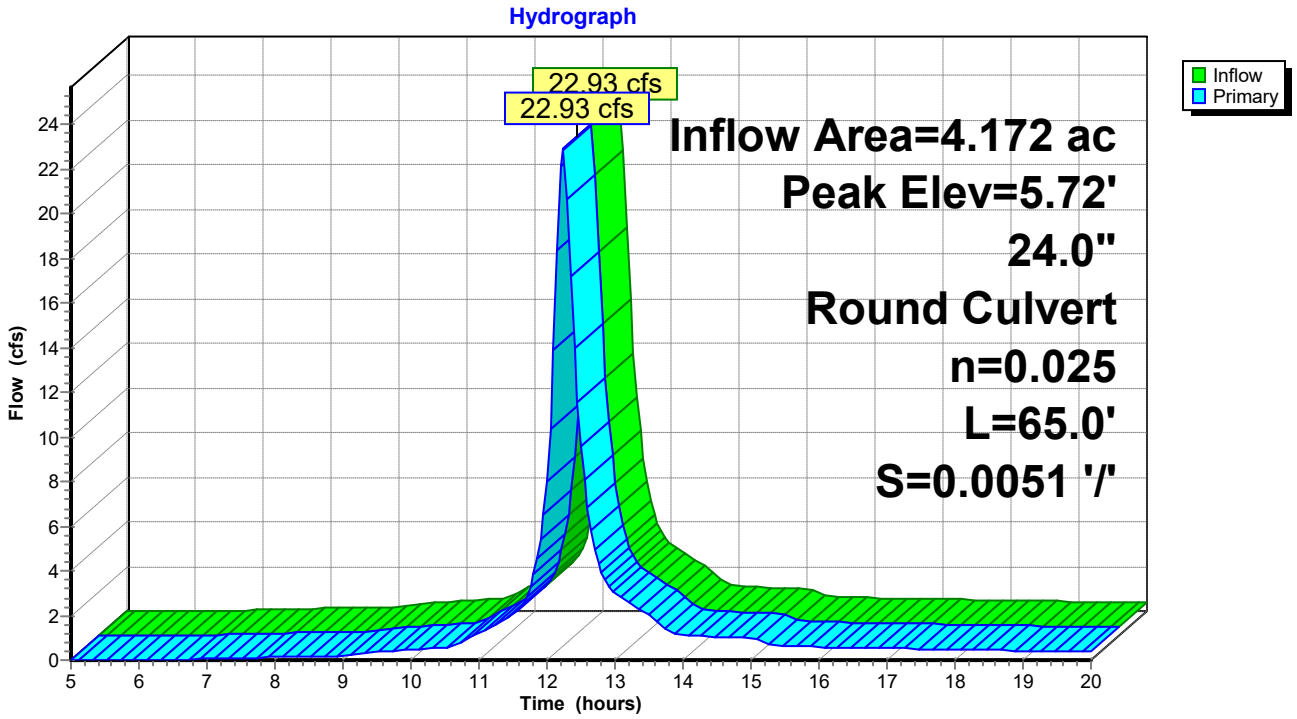
Inflow Area = 4.172 ac, 1.42% Impervious, Inflow Depth > 4.80" for 100-Year event
Inflow = 22.93 cfs @ 12.24 hrs, Volume= 1.667 af
Outflow = 22.93 cfs @ 12.24 hrs, Volume= 1.667 af, Atten= 0%, Lag= 0.0 min
Primary = 22.93 cfs @ 12.24 hrs, Volume= 1.667 af
Routed to Reach 1R : Ditch Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 5.72' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=22.66 cfs @ 12.24 hrs HW=5.62' TW=1.03' (Dynamic Tailwater)
1=Culvert (Barrel Controls 22.66 cfs @ 7.21 fps)

Pond 2P: Culvert Crossing



Summary for Pond 3P: Culvert Crossing

[57] Hint: Peaked at 29.02' (Flood elevation advised)

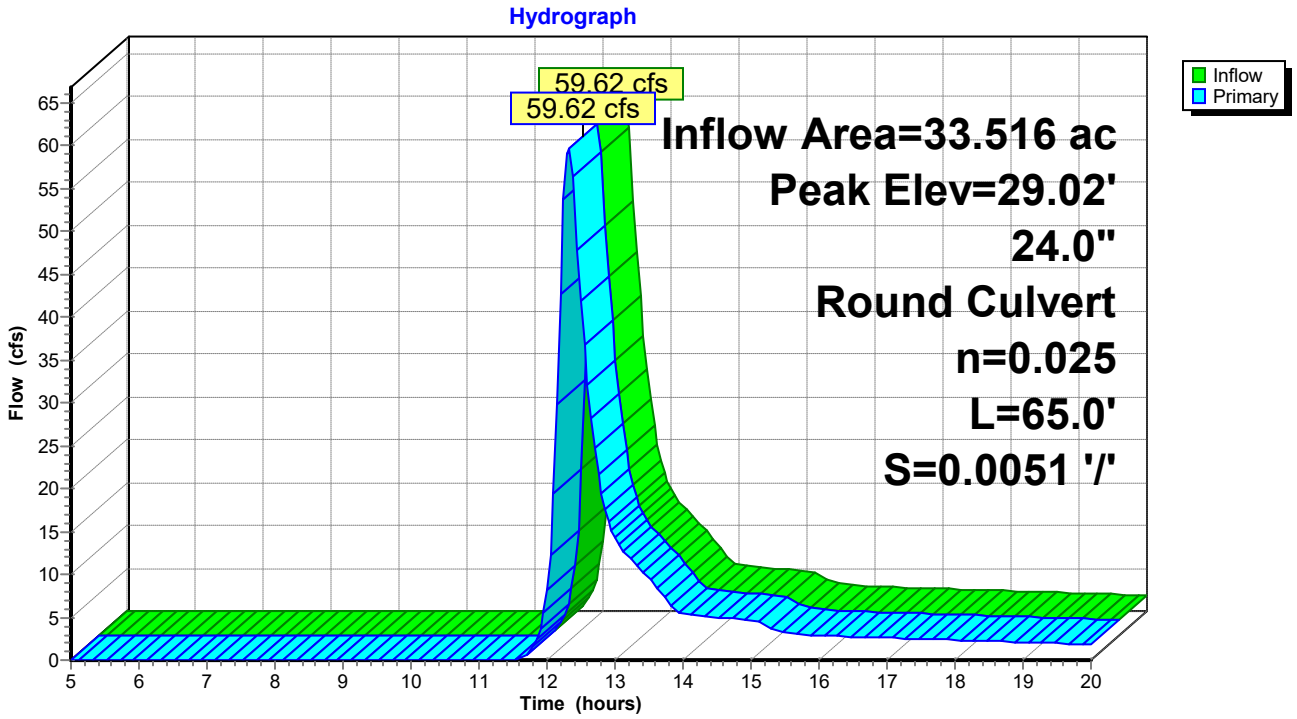
Inflow Area = 33.516 ac, 1.44% Impervious, Inflow Depth > 1.79" for 100-Year event
Inflow = 59.62 cfs @ 12.32 hrs, Volume= 4.992 af
Outflow = 59.62 cfs @ 12.32 hrs, Volume= 4.992 af, Atten= 0%, Lag= 0.0 min
Primary = 59.62 cfs @ 12.32 hrs, Volume= 4.992 af
Routed to Link 3L : 3L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 29.02' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=58.91 cfs @ 12.32 hrs HW=28.40' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 58.91 cfs @ 18.75 fps)

Pond 3P: Culvert Crossing



Summary for Pond 4P: Culvert Crossing

[57] Hint: Peaked at 216.92' (Flood elevation advised)

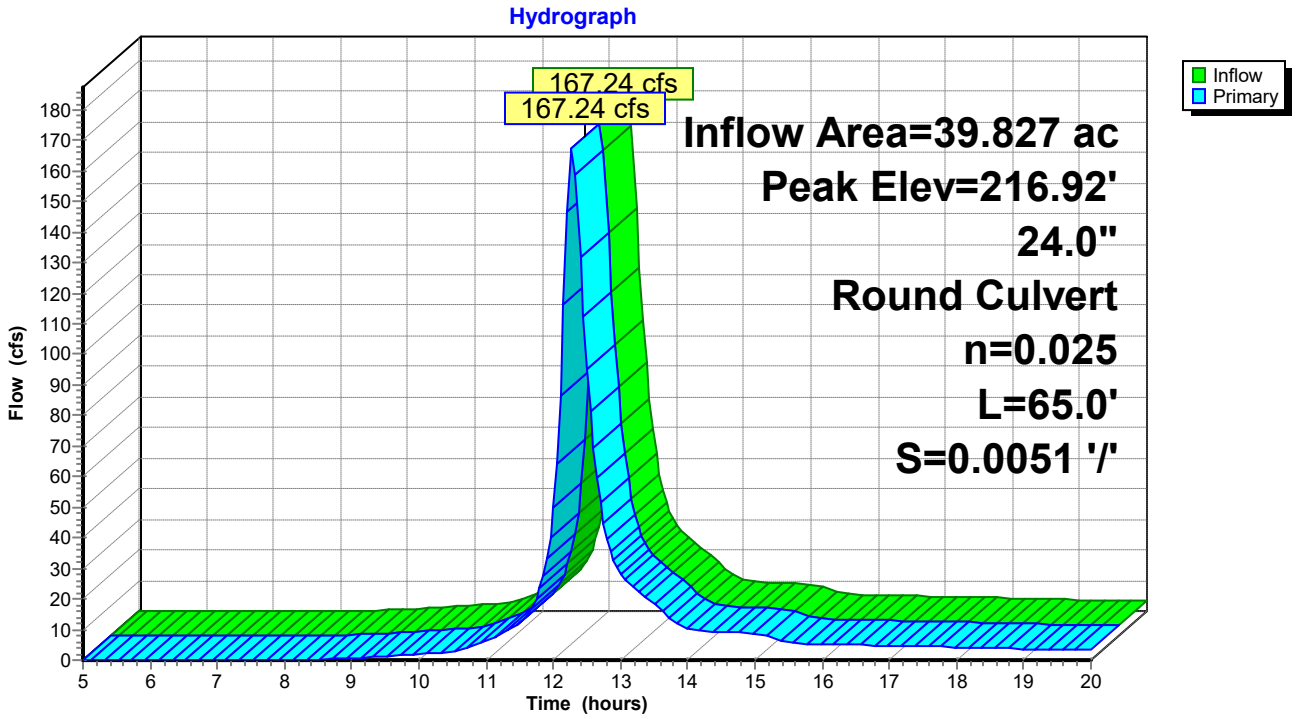
Inflow Area = 39.827 ac, 1.98% Impervious, Inflow Depth > 3.93" for 100-Year event
Inflow = 167.24 cfs @ 12.28 hrs, Volume= 13.041 af
Outflow = 167.24 cfs @ 12.28 hrs, Volume= 13.041 af, Atten= 0%, Lag= 0.0 min
Primary = 167.24 cfs @ 12.28 hrs, Volume= 13.041 af
Routed to Link 5L : 5L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 216.92' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=165.51 cfs @ 12.28 hrs HW=212.68' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 165.51 cfs @ 52.68 fps)

Pond 4P: Culvert Crossing



Summary for Pond 5P: Culvert Crossing

[57] Hint: Peaked at 13.59' (Flood elevation advised)

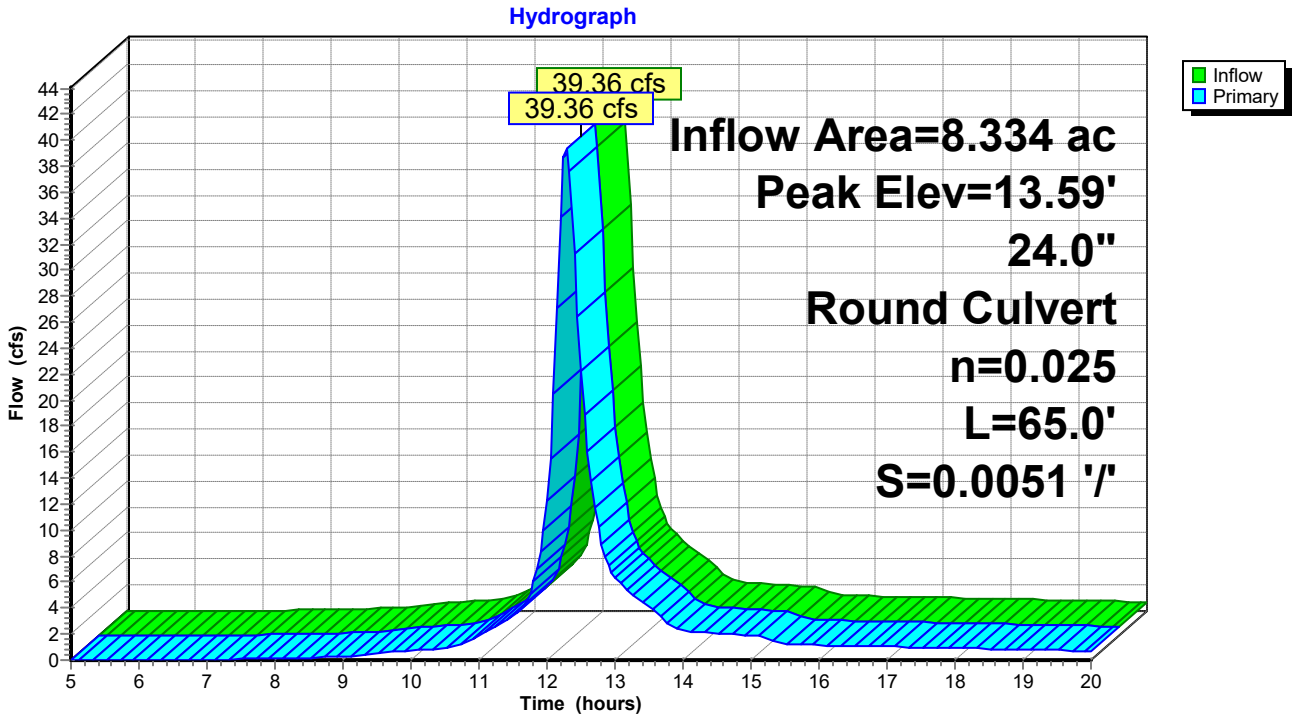
Inflow Area = 8.334 ac, 1.93% Impervious, Inflow Depth > 4.46" for 100-Year event
Inflow = 39.36 cfs @ 12.28 hrs, Volume= 3.100 af
Outflow = 39.36 cfs @ 12.28 hrs, Volume= 3.100 af, Atten= 0%, Lag= 0.0 min
Primary = 39.36 cfs @ 12.28 hrs, Volume= 3.100 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 13.59' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=38.96 cfs @ 12.28 hrs HW=13.36' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 38.96 cfs @ 12.40 fps)

Pond 5P: Culvert Crossing



Summary for Pond 6P: Culvert Crossing

[57] Hint: Peaked at 702.91' (Flood elevation advised)

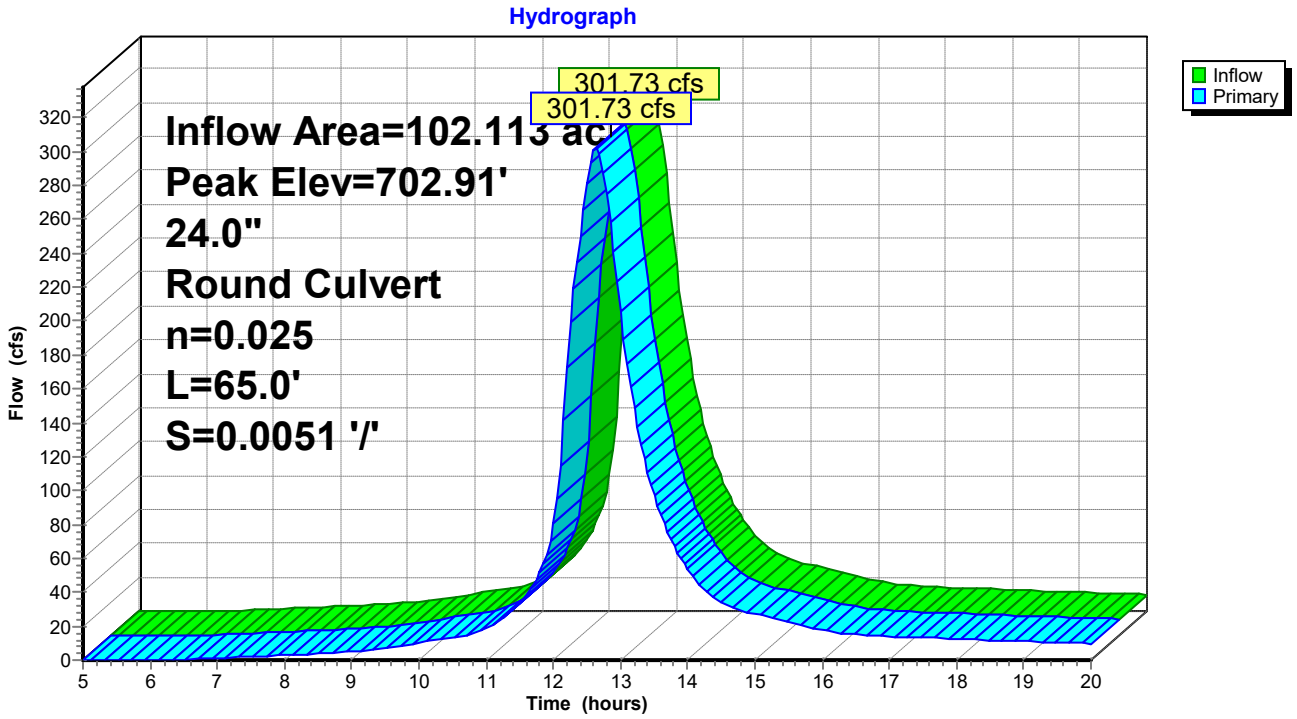
Inflow Area = 102.113 ac, 0.00% Impervious, Inflow Depth > 4.97" for 100-Year event
Inflow = 301.73 cfs @ 12.63 hrs, Volume= 42.258 af
Outflow = 301.73 cfs @ 12.63 hrs, Volume= 42.258 af, Atten= 0%, Lag= 0.0 min
Primary = 301.73 cfs @ 12.63 hrs, Volume= 42.258 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 702.91' @ 12.63 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=301.12 cfs @ 12.63 hrs HW=700.13' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 301.12 cfs @ 95.85 fps)

Pond 6P: Culvert Crossing



Summary for Pond 7P: Culvert Crossing

[57] Hint: Peaked at 349.25' (Flood elevation advised)

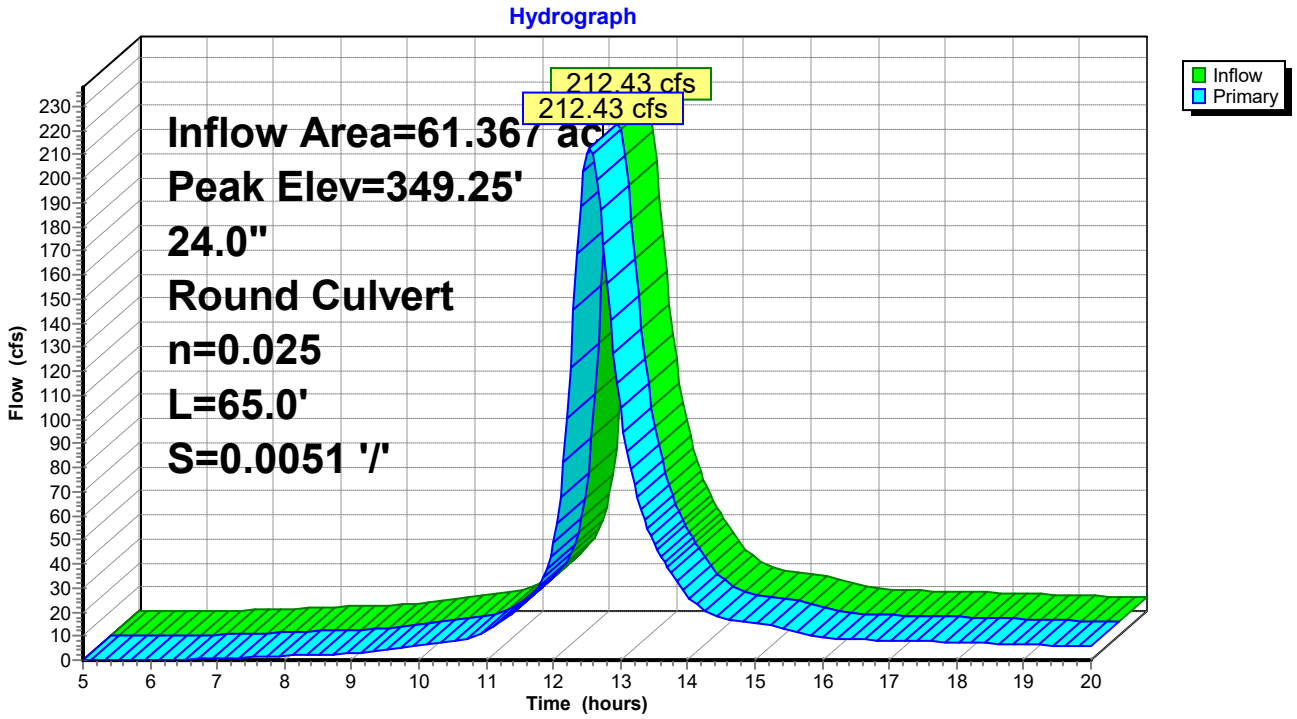
Inflow Area = 61.367 ac, 1.42% Impervious, Inflow Depth > 4.87" for 100-Year event
Inflow = 212.43 cfs @ 12.54 hrs, Volume= 24.921 af
Outflow = 212.43 cfs @ 12.54 hrs, Volume= 24.921 af, Atten= 0%, Lag= 0.0 min
Primary = 212.43 cfs @ 12.54 hrs, Volume= 24.921 af
Routed to Link 11L : 11L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 349.25' @ 12.54 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=211.90 cfs @ 12.54 hrs HW=347.54' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 211.90 cfs @ 67.45 fps)

Pond 7P: Culvert Crossing



Summary for Pond 8P: Culvert Crossing

[57] Hint: Peaked at 46.99' (Flood elevation advised)

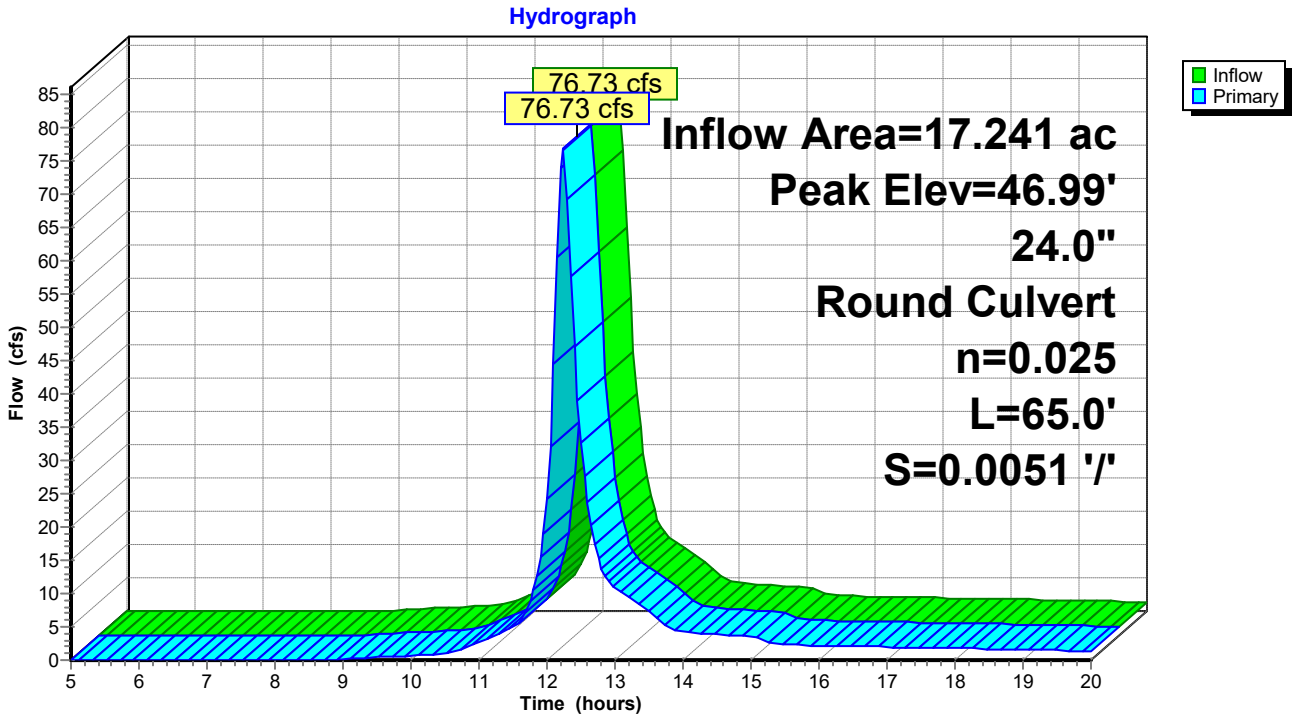
Inflow Area = 17.241 ac, 3.76% Impervious, Inflow Depth > 3.72" for 100-Year event
Inflow = 76.73 cfs @ 12.24 hrs, Volume= 5.351 af
Outflow = 76.73 cfs @ 12.24 hrs, Volume= 5.351 af, Atten= 0%, Lag= 0.0 min
Primary = 76.73 cfs @ 12.24 hrs, Volume= 5.351 af
Routed to Link 12L : 12L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.99' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=75.84 cfs @ 12.24 hrs HW=45.98' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 75.84 cfs @ 24.14 fps)

Pond 8P: Culvert Crossing



Summary for Pond 9P: Culvert Crossing

[57] Hint: Peaked at 9.39' (Flood elevation advised)

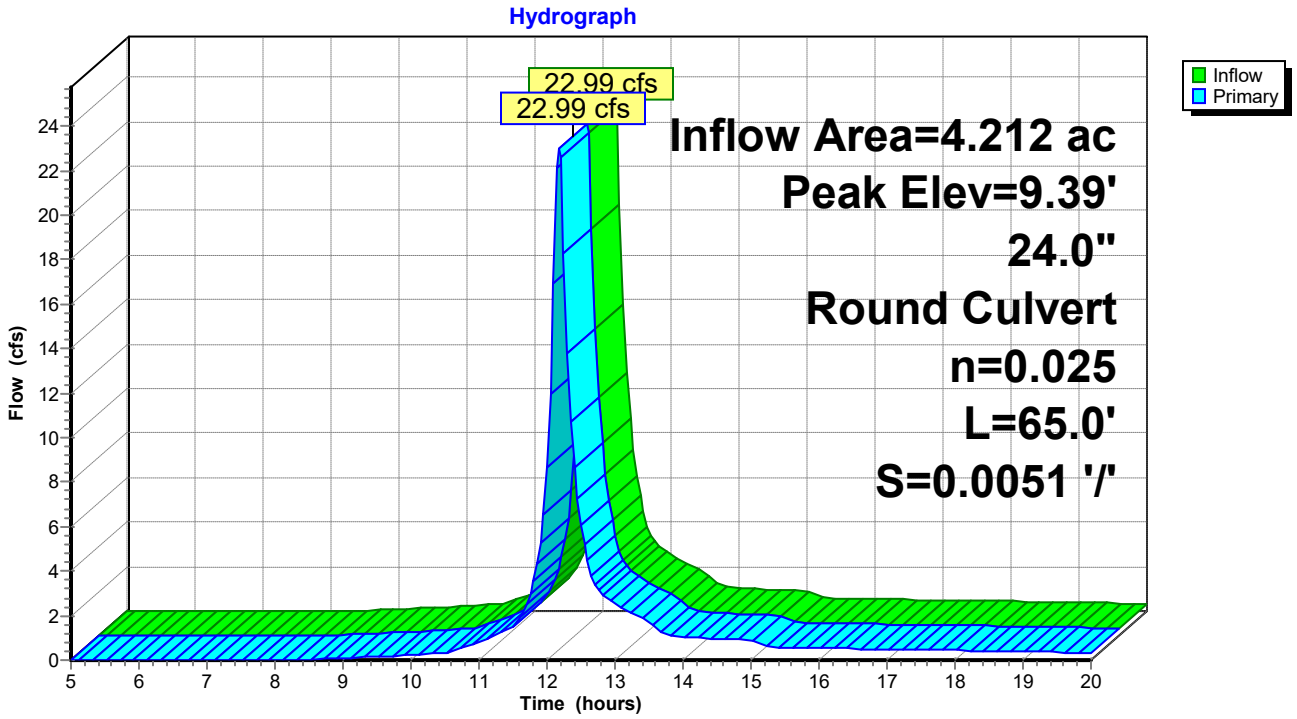
Inflow Area = 4.212 ac, 4.47% Impervious, Inflow Depth > 3.94" for 100-Year event
Inflow = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af
Outflow = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af, Atten= 0%, Lag= 0.0 min
Primary = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af
Routed to Pond 11P : Culvert Crossing

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 9.39' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=20.22 cfs @ 12.18 hrs HW=8.69' TW=5.54' (Dynamic Tailwater)
1=Culvert (Outlet Controls 20.22 cfs @ 6.44 fps)

Pond 9P: Culvert Crossing



Summary for Pond 10P: Culvert Crossing

[57] Hint: Peaked at 4.90' (Flood elevation advised)

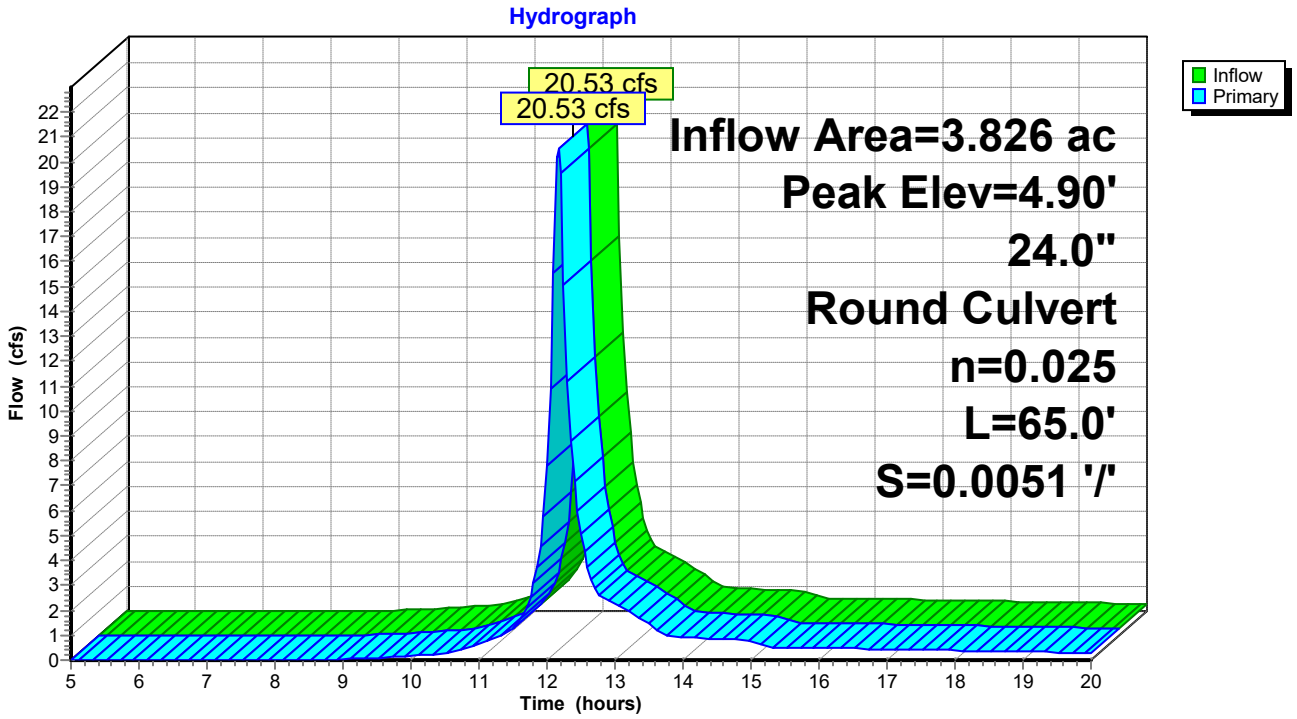
Inflow Area = 3.826 ac, 5.63% Impervious, Inflow Depth > 3.73" for 100-Year event
Inflow = 20.53 cfs @ 12.17 hrs, Volume= 1.190 af
Outflow = 20.53 cfs @ 12.17 hrs, Volume= 1.190 af, Atten= 0%, Lag= 0.0 min
Primary = 20.53 cfs @ 12.17 hrs, Volume= 1.190 af
Routed to Link 16L : 16L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.90' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=19.92 cfs @ 12.17 hrs HW=4.73' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 19.92 cfs @ 6.34 fps)

Pond 10P: Culvert Crossing



Summary for Pond 11P: Culvert Crossing

[57] Hint: Peaked at 5.72' (Flood elevation advised)

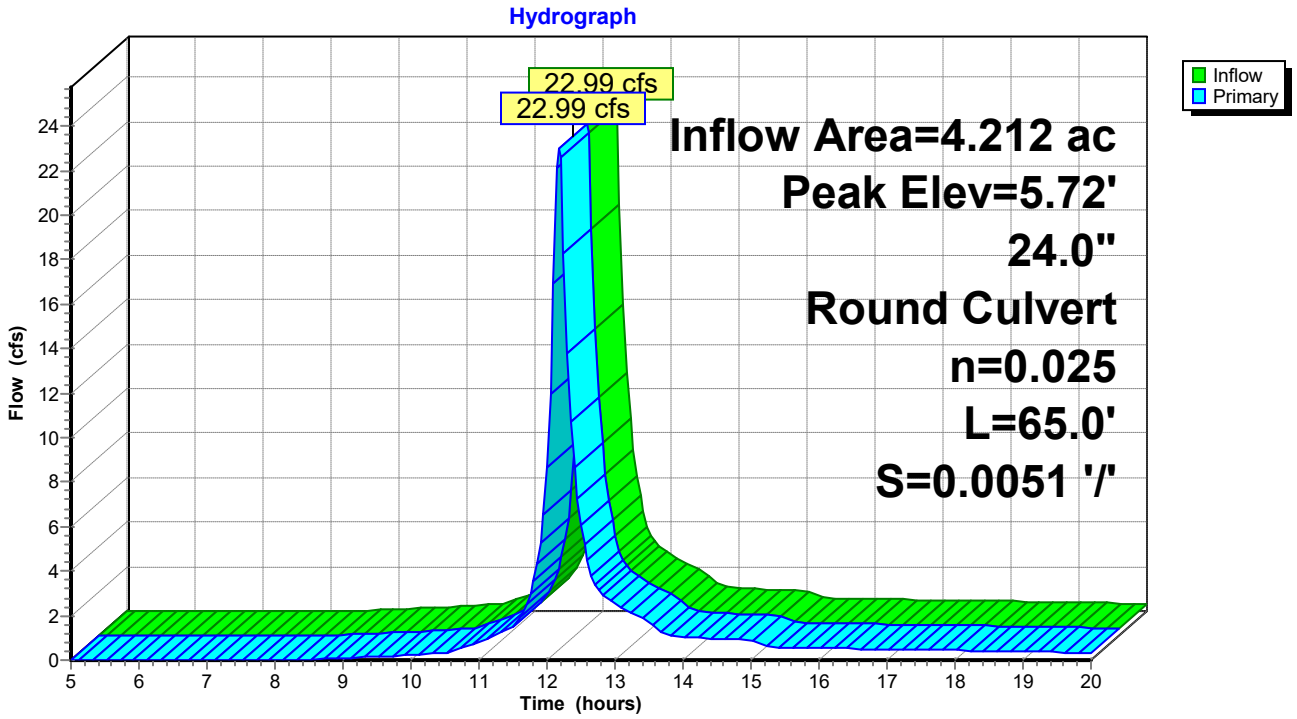
Inflow Area = 4.212 ac, 4.47% Impervious, Inflow Depth > 3.94" for 100-Year event
Inflow = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af
Outflow = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af, Atten= 0%, Lag= 0.0 min
Primary = 22.99 cfs @ 12.18 hrs, Volume= 1.383 af
Routed to Link 16L : 16L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 5.72' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=22.42 cfs @ 12.18 hrs HW=5.54' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 22.42 cfs @ 7.14 fps)

Pond 11P: Culvert Crossing



Summary for Pond 12P: Culvert Crossing

[57] Hint: Peaked at 1,156.72' (Flood elevation advised)

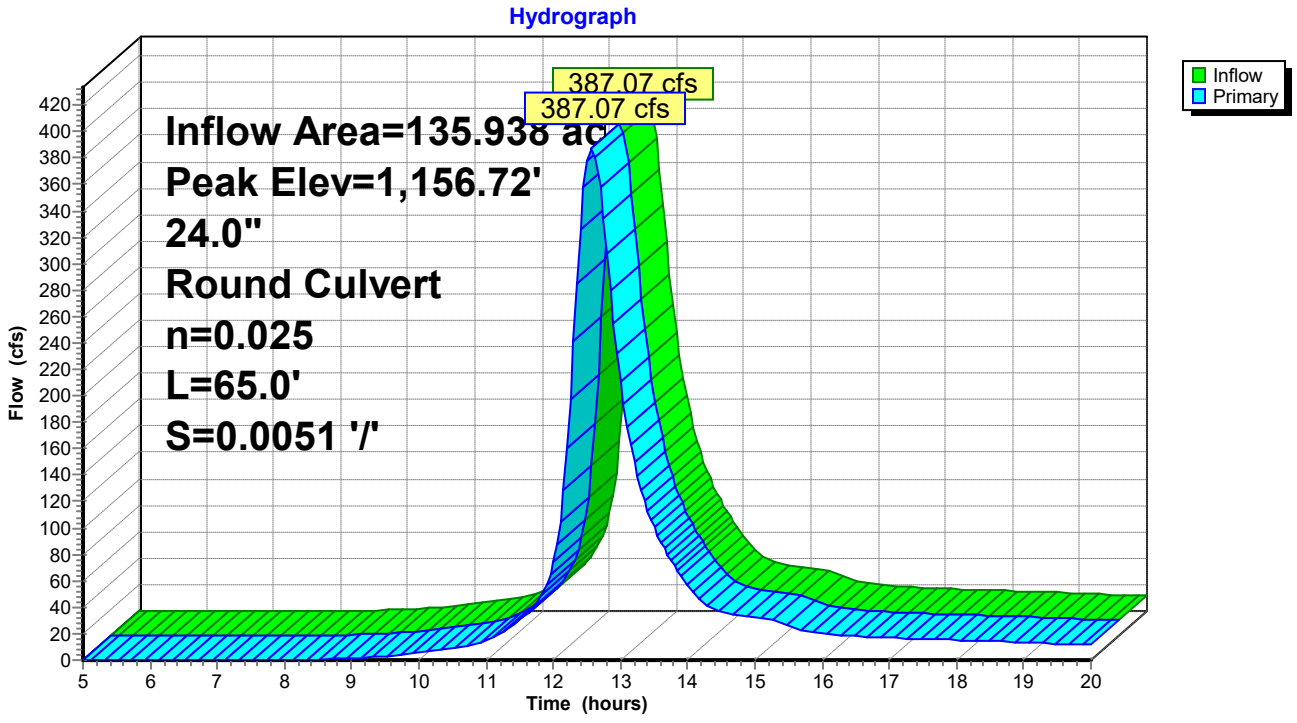
Inflow Area = 135.938 ac, 1.40% Impervious, Inflow Depth > 4.01" for 100-Year event
Inflow = 387.07 cfs @ 12.57 hrs, Volume= 45.378 af
Outflow = 387.07 cfs @ 12.57 hrs, Volume= 45.378 af, Atten= 0%, Lag= 0.0 min
Primary = 387.07 cfs @ 12.57 hrs, Volume= 45.378 af
Routed to Reach 5R : Ditch Channel

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,156.72' @ 12.57 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" Round Culvert** L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.33' S= 0.0051 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=385.95 cfs @ 12.57 hrs HW=1,150.18' TW=2.81' (Dynamic Tailwater)
1=Culvert (Outlet Controls 385.95 cfs @ 122.85 fps)

Pond 12P: Culvert Crossing



Summary for Pond 198P: Substation & Switchgear Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 6.714 ac, 0.00% Impervious, Inflow Depth > 6.21" for 100-Year event
Inflow = 57.34 cfs @ 12.14 hrs, Volume= 3.475 af
Outflow = 25.29 cfs @ 12.27 hrs, Volume= 3.357 af, Atten= 56%, Lag= 8.0 min
Primary = 22.32 cfs @ 12.27 hrs, Volume= 3.316 af
Routed to Link 9L : 9L
Secondary = 2.97 cfs @ 12.27 hrs, Volume= 0.041 af
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 655.23' @ 12.27 hrs Surf.Area= 0.540 ac Storage= 1.103 af

Plug-Flow detention time= 55.3 min calculated for 3.356 af (97% of inflow)
Center-of-Mass det. time= 41.2 min (780.6 - 739.5)

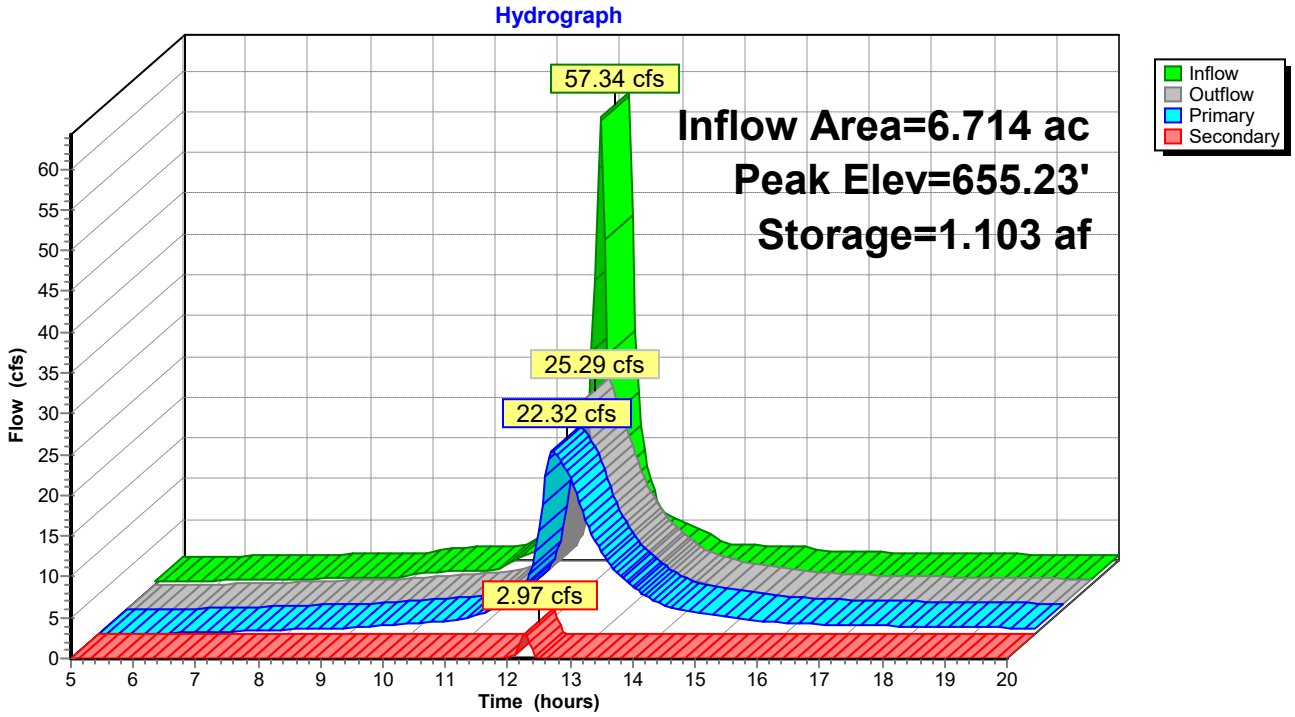
Volume	Invert	Avail.Storage	Storage Description
#1	653.00'	1.531 af	**140.00'W x 140.00'L x 3.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	653.00'	**24.0" Round Culvert** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 653.00' / 652.00' S= 0.0667 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Primary	653.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	655.00'	**10.0' long + 3.0 '/' SideZ x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=22.22 cfs @ 12.27 hrs HW=655.22' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 20.89 cfs @ 6.65 fps)
└**2=Orifice/Grate** (Orifice Controls 1.33 cfs @ 6.76 fps)

Secondary OutFlow Max=2.78 cfs @ 12.27 hrs HW=655.22' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 2.78 cfs @ 1.18 fps)

Pond 198P: Substation & Switchgear Pond



Summary for Pond 199P: BESS Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 8.177 ac, 0.00% Impervious, Inflow Depth > 6.21" for 100-Year event
Inflow = 69.83 cfs @ 12.14 hrs, Volume= 4.233 af
Outflow = 40.88 cfs @ 12.24 hrs, Volume= 4.097 af, Atten= 41%, Lag= 5.8 min
Primary = 36.89 cfs @ 12.24 hrs, Volume= 4.051 af
Routed to Link 9L : 9L
Secondary = 3.99 cfs @ 12.24 hrs, Volume= 0.046 af
Routed to Link 9L : 9L

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 656.28' @ 12.24 hrs Surf.Area= 0.542 ac Storage= 1.128 af

Plug-Flow detention time= 47.4 min calculated for 4.096 af (97% of inflow)
Center-of-Mass det. time= 34.0 min (773.5 - 739.5)

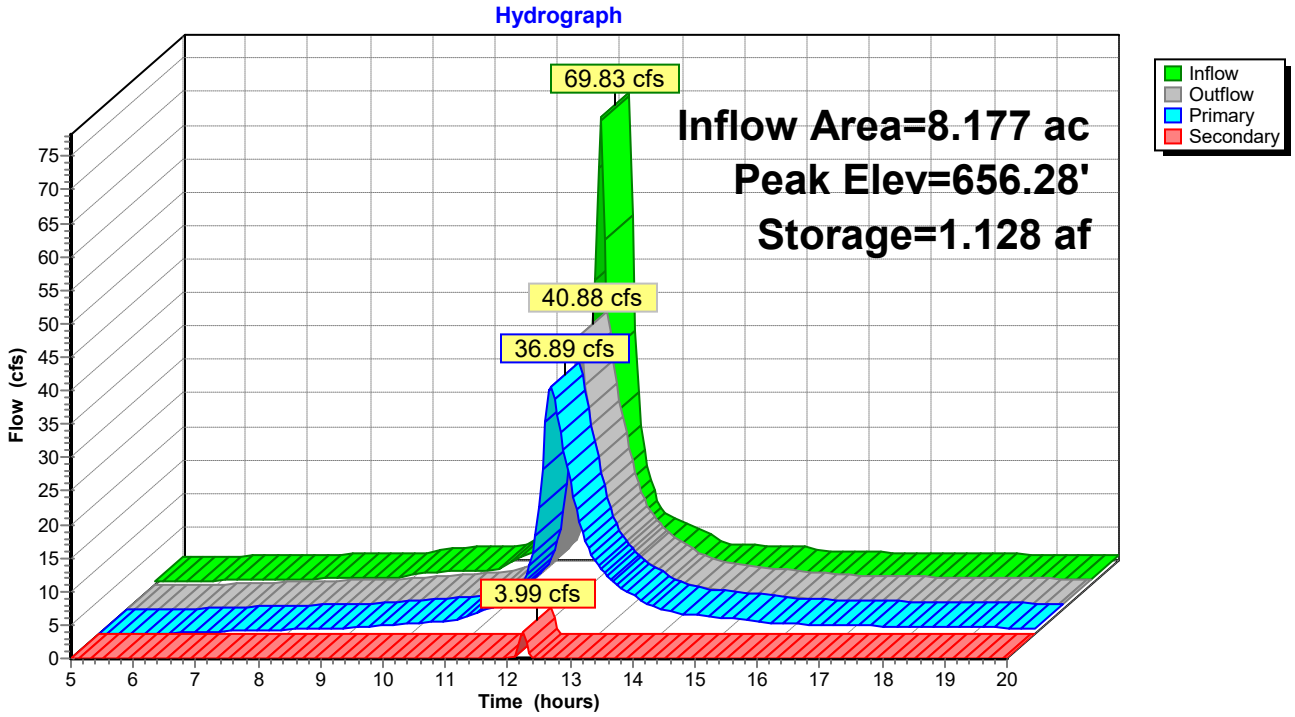
Volume	Invert	Avail.Storage	Storage Description
#1	654.00'	1.531 af	**140.00'W x 140.00'L x 3.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**36.0" Round Culvert** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 654.00' / 653.00' S= 0.0667 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	656.00'	**10.0' long + 3.0 '/' SideZ x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=36.67 cfs @ 12.24 hrs HW=656.27' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 36.67 cfs @ 8.87 fps)

Secondary OutFlow Max=3.80 cfs @ 12.24 hrs HW=656.27' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 3.80 cfs @ 1.31 fps)

Pond 199P: BESS Pond

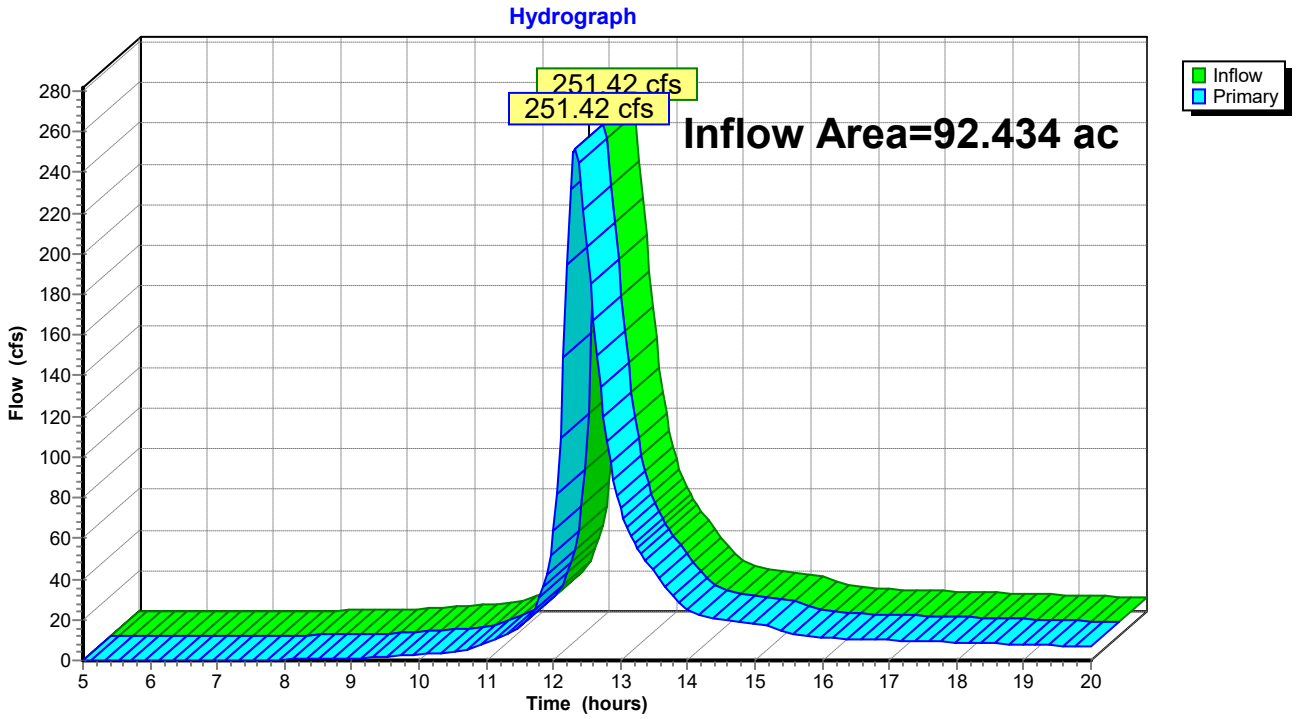


Summary for Link 1L: 1L

Inflow Area = 92.434 ac, 1.68% Impervious, Inflow Depth > 3.23" for 100-Year event
Inflow = 251.42 cfs @ 12.33 hrs, Volume= 24.881 af
Primary = 251.42 cfs @ 12.33 hrs, Volume= 24.881 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: 1L

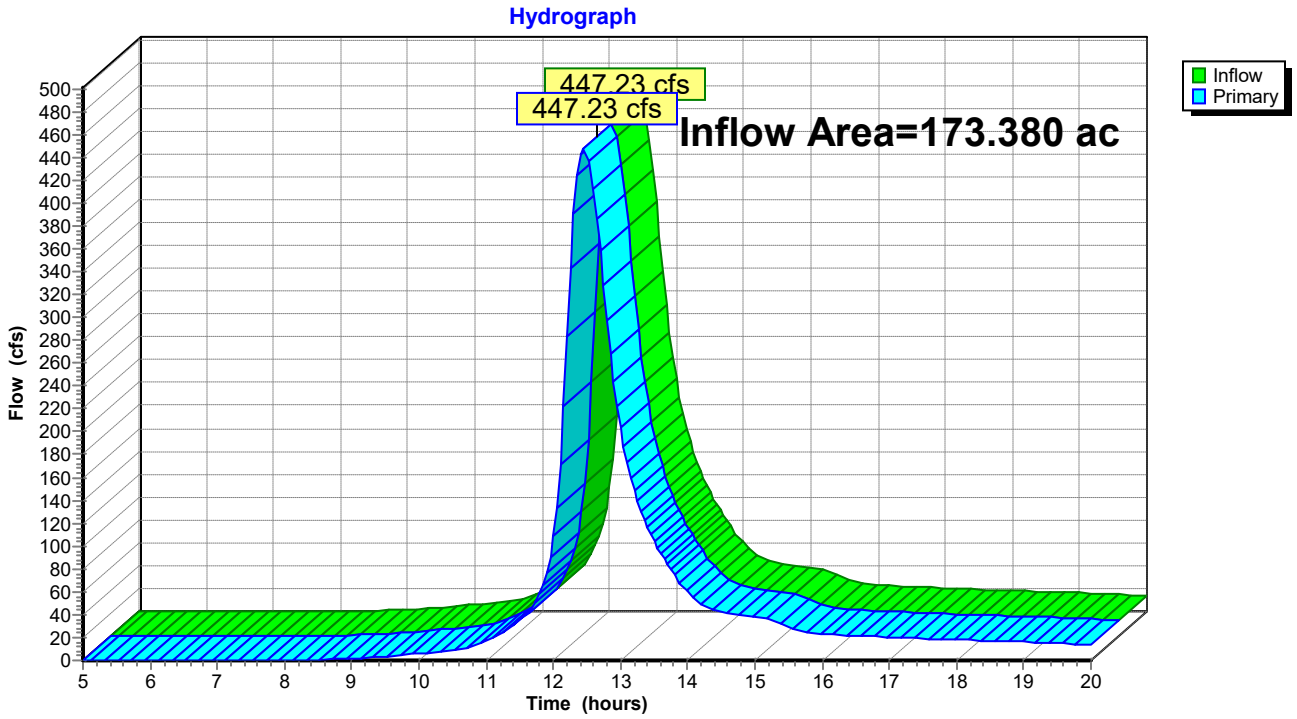


Summary for Link 2L: 2L

Inflow Area = 173.380 ac, 0.97% Impervious, Inflow Depth > 3.63" for 100-Year event
Inflow = 447.23 cfs @ 12.45 hrs, Volume= 52.459 af
Primary = 447.23 cfs @ 12.45 hrs, Volume= 52.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: 2L

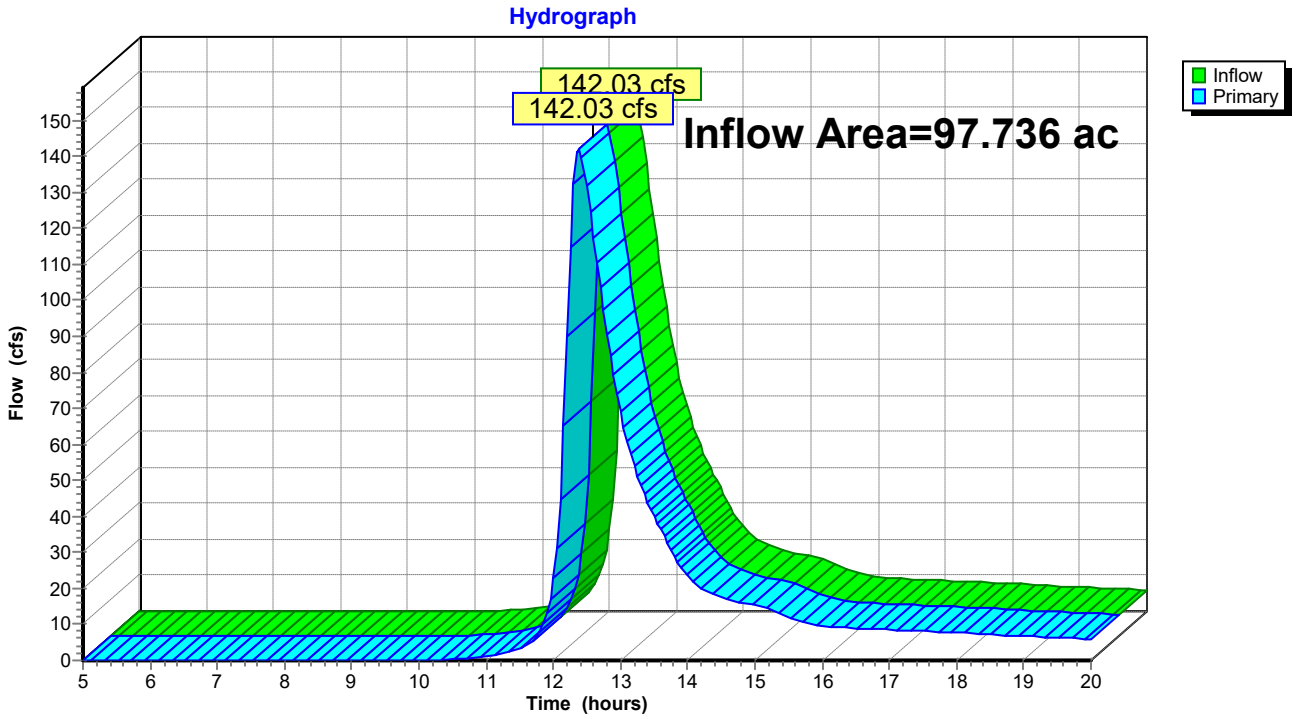


Summary for Link 3L: 3L

Inflow Area = 97.736 ac, 0.85% Impervious, Inflow Depth > 2.09" for 100-Year event
Inflow = 142.03 cfs @ 12.38 hrs, Volume= 17.043 af
Primary = 142.03 cfs @ 12.38 hrs, Volume= 17.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 3L: 3L

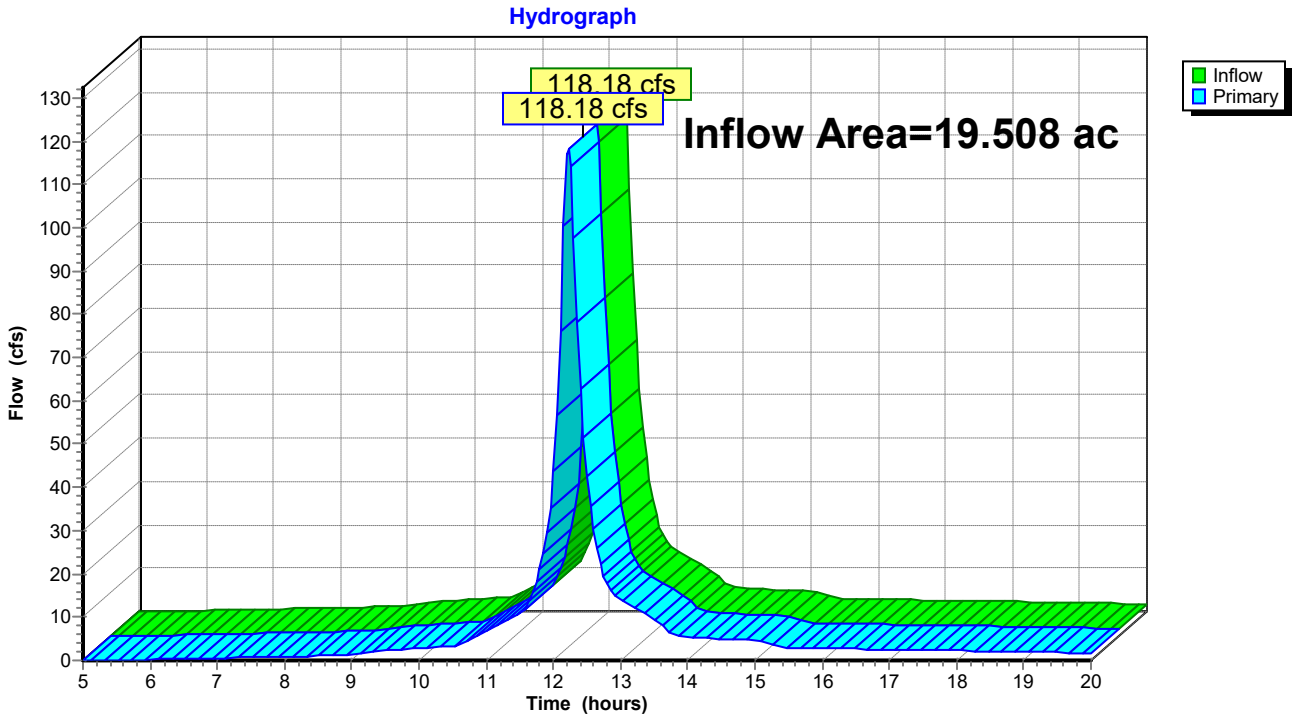


Summary for Link 4L: 4L

Inflow Area = 19.508 ac, 0.00% Impervious, Inflow Depth > 5.13" for 100-Year event
Inflow = 118.18 cfs @ 12.22 hrs, Volume= 8.341 af
Primary = 118.18 cfs @ 12.22 hrs, Volume= 8.341 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: 4L

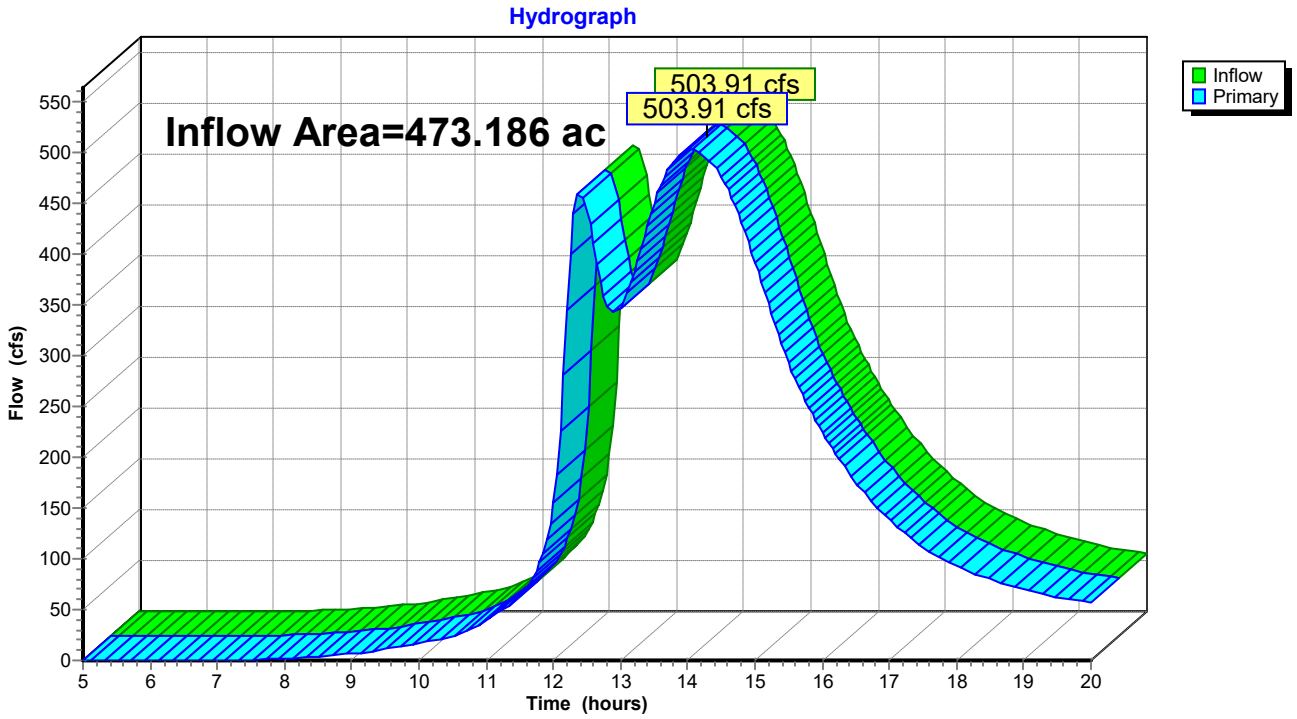


Summary for Link 5L: 5L

Inflow Area = 473.186 ac, 0.76% Impervious, Inflow Depth > 4.44" for 100-Year event
Inflow = 503.91 cfs @ 14.08 hrs, Volume= 175.193 af
Primary = 503.91 cfs @ 14.08 hrs, Volume= 175.193 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: 5L

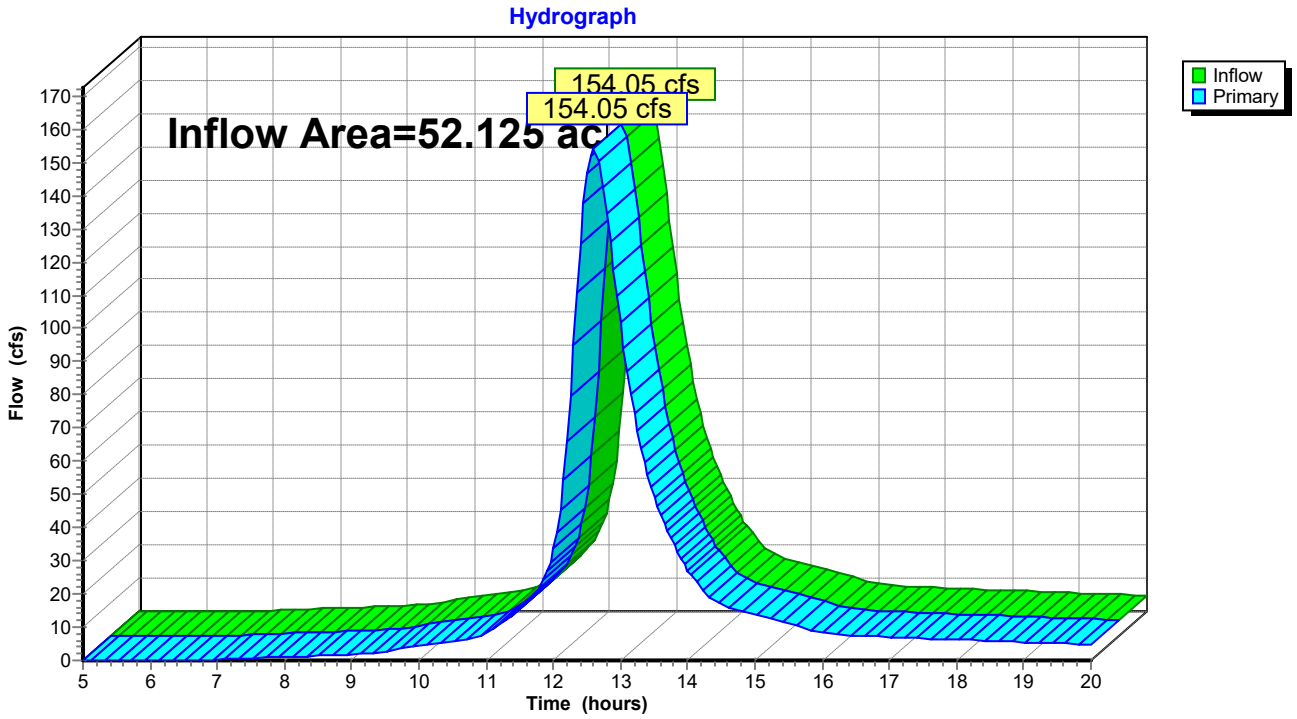


Summary for Link 6L: 6L

Inflow Area = 52.125 ac, 0.61% Impervious, Inflow Depth > 4.70" for 100-Year event
Inflow = 154.05 cfs @ 12.60 hrs, Volume= 20.406 af
Primary = 154.05 cfs @ 12.60 hrs, Volume= 20.406 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: 6L

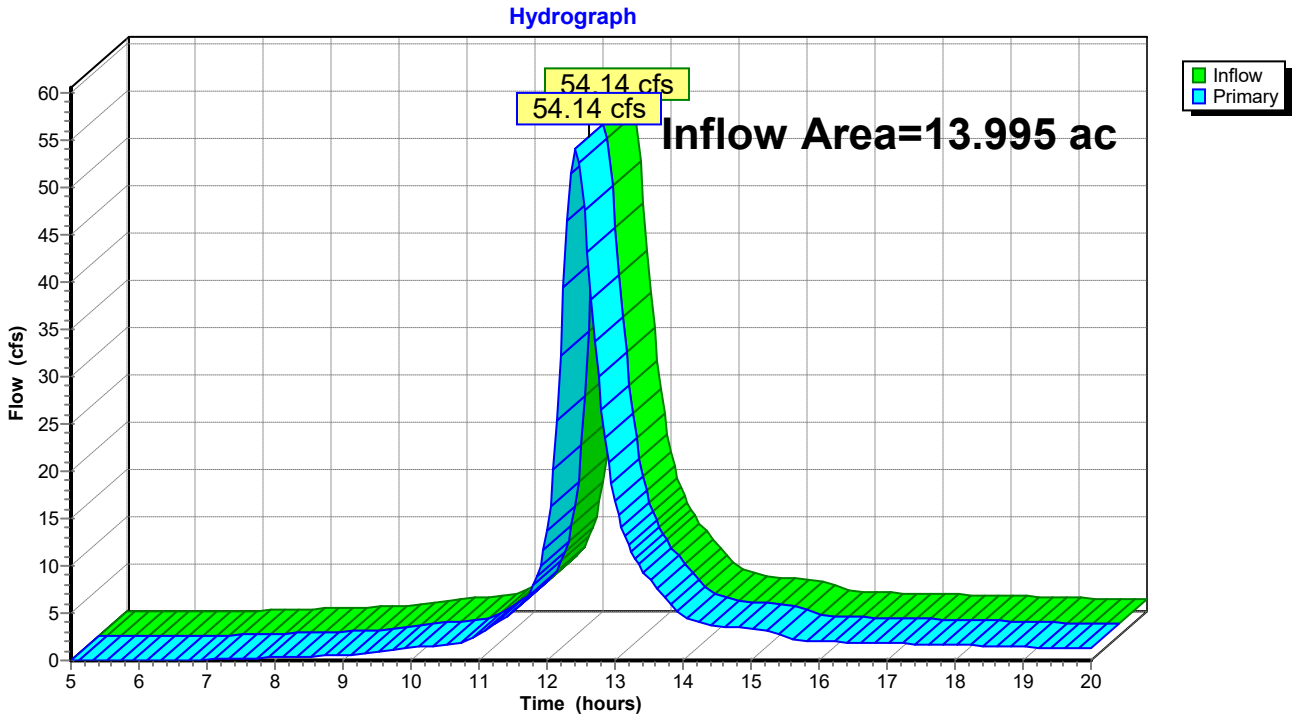


Summary for Link 7L: 7L

Inflow Area = 13.995 ac, 0.00% Impervious, Inflow Depth > 4.67" for 100-Year event
Inflow = 54.14 cfs @ 12.42 hrs, Volume= 5.441 af
Primary = 54.14 cfs @ 12.42 hrs, Volume= 5.441 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 7L: 7L

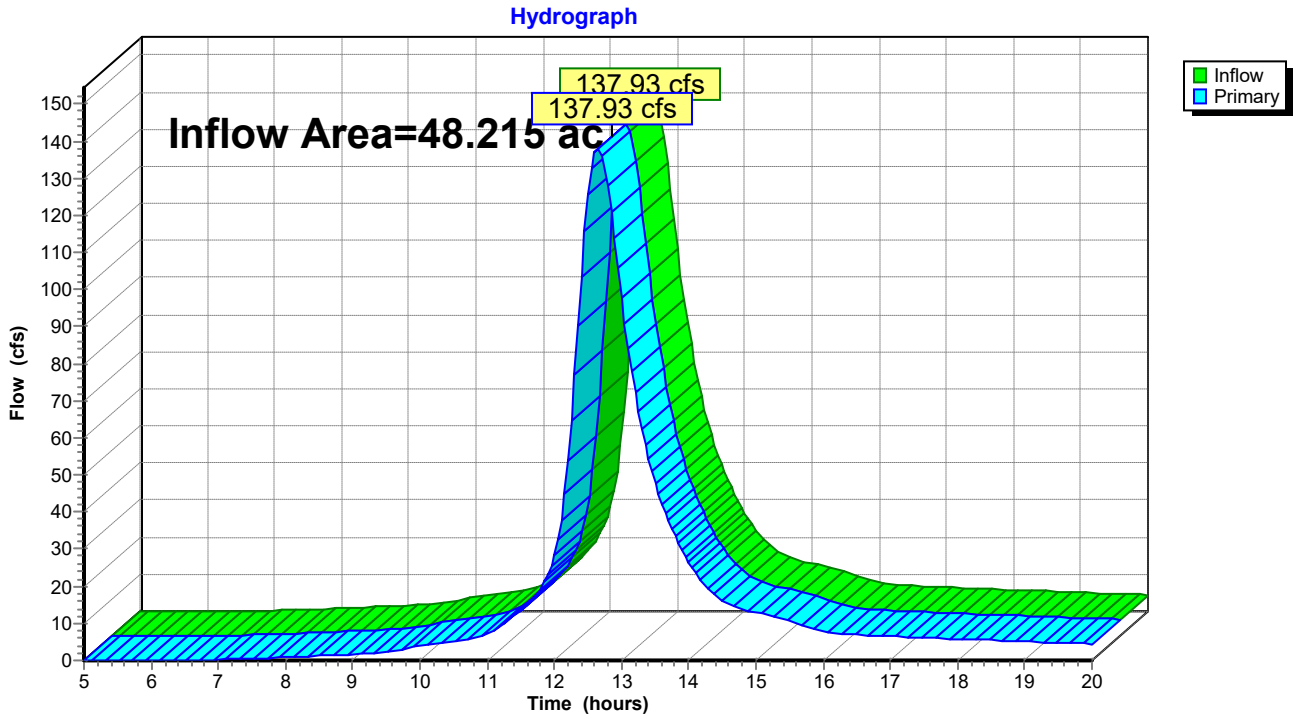


Summary for Link 8L: 8L

Inflow Area = 48.215 ac, 0.04% Impervious, Inflow Depth > 4.64" for 100-Year event
Inflow = 137.93 cfs @ 12.65 hrs, Volume= 18.647 af
Primary = 137.93 cfs @ 12.65 hrs, Volume= 18.647 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 8L: 8L

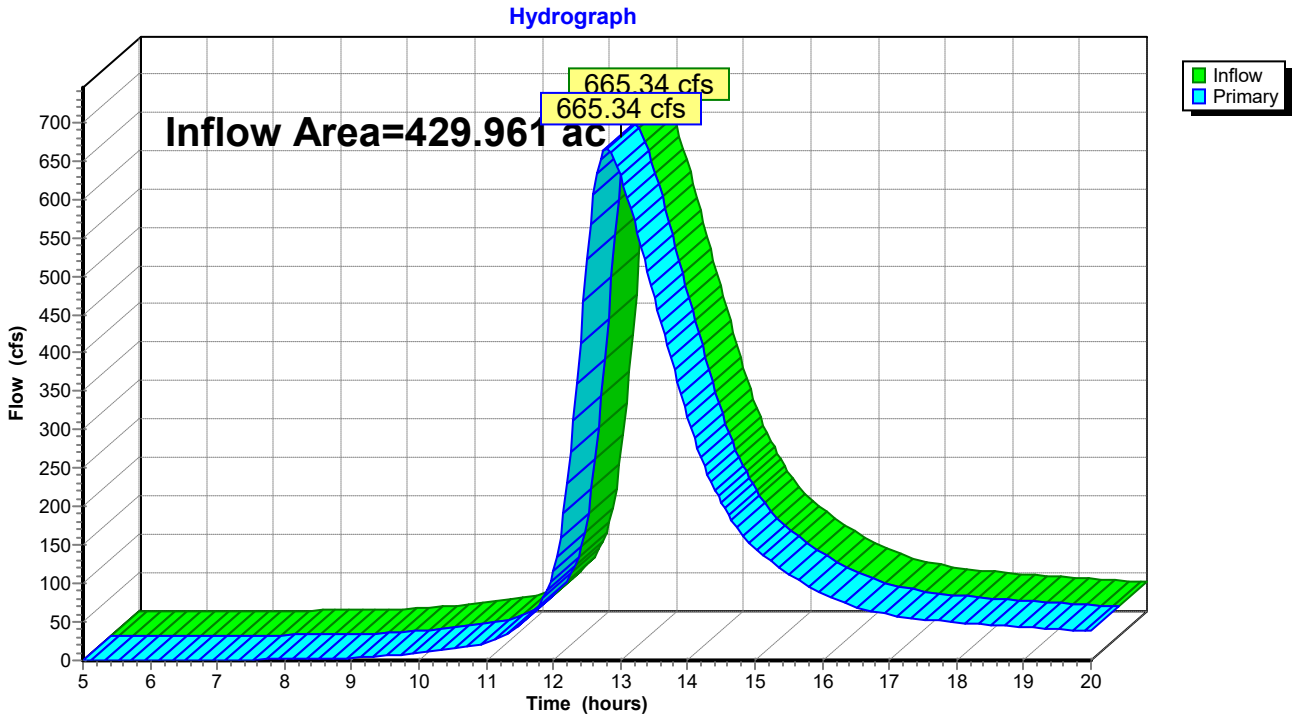


Summary for Link 9L: 9L

Inflow Area = 429.961 ac, 1.86% Impervious, Inflow Depth > 3.58" for 100-Year event
Inflow = 665.34 cfs @ 12.80 hrs, Volume= 128.144 af
Primary = 665.34 cfs @ 12.80 hrs, Volume= 128.144 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 9L: 9L

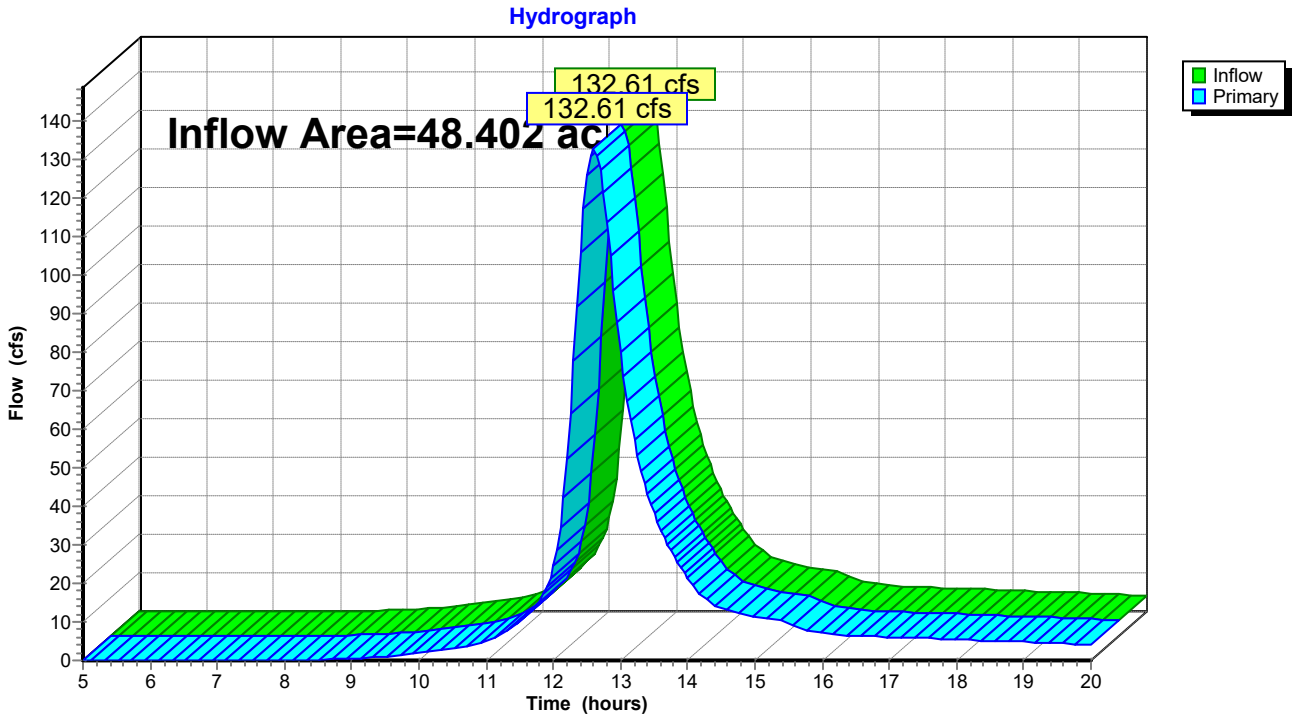


Summary for Link 10L: 10L

Inflow Area = 48.402 ac, 0.21% Impervious, Inflow Depth > 4.00" for 100-Year event
Inflow = 132.61 cfs @ 12.60 hrs, Volume= 16.143 af
Primary = 132.61 cfs @ 12.60 hrs, Volume= 16.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 10L: 10L

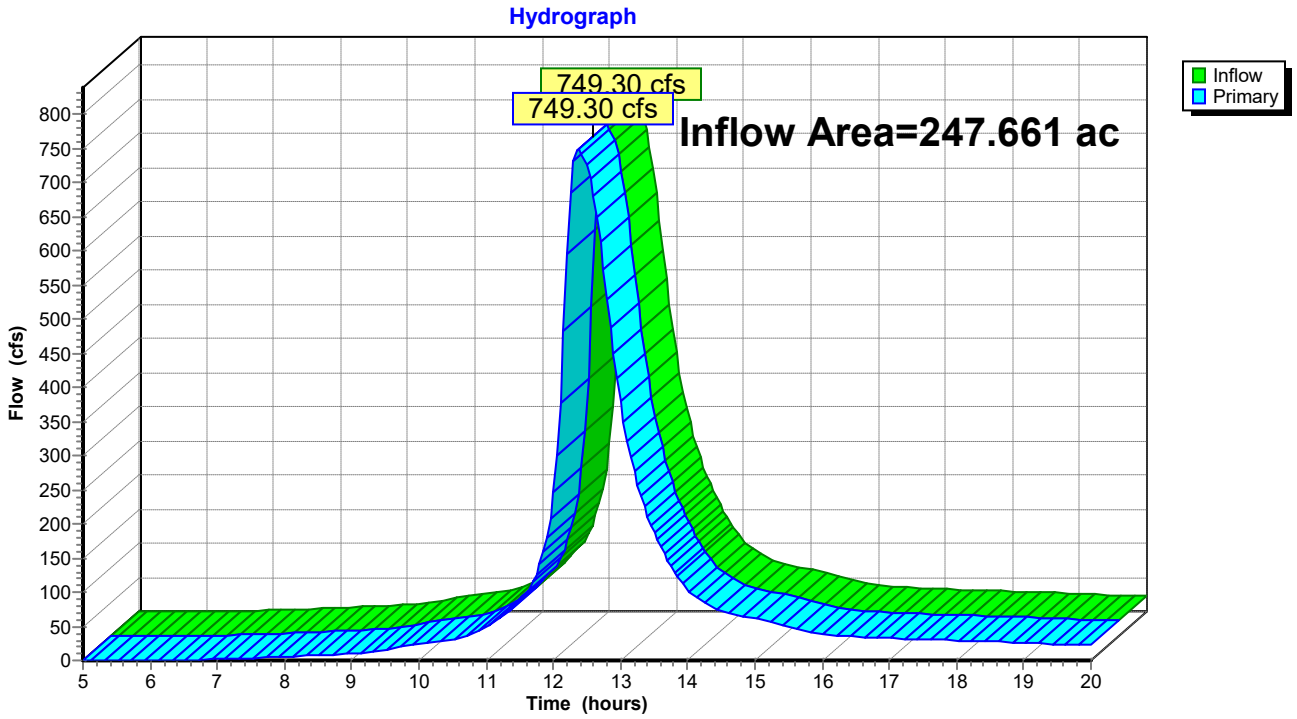


Summary for Link 11L: 11L

Inflow Area = 247.661 ac, 0.81% Impervious, Inflow Depth > 4.76" for 100-Year event
Inflow = 749.30 cfs @ 12.37 hrs, Volume= 98.146 af
Primary = 749.30 cfs @ 12.37 hrs, Volume= 98.146 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 11L: 11L

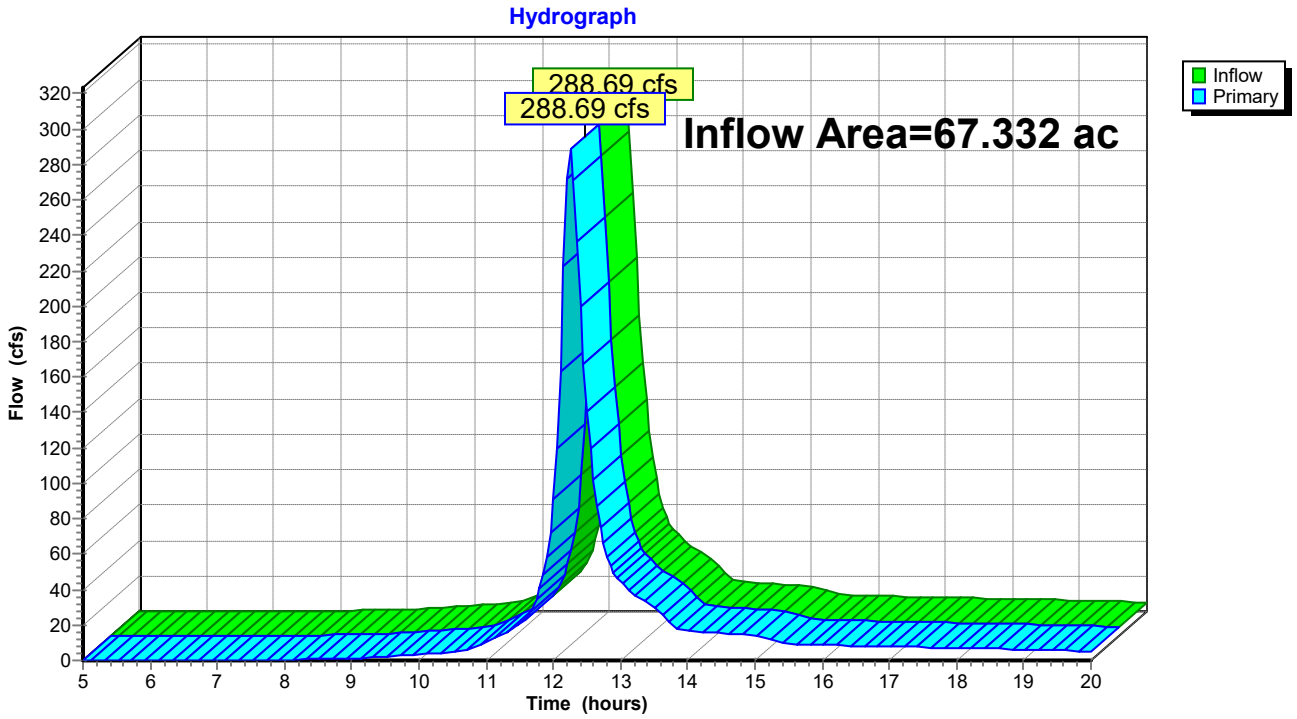


Summary for Link 12L: 12L

Inflow Area = 67.332 ac, 1.10% Impervious, Inflow Depth > 3.82" for 100-Year event
Inflow = 288.69 cfs @ 12.25 hrs, Volume= 21.442 af
Primary = 288.69 cfs @ 12.25 hrs, Volume= 21.442 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 12L: 12L

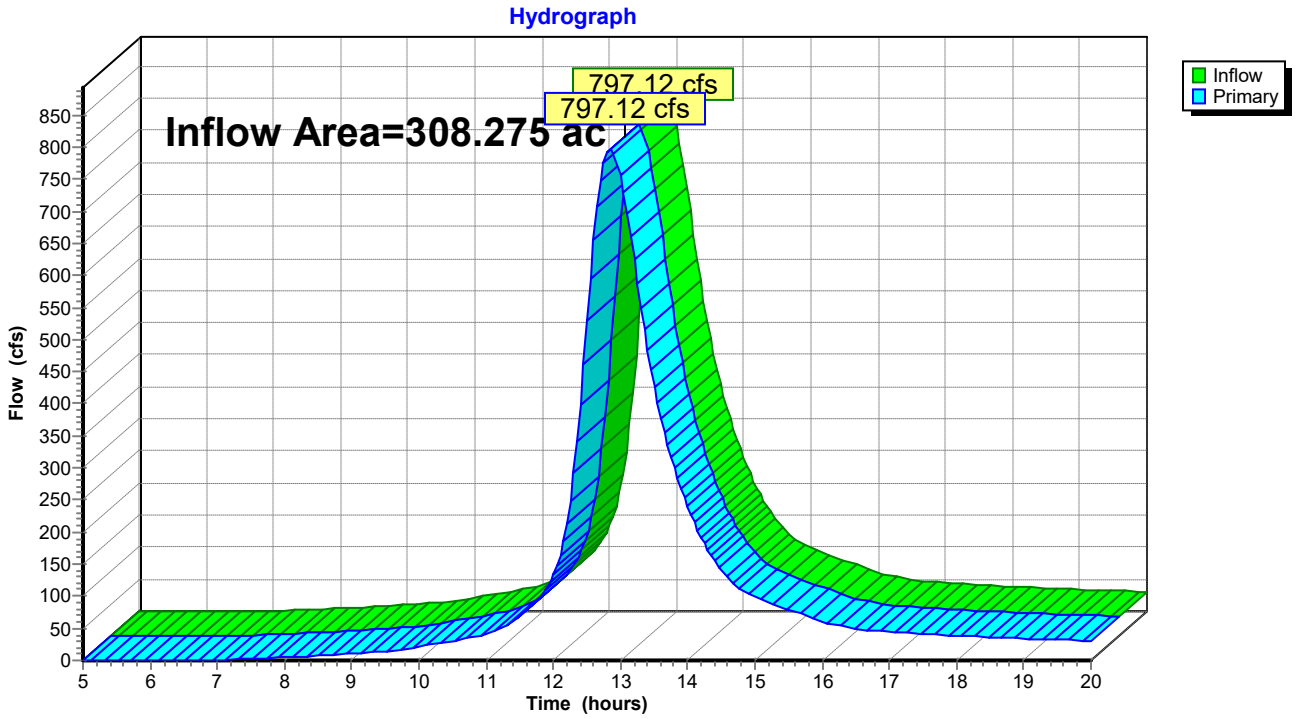


Summary for Link 13L: 13L

Inflow Area = 308.275 ac, 0.62% Impervious, Inflow Depth > 4.76" for 100-Year event
Inflow = 797.12 cfs @ 12.85 hrs, Volume= 122.338 af
Primary = 797.12 cfs @ 12.85 hrs, Volume= 122.338 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 13L: 13L

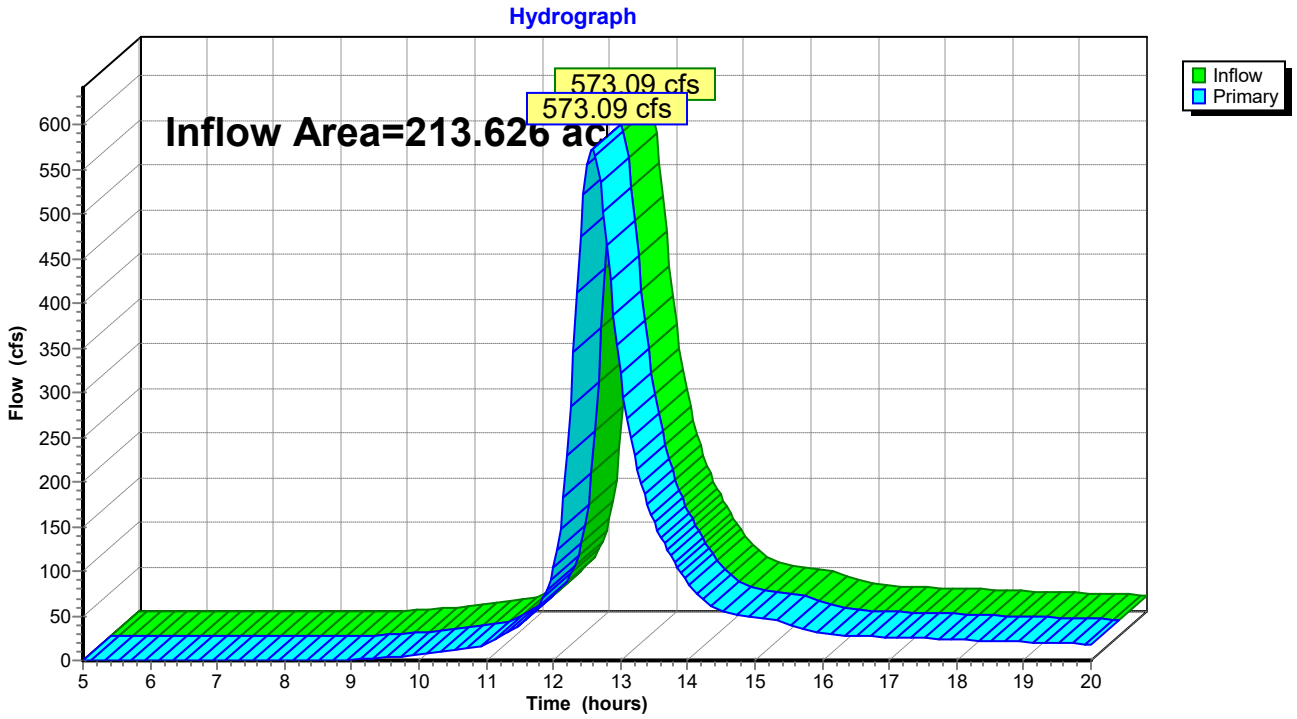


Summary for Link 14L: 14L

Inflow Area = 213.626 ac, 1.19% Impervious, Inflow Depth > 3.79" for 100-Year event
Inflow = 573.09 cfs @ 12.58 hrs, Volume= 67.558 af
Primary = 573.09 cfs @ 12.58 hrs, Volume= 67.558 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 14L: 14L

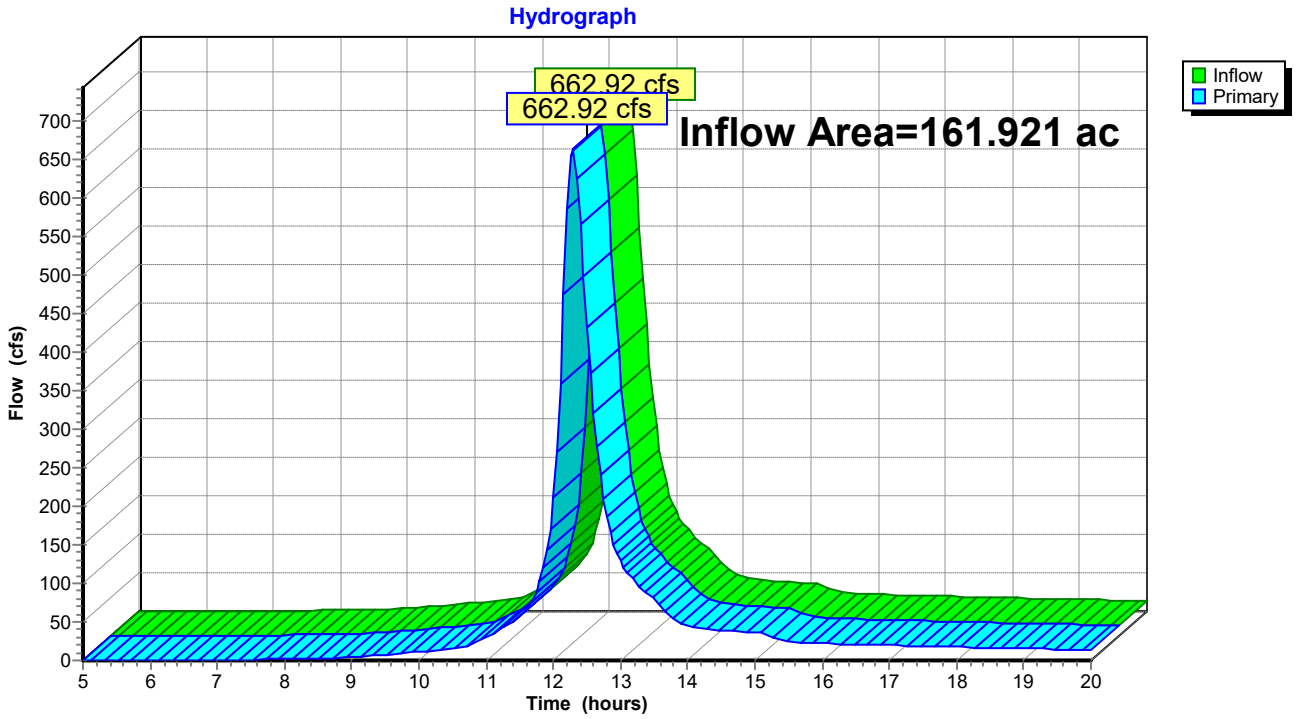


Summary for Link 15L: (new Link)

Inflow Area = 161.921 ac, 0.57% Impervious, Inflow Depth > 4.20" for 100-Year event
Inflow = 662.92 cfs @ 12.28 hrs, Volume= 56.625 af
Primary = 662.92 cfs @ 12.28 hrs, Volume= 56.625 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 15L: (new Link)

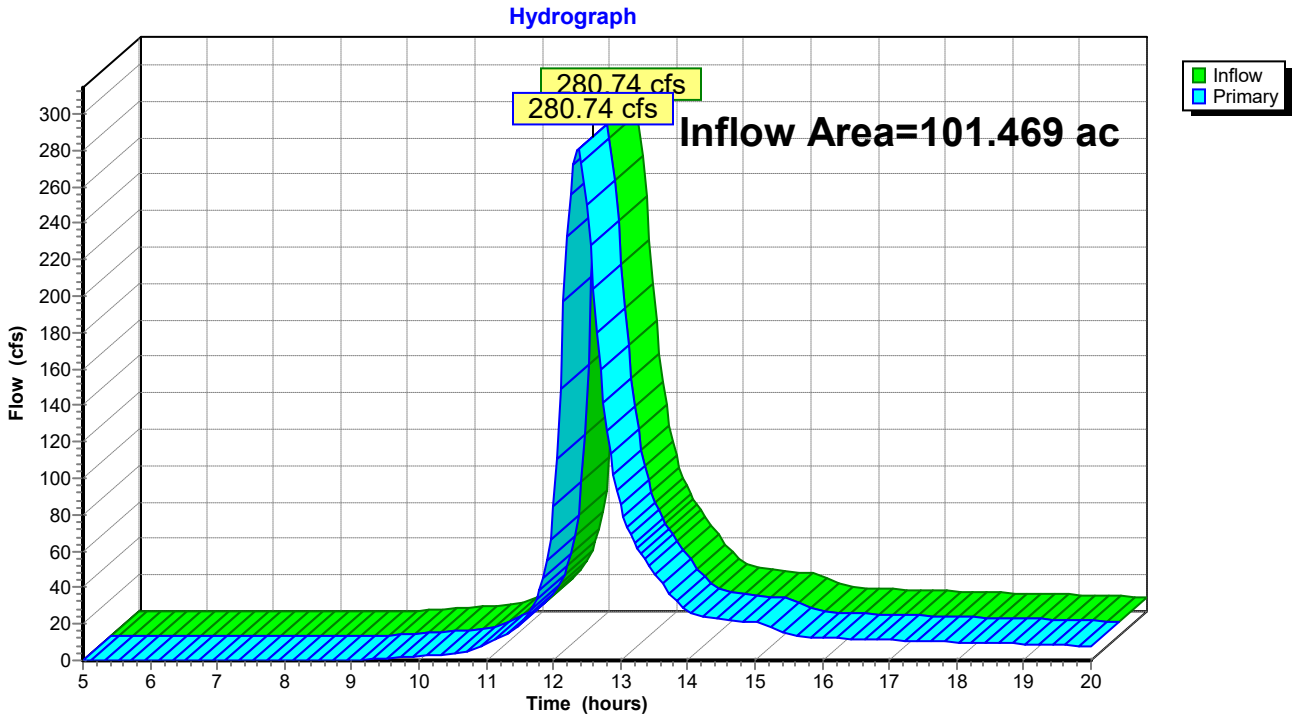


Summary for Link 16L: 16L

Inflow Area = 101.469 ac, 1.95% Impervious, Inflow Depth > 3.39" for 100-Year event
Inflow = 280.74 cfs @ 12.37 hrs, Volume= 28.679 af
Primary = 280.74 cfs @ 12.37 hrs, Volume= 28.679 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 16L: 16L

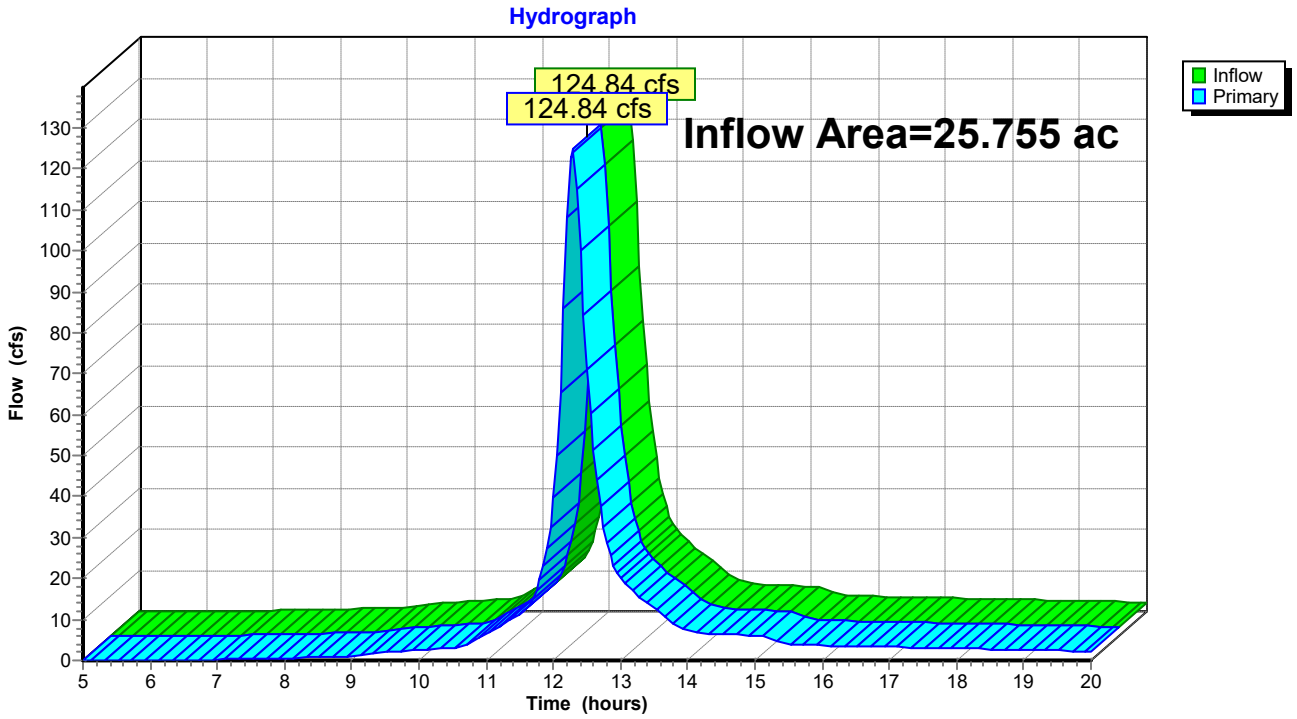


Summary for Link 17L: 17L

Inflow Area = 25.755 ac, 0.00% Impervious, Inflow Depth > 4.64" for 100-Year event
Inflow = 124.84 cfs @ 12.28 hrs, Volume= 9.953 af
Primary = 124.84 cfs @ 12.28 hrs, Volume= 9.953 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 17L: 17L

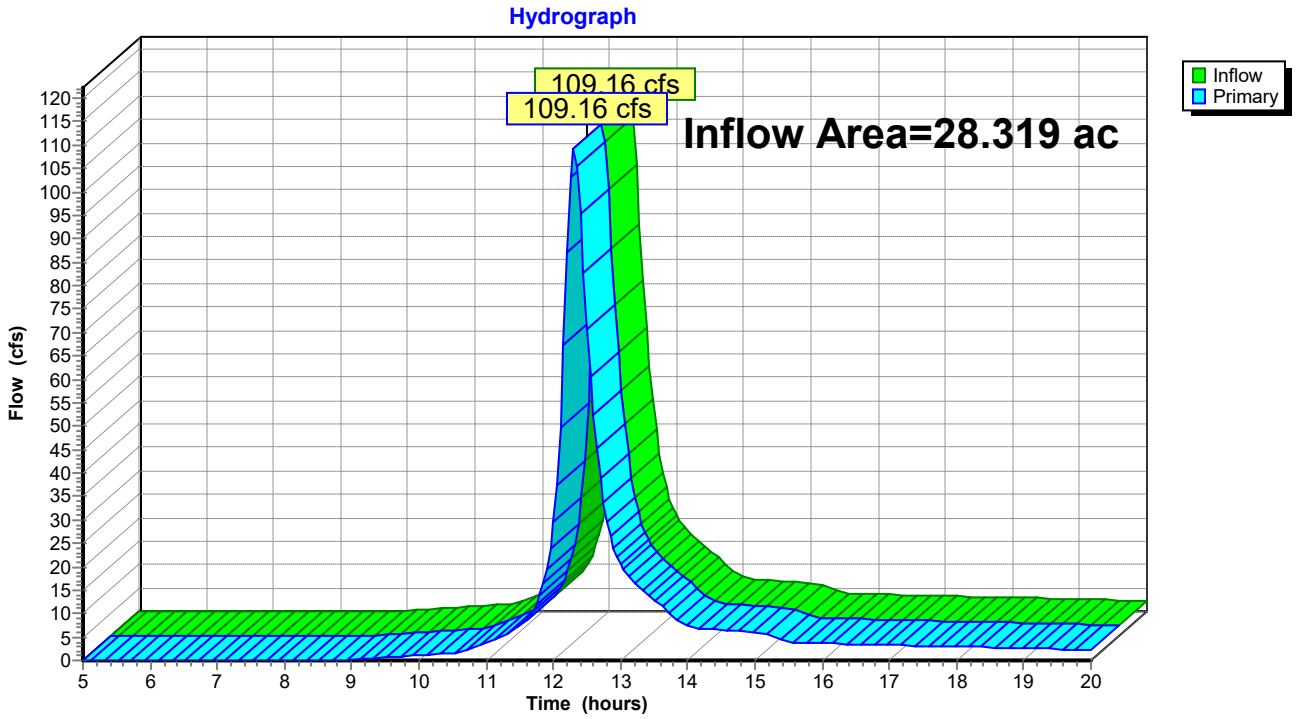


Summary for Link 18L: 18L

Inflow Area = 28.319 ac, 1.51% Impervious, Inflow Depth > 3.72" for 100-Year event
Inflow = 109.16 cfs @ 12.31 hrs, Volume= 8.773 af
Primary = 109.16 cfs @ 12.31 hrs, Volume= 8.773 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 18L: 18L

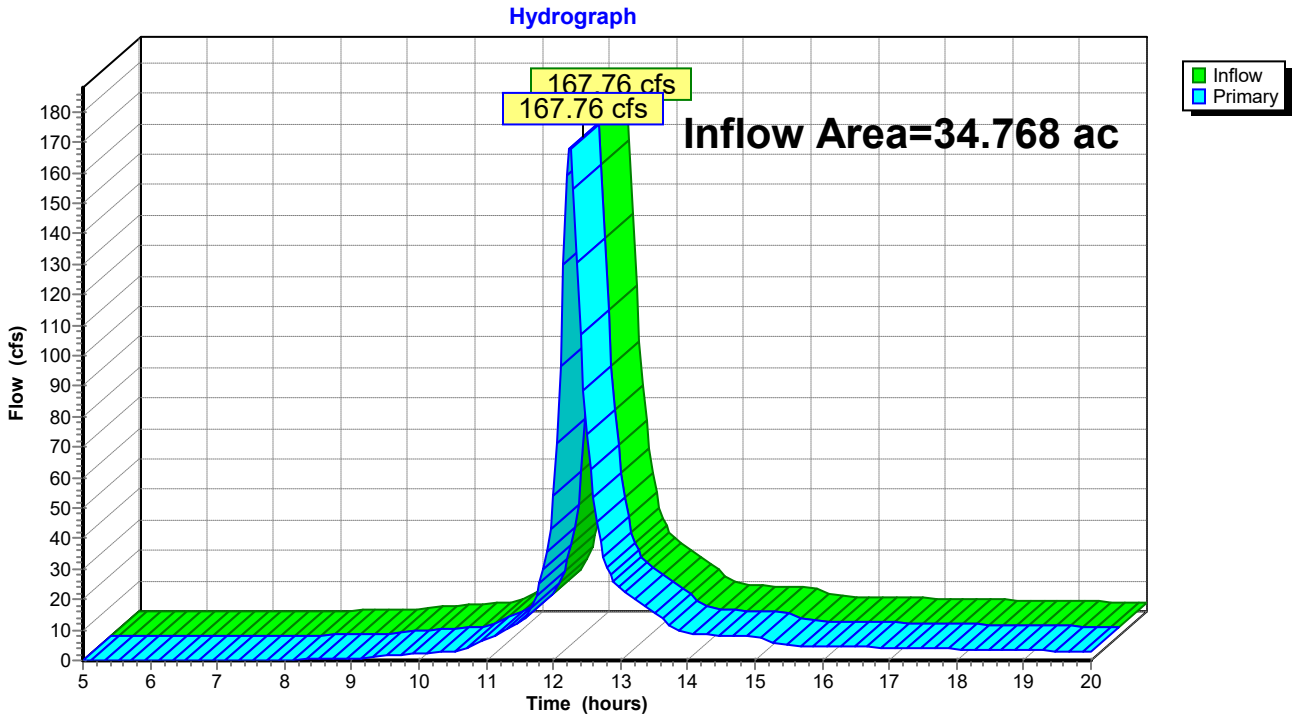


Summary for Link 19L: 19L

Inflow Area = 34.768 ac, 0.00% Impervious, Inflow Depth > 4.14" for 100-Year event
Inflow = 167.76 cfs @ 12.24 hrs, Volume= 12.009 af
Primary = 167.76 cfs @ 12.24 hrs, Volume= 12.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 19L: 19L

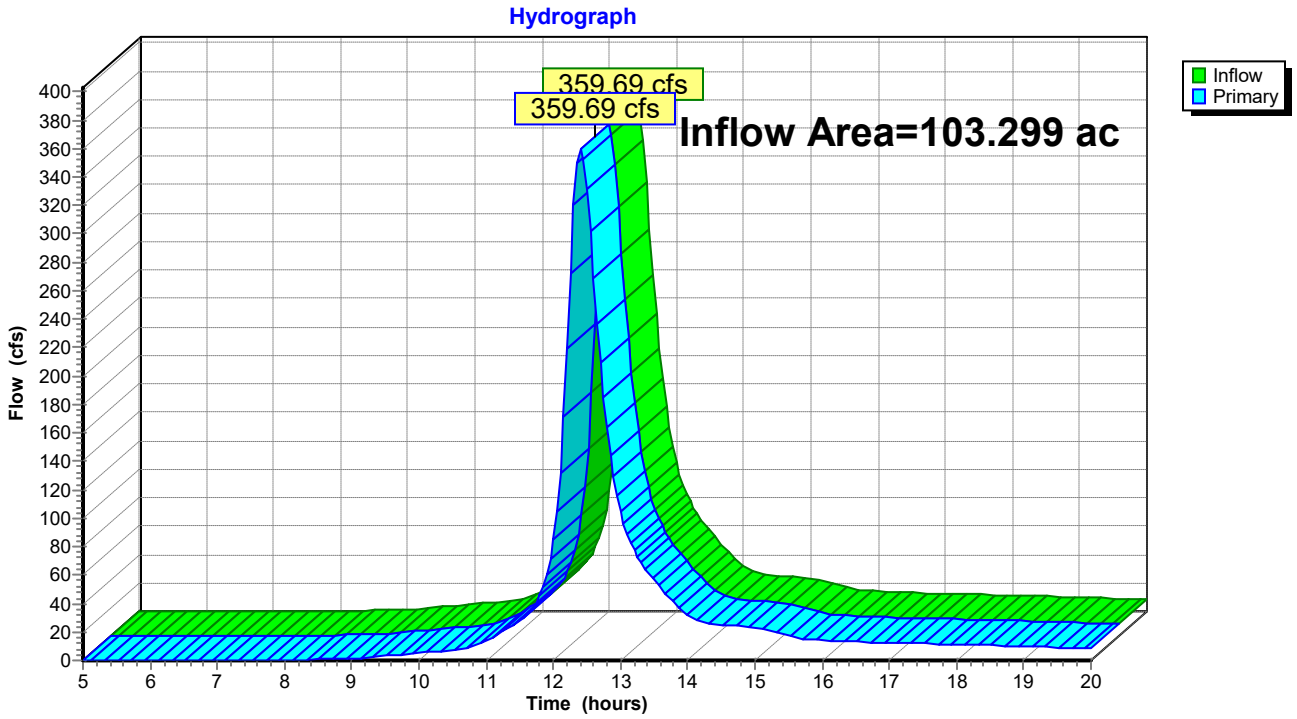


Summary for Link 20L: 20L

Inflow Area = 103.299 ac, 0.40% Impervious, Inflow Depth > 3.99" for 100-Year event
Inflow = 359.69 cfs @ 12.40 hrs, Volume= 34.387 af
Primary = 359.69 cfs @ 12.40 hrs, Volume= 34.387 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 20L: 20L

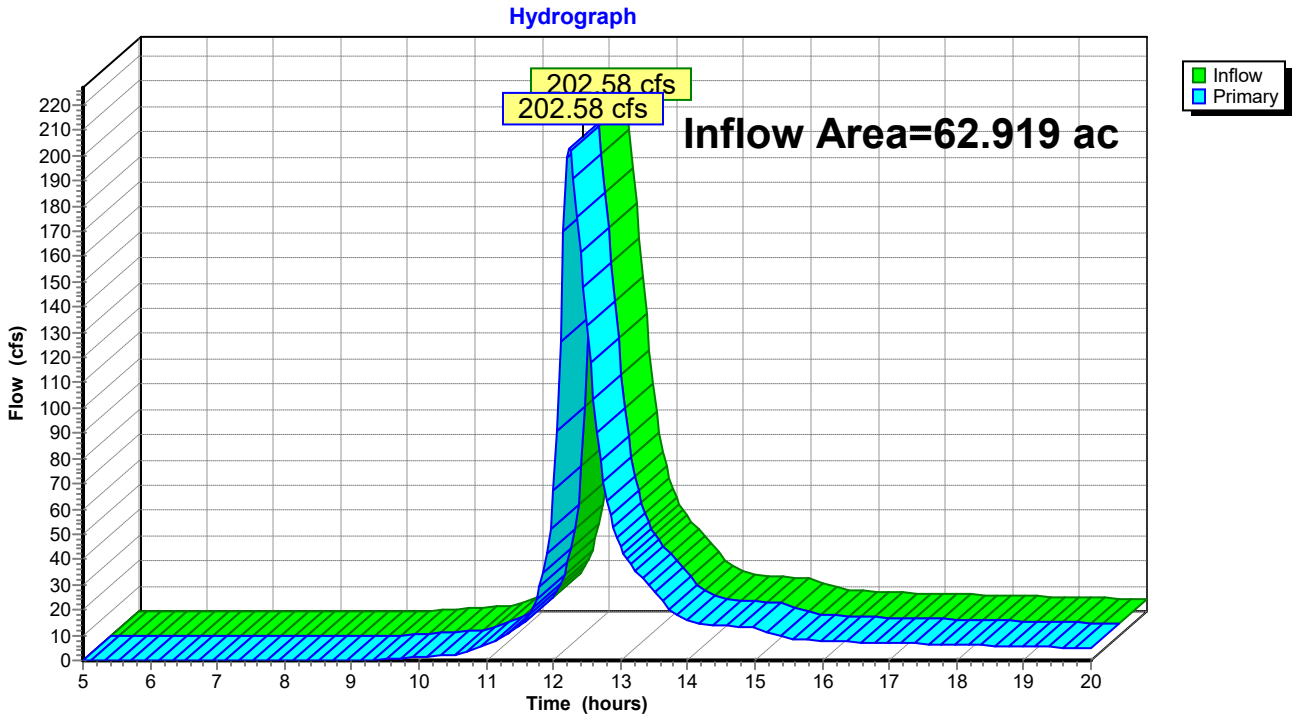


Summary for Link 21L: 21L

Inflow Area = 62.919 ac, 1.91% Impervious, Inflow Depth > 3.40" for 100-Year event
Inflow = 202.58 cfs @ 12.23 hrs, Volume= 17.842 af
Primary = 202.58 cfs @ 12.23 hrs, Volume= 17.842 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 21L: 21L



Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-7
Signal Mitigation Plan



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

TABLE OF CONTENTS

EXHIBIT A-7: SIGNAL MITIGATION PLAN 1

LIST OF ATTACHMENTS

Attachment A-7 A Signal Mitigation Plan

EXHIBIT A-7: SIGNAL MITIGATION PLAN

Exhibit A-7 provides Lakeside Solar, LLC's (Lakeside) signal mitigation plan for the Lakeside Solar and battery energy storage system (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 Planned Facilities and Exhibit A-1.2 Area Land Use Information provide an overview of the Project facilities. Exhibit A-7 was prepared in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist.

i. If the facility is reasonably expected to have an impact on television signals, microwave signals, agricultural global position systems, military defense radar, radio reception, or weather and doppler radio, provide a plan to minimize and mitigate that impact.

Lakeside retained Comsearch to create Signal mitigation plans addressing AM and FM radio, global positioning systems, land mobile and emergency services, microwave signals, mobile phone, radar and television signals are included in Attachment A-7 A.

ii. Wind turbine facilities should provide evidence of prior consultation with nearby communication tower operators, including those of the United States Defense Department.

The Project is not a wind facility; therefore, this requirement is not applicable.

Attachment A-7 A

Signal Mitigation Plan

comsearch®
an ANDREW company



GeoPlanner™

Over-the-Air Television Report

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 21, 2025

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2. Summary of Results - 2 -

3. Impact Assessment - 5 -

4. Recommendations - 5 -

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1. Introduction

Over-the-air (OTA) television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those OTA stations whose service could potentially be affected by a proposed solar farm. Lakeside Solar LLC is proposing to construct and place in utility service the Lakeside Solar Project, an electric generation facility located in Muskegon County, Michigan. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers along with structures for substation, battery storage, and power transmission. The project will have an installed capacity of up to 200 MW ac (130 MW dc).

Comsearch examined the coverage of the OTA stations identified and the communities in the area that could potentially have degraded television reception due to the location of the solar farm.

2. Summary of Results

The proposed solar farm project area and local communities are depicted in Figure 1 below.

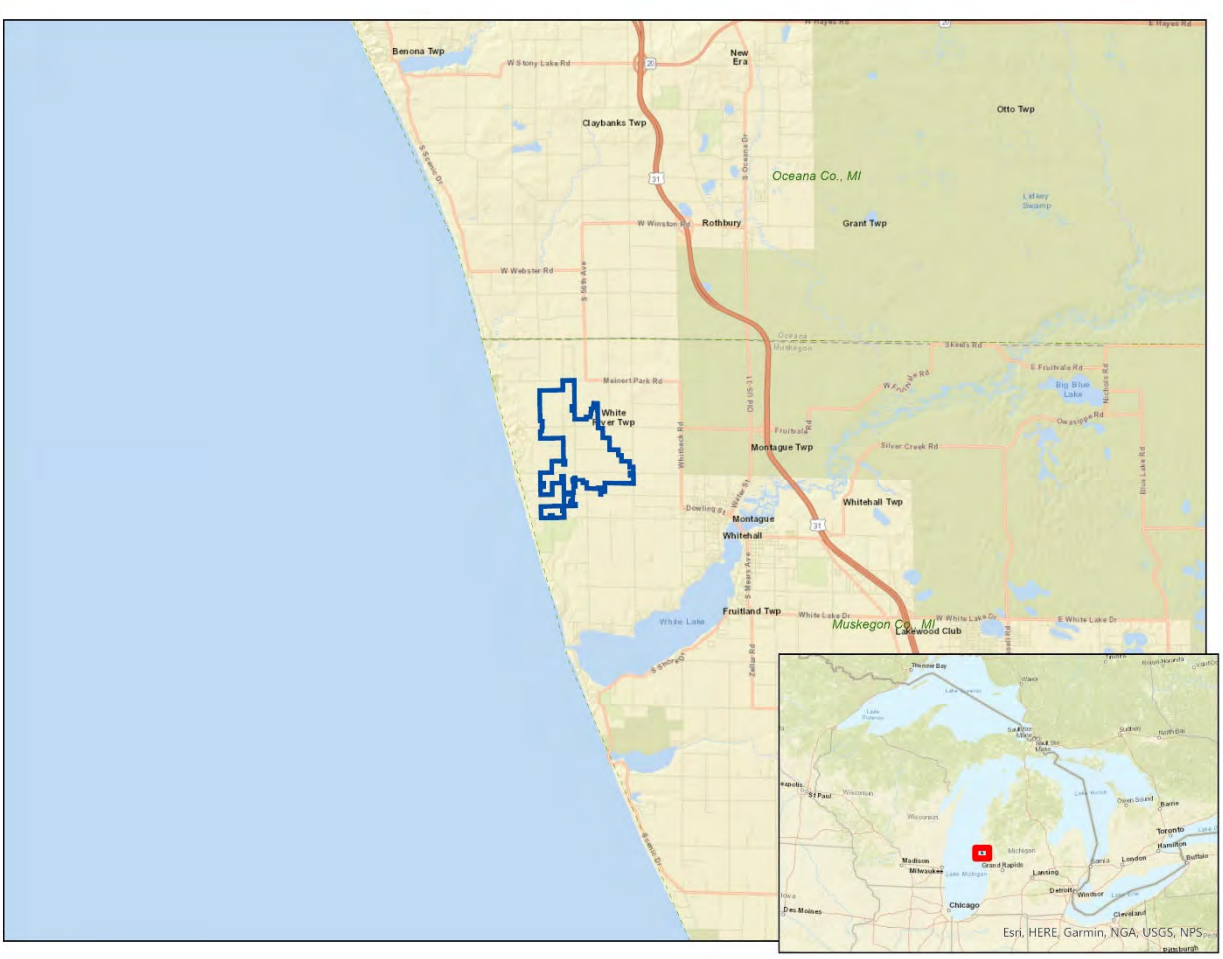


Figure 1: Solar Project Area and Local Communities

To begin the analysis, Comsearch compiled all OTA television stations[1] within 100 kilometers of the solar farm. TV stations at a distance of 100 kilometers or less are the most likely to provide OTA coverage to the project area and neighboring communities. These stations are listed in Table 1 on the next page, and a plot depicting their locations is provided in Figure 2 below. There are a total of 16 database records for stations within approximately 100 kilometers of the solar farm. Of these stations, 15 are currently licensed and operating, and 5 of which are low-power stations or translators. Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

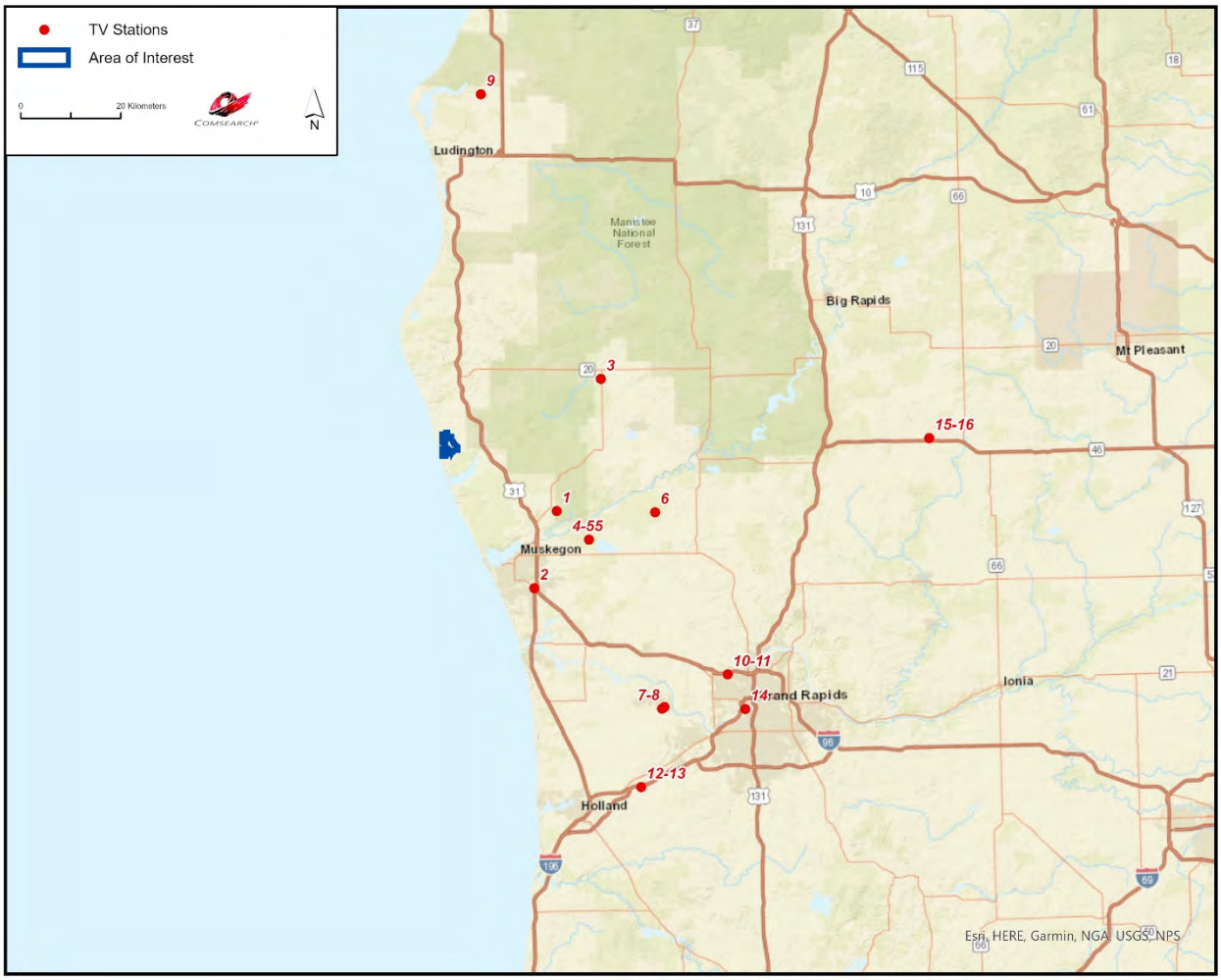


Figure 2: Plot of OTA TV Stations within 100 Kilometers of Solar Farm

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the TV station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Project Area (km)
1	W18ER-D	LIC	LPD	18	15.0	43.313917	-86.154778	23.25
2	WMKG-CD	LIC	DCA	31	7.0	43.175861	-86.212000	31.61
3	W36FA-D	LIC	LPD	36	15.0	43.552139	-86.041944	31.64
4	WOMS-CD	LIC	DCA	29	0.7	43.262389	-86.076167	31.74
5	WOOD-TV	LIC	DRT	34	3.1	43.262389	-86.076167	31.74
6	WZZM	LIC	DTV	13	24.5	43.309833	-85.912444	41.32
7	WTLJ	LIC	DTV	24	310.0	42.956944	-85.901944	65.85
8	WGVU-TV	LIC	DTV	11	41.5	42.959639	-85.895806	65.92
9	WCMW	LIC	DTV	20	68.3	44.065833	-86.332861	67.74
10	W27ED-D	LIC	LPD	27	4.0	43.016472	-85.740056	70.13
11	WXSP-CD	LIC	DCA	15	15.0	43.016472	-85.740056	70.13
12	WOGC-CD	LIC	DCA	25	0.73	42.816389	-85.955556	76.68
13	WOHO-CD	LIC	DCA	33	0.52	42.816389	-85.955556	76.68
14	WUHQ-LD	LIC	LPD	29	6.0	42.953889	-85.697778	77.33
15	WBWM-LD	LIC	LPD	28	1.0	43.436389	-85.233333	94.17
16	WBWM-LD	CP	LPD	16	1.0	43.436389	-85.233333	94.17

Table 1: OTA TV Stations within 100 Kilometers of Solar Farm

[2] Definitions of service and status codes:
DT – Digital television broadcast station
LD – Low-power digital television broadcast station
TX – Translator station
DC – Class A digital television broadcast station
DX – Digital auxiliary (backup) facility
LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational

[3] ERP = Transmit Effective Radiated Power

3. Impact Assessment

Typically, solar farms do not cause electromagnetic interference (EMI) to OTA television reception. If any, the most likely source of EMI are the photovoltaic (PV) inverters that are installed at every Power Conversion Station (PSC) throughout the solar farm. These PV inverters convert the direct current (DC) current output of a solar array into alternating current (AC) that can be fed into a commercial electrical grid. However, Title 47 Part 15B of the FCC rules and regulations provide guidelines for grid-tied PV inverters such that their EMI emissions are controlled to within certain limits and thereby avoid contaminating the AC grid voltage. And due to the low frequency (60 Hz) operation of the PV inverters, EMI from these devices does not normally extend above 1 MHz which would be well below the frequency of operation for OTA television.

4. Recommendations

If possible, the PV inverters of a power conversion station (PCS) should be installed away from residential areas to reduce the likelihood of EMI to households that may rely on OTA television service. At minimum, a setback distance of 250 feet from any household and the centralized inverters is recommended. In the unlikely event that EMI is observed at a certain household following the construction of the solar farm, a high-gain directional antenna may be employed, preferably outdoors, and oriented towards the signal origin to mitigate the potential impact on OTA TV signal reception. The battery storage facility would have no impact on the OTA television service.

To minimize the risk of causing harmful interference to OTA television receivers near the transmission line, there should be an effective quality control maintenance program for the useful life cycle of the transmission line system. Power lines fall under the category of “incidental radiators” per 47 CFR 15.3 of the Code of Federal Regulations. While they are not designed to intentionally generate or emit radio frequency (RF) energy, they could generate radio frequency noise due to a phenomenon known as corona discharge, especially during foul weather. As such, project developers and utility providers should employ sound engineering practices to minimize such occurrences and thereby reduce the likelihood of radio frequency (RF) interference that transmission lines may cause to communication systems such as OTA television receivers.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the solar farm and may be offered to those residents who can show that their OTA TV reception has been disrupted by the presence of the solar farm after it is installed.

5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

Contact person:	David Meyer
Title:	Senior Manager
Company:	Comsearch
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Doppler and NEXRAD Weather Radar Study

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 21, 2025

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1. Introduction

The purpose of this document is to describe the research, calculations, and analysis performed to assess the impact of the proposed solar project on the operation of Doppler Weather Radar Systems (owned and operated by television stations and commercial interests) and the NEXRAD radars (jointly operated by the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the U.S. Air Force) within the vicinity of the project. This study was performed for Lakeside Solar, LLC.

2. Project Area

The proposed Lakeside Solar Project is located in Muskegon County, Michigan. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers along with structures for substation, battery storage, and power transmission. The project will have an installed capacity of up to 200 MW ac (130 MW dc). The proposed solar panels have a maximum height of 20 feet, the proposed transmission line structures have a maximum height of 65 feet, and the proposed battery storage unit has a maximum height of 2.9 meters (approximately 9.5 feet).



Figure 1: Location of Lakeside Solar Project in the State of Michigan

3. Technical Data

Based on a preliminary analysis of the terrain within the vicinity of the project and taking into account the maximum height of the solar panels, a reasonable search radius for radar systems was established at 250 kilometers from the center of the project area. Tables 1 and 2 contain the technical parameters of the commercial Doppler radar systems located within 250 kilometers of the project, including ownership and geographical data[1]. A depiction of the location of the Doppler radar systems with respect to the solar project appears in Figure 2. Table 3 and Figure 3 contains the information on the NEXRAD radar systems found with 250 kilometers.

ID	Call Sign	Frequency (MHz)	Ground Elevation (m)	Antenna Height (m)	Output Power (Watts)	Distance to the Project Area (km)
1	WPQZ502	5450.0-5600.0	261.0	27.4	250000	157.88
2	WQAZ631	5450.0-5600.0	229.0	26.7	421000	177.64
3	WPTU465	5400.0-5600.0	196.5	25.7	350000	189.68
4	WQFY387	5607.0	243.5	27.4	1000000	222.69
5	WPYY795	2940.0-2990.0	219.1	31.2	329587	233.58
6	WQVG967	2900.0-2950.0	270.0	41.5	1000000	234.36
7	WQGW693	5450.0-5500.0	221.9	12.5	1000000	238.47

Table 1: Technical Data for Commercial Interest and Television Station Doppler Radar Systems within 250 Kilometers of the Lakeside Solar Project

ID	Call Sign	Owner- Operator	Location	Latitude (NAD83)	Longitude (NAD83)
1	WPQZ502	Nexstar Media Inc.	WATERTOWN TOWNSHIP, MI	42.78336111	-84.66666667
2	WQAZ631	Nexstar Media Inc.	LITTLE CHUTE, WI	44.29688889	-88.31777778
3	WPTU465	Gray Television Licensee, LLC	FREELAND, MI	43.53930556	-84.05622222
4	WQFY387	The Lutheran University Association, Inc. d/b/a	VALPARAISO, IN	41.46250000	-87.04972222
5	WPYY795	NBC Telemundo License LLC	NAPERVILLE, IL	41.77916667	-88.22500000

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

ID	Call Sign	Owner- Operator	Location	Latitude (NAD83)	Longitude (NAD83)
6	WQVG967	WLS Television, Inc.	LILY LAKE, IL	41.93750000	-88.47791667
7	WQGW693	FOX TELEVISION STATIONS, LLC	LOCKPORT, IL	41.61325000	-88.01452778

Table 2: Location and Ownership of Commercial Interest and Television Station Doppler Radar Systems within 250 Kilometers of the Lakeside Solar Project

ID	WBAN #	Station ID	Station Name	Latitude (NAD83)	Longitude (NAD83)	Elevation (ft)	Tower Height (m)	Distance to the Area of Interest (km)
1	94860	KGRR	Grand Rapids, MI	42.89388889	-85.54472222	778	20	91.09
2	14898	KGRB	Green Bay, WI	44.49833333	-88.11138889	682	30	177.30
3	4834	KMKX	Milwaukee, WI	42.96777778	-88.55055556	958	10	178.84
4	4837	KAPX	Gaylord, MI	44.90722222	-84.71972222	1464	20	210.67
5	PENDING	KIWX	Fort Wayne, IN	41.35888889	-85.70000000	960	25	236.13
6	4831	KLOT	Chicago, IL	41.60472222	-88.08472222	663	20	242.44

Table 3: Location and Technical Data for NEXRAD Radar Systems within 250 Kilometers of the Lakeside Solar Project

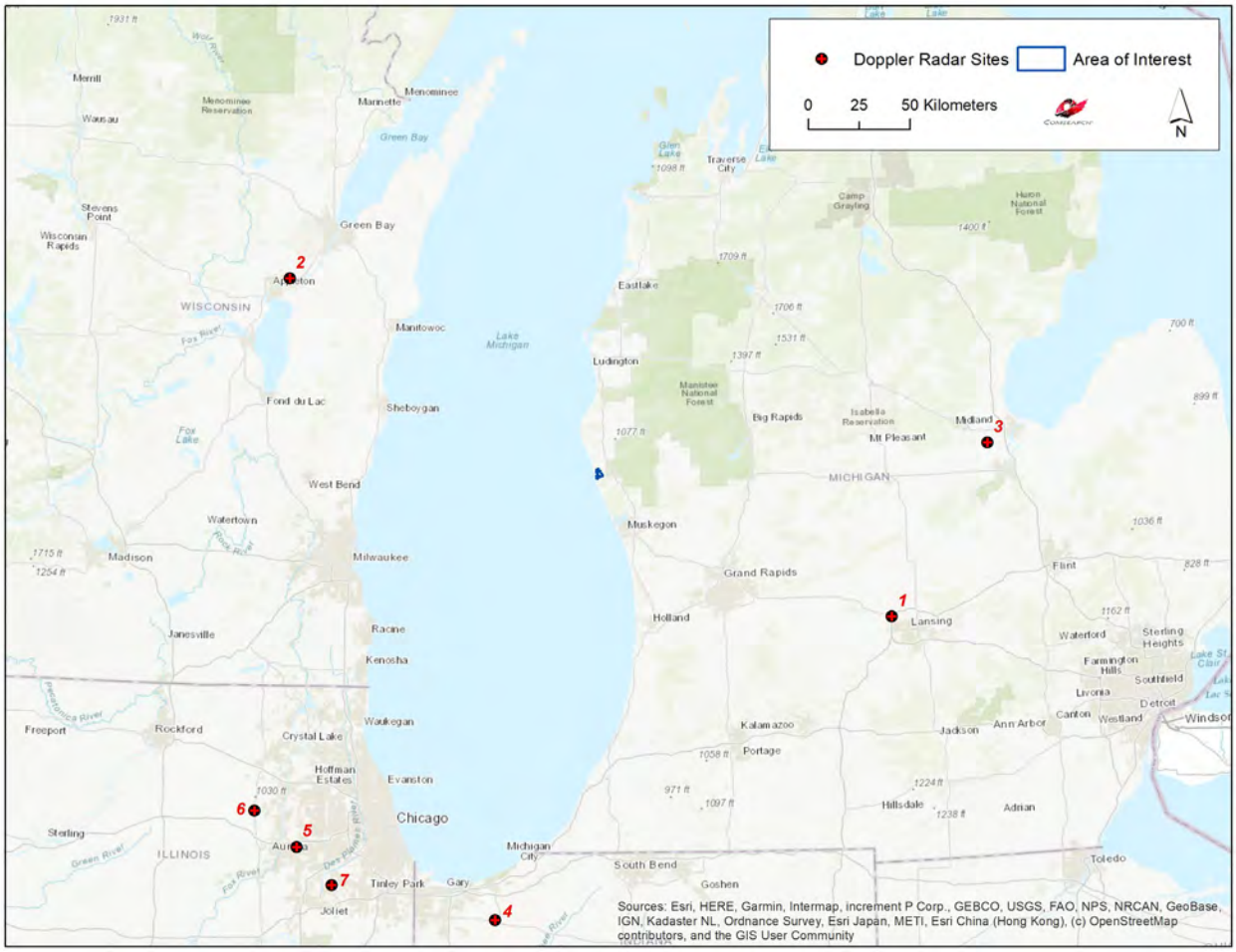


Figure 2: Location of Doppler Radar Systems within 250 Kilometers of the Lakeside Solar Project

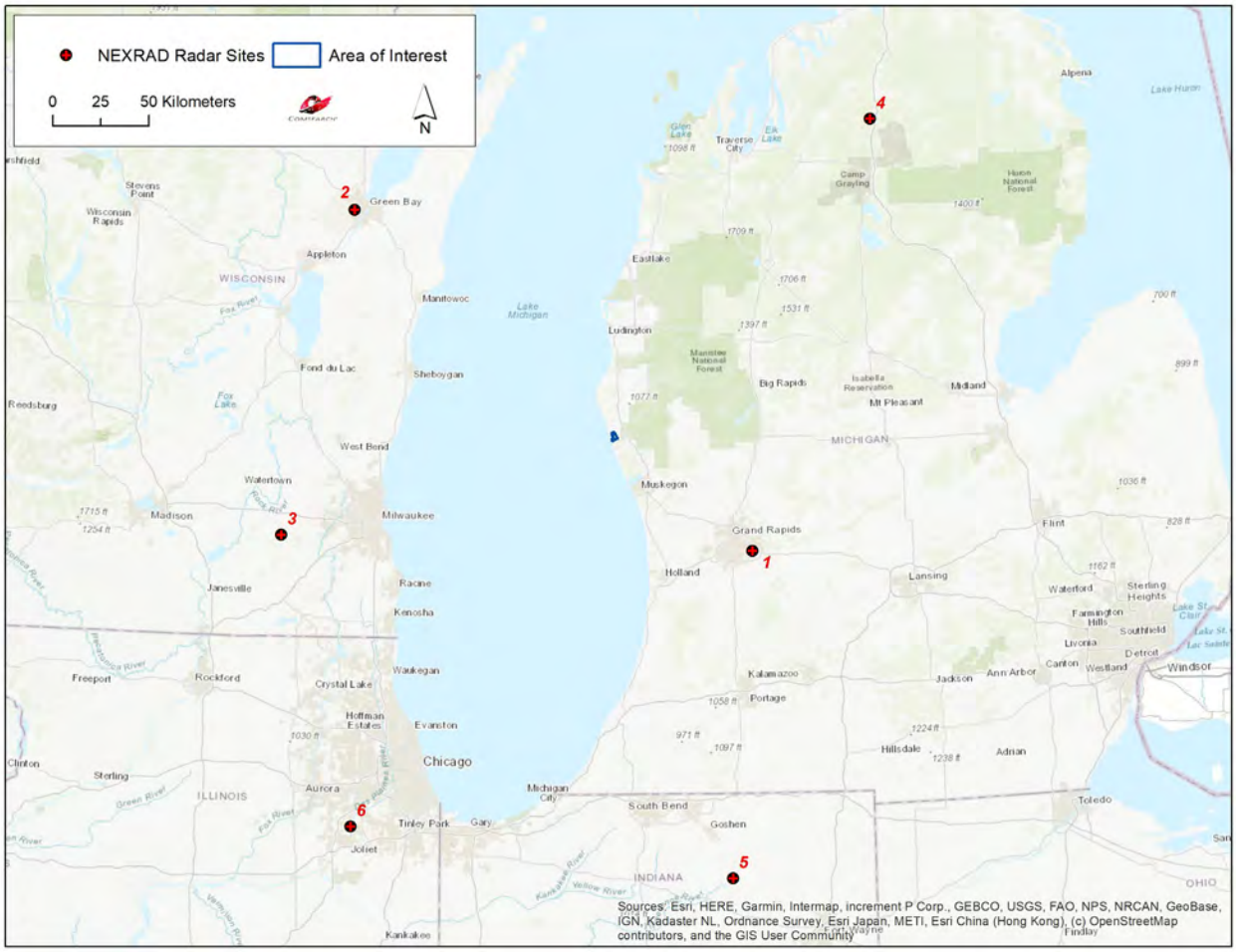


Figure 3: Location of NEXRAD Radar Systems within 250 Kilometers of the Lakeside Solar Project

4. Impact Assessment

The technical approach to determine the potential impact of the solar project on the radar systems in the area is to calculate whether the proposed facilities are in line-of-sight (LOS) of the radar systems. The facilities of the Lakeside Solar Project have the potential to block radar coverage and produce false targets if the panels or transmission lines or battery storage unit are in line-of-sight of the radar systems' transmitted signals.

To verify the presence or absence of LOS conditions between the Lakeside Solar Project and the radar systems identified in Section 3, LOS coverage plots were generated for each of the radar systems. These plots identify the geographical regions that have LOS to a given radar by taking into account the height of the radar antenna, the maximum height of the proposed facilities, the curvature of the earth, and potential refractivity in the atmosphere. The plots may be referenced in the Appendix section of this report.

According to the LOS coverage plots (see Appendix), the effective terrain elevations would block LOS between all radar antennas and the solar project area. Moreover, obstruction due to land clutter (i.e., buildings, trees, etc.) would further impede line-of-sight conditions. Therefore, LOS conditions would not exist between the radars and any proposed facilities of the Lakeside Solar Project.

5. Conclusions

Based on the analysis described in this report, none of the seven Doppler radar systems and six NEXRAD radar systems in the vicinity of the Lakeside Solar Project could be impacted by the project's planned solar panels, transmission line structures, and battery storage unit.

6. Contact

For questions or information regarding the Communication Tower Study, please contact:

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Fax:	703-726-5595
Email:	DMeyer@Comsearch.com
Web site:	www.comsearch.com

Appendix

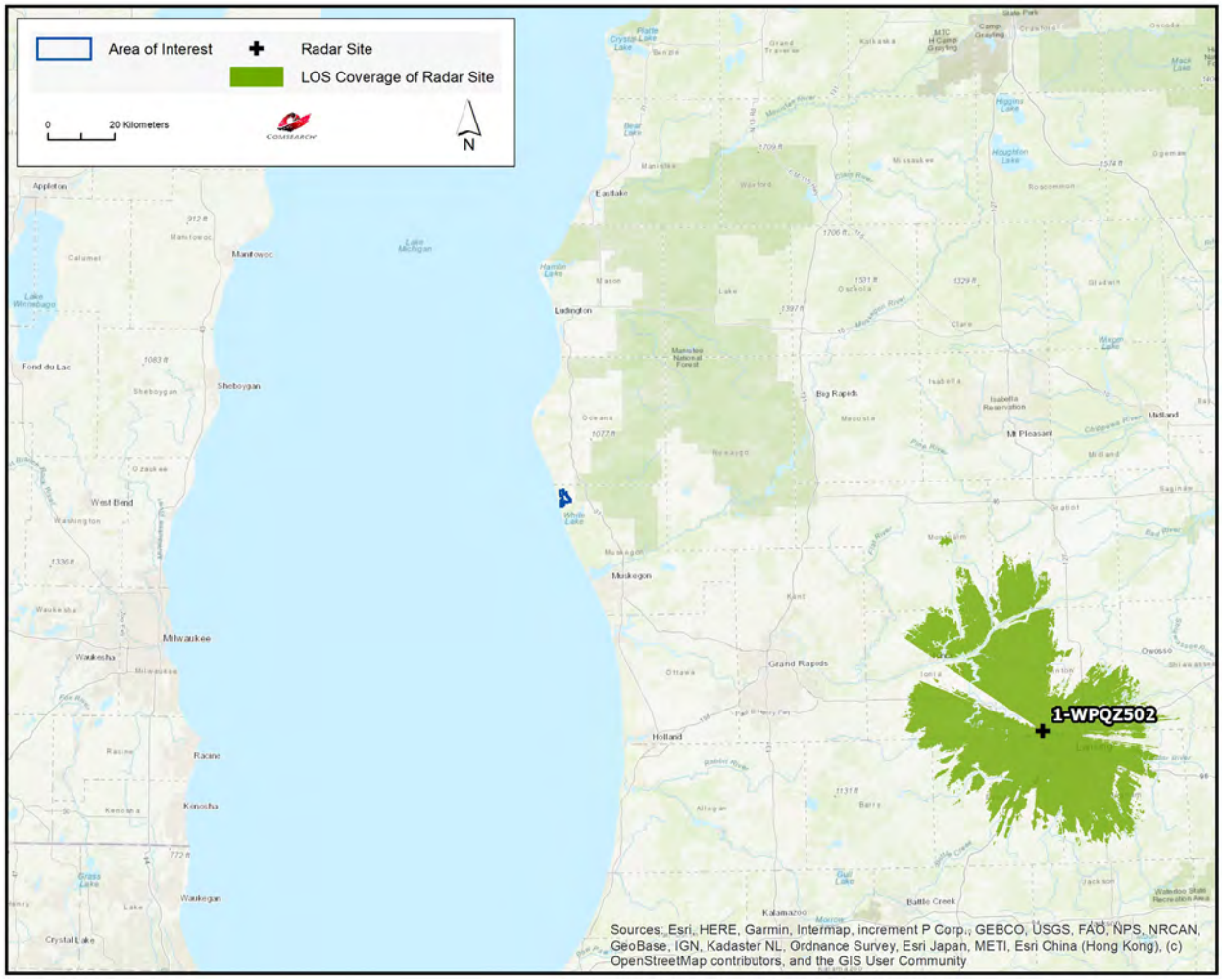


Figure A1-1: Line-of-Sight Coverage of WPQZ502 with Respect to Lakeside Solar Project

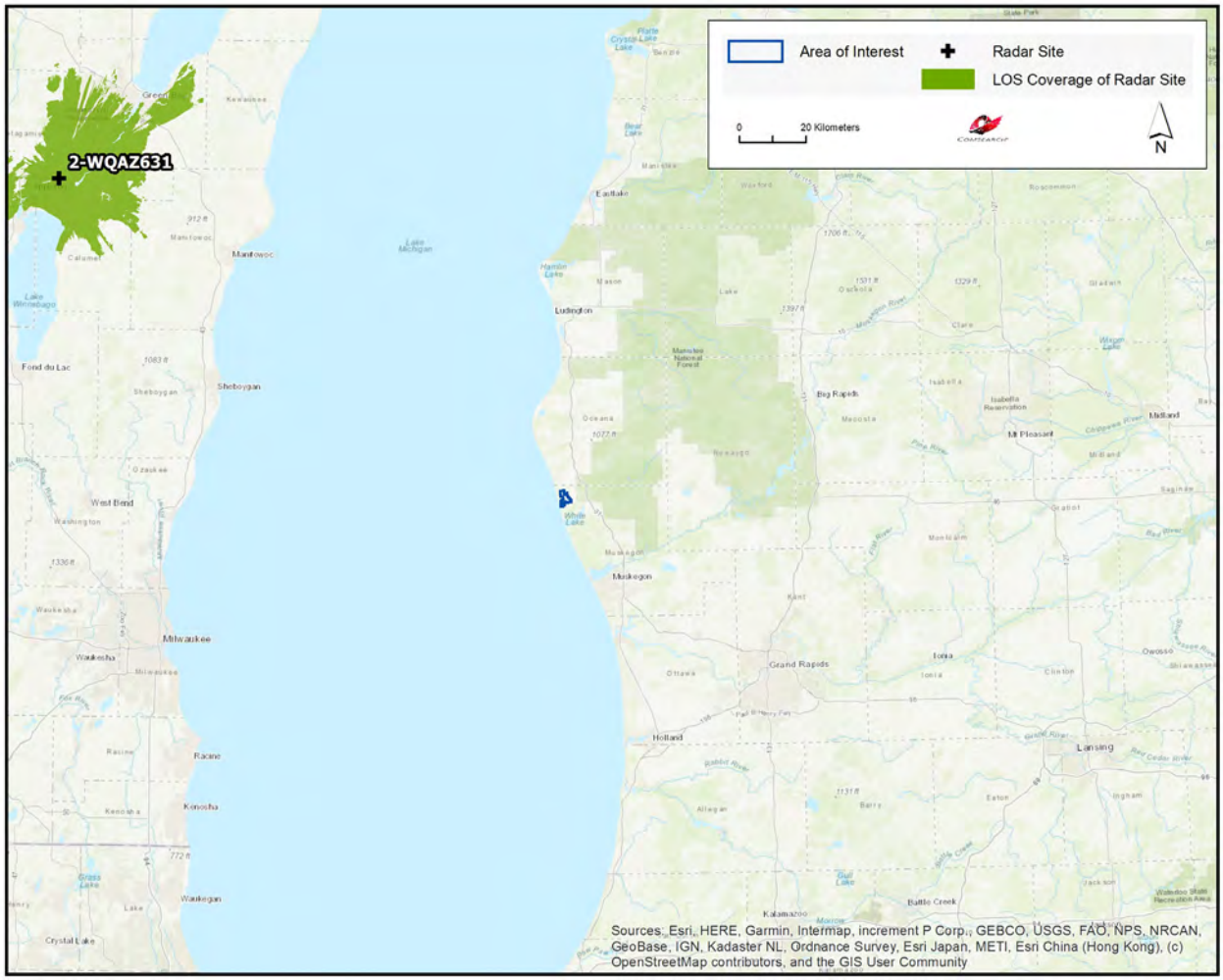


Figure A1-2: Line-of-Sight Coverage of WQAZ631 with Respect to Lakeside Solar Project

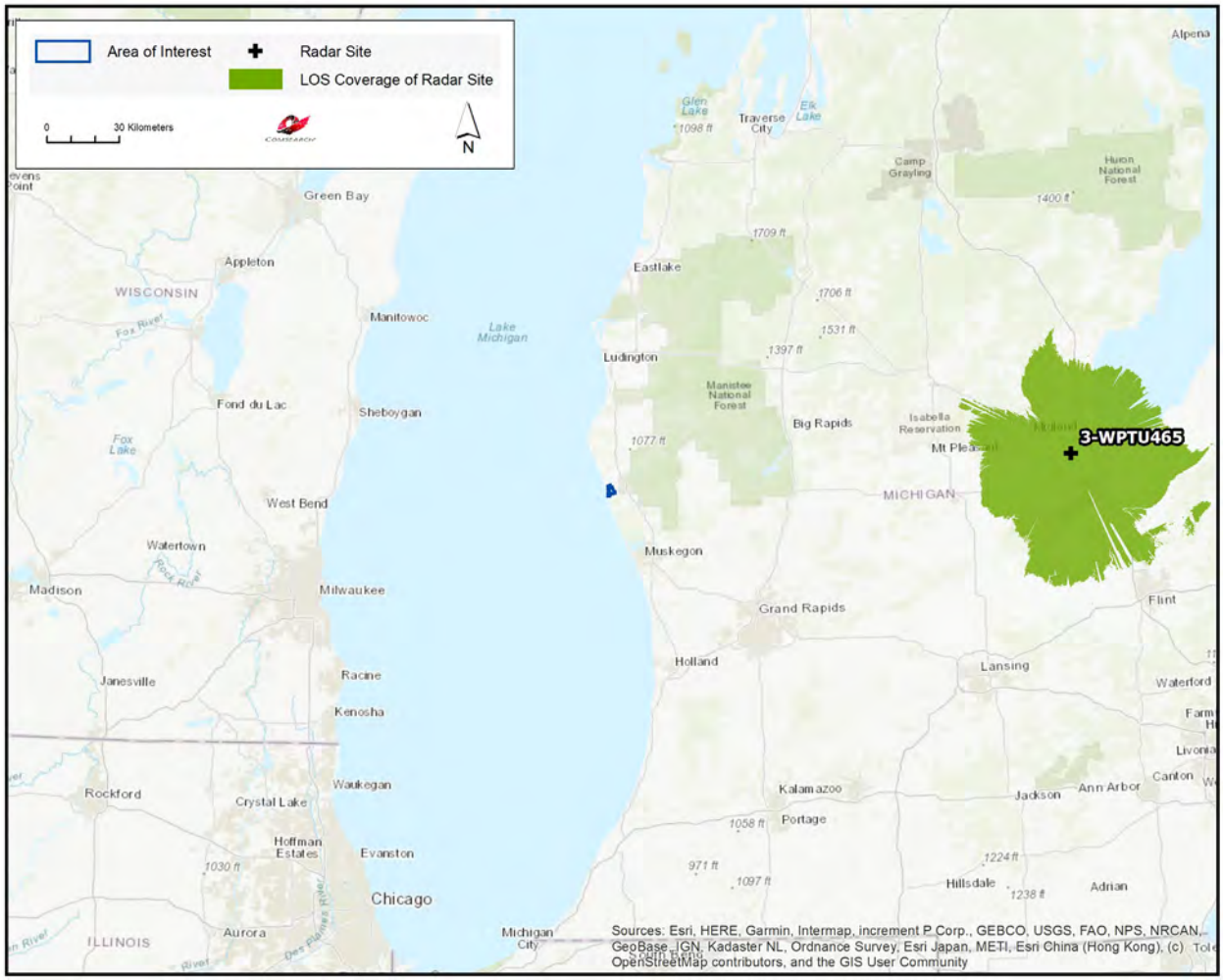


Figure A1-3: Line-of-Sight Coverage of WPTU465 with Respect to Lakeside Solar Project

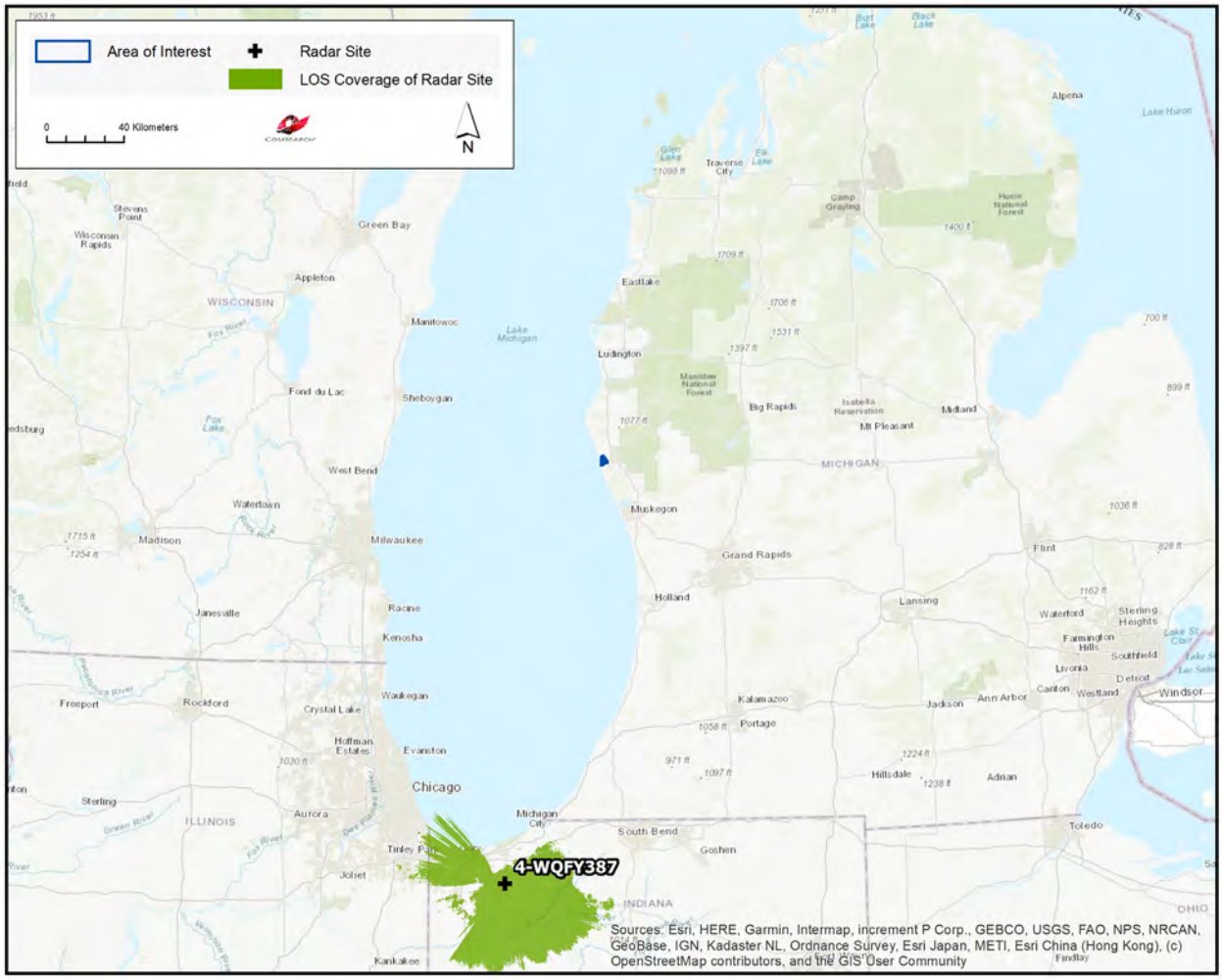


Figure A1-4: Line-of-Sight Coverage of WQFY387 with Respect to Lakeside Solar Project

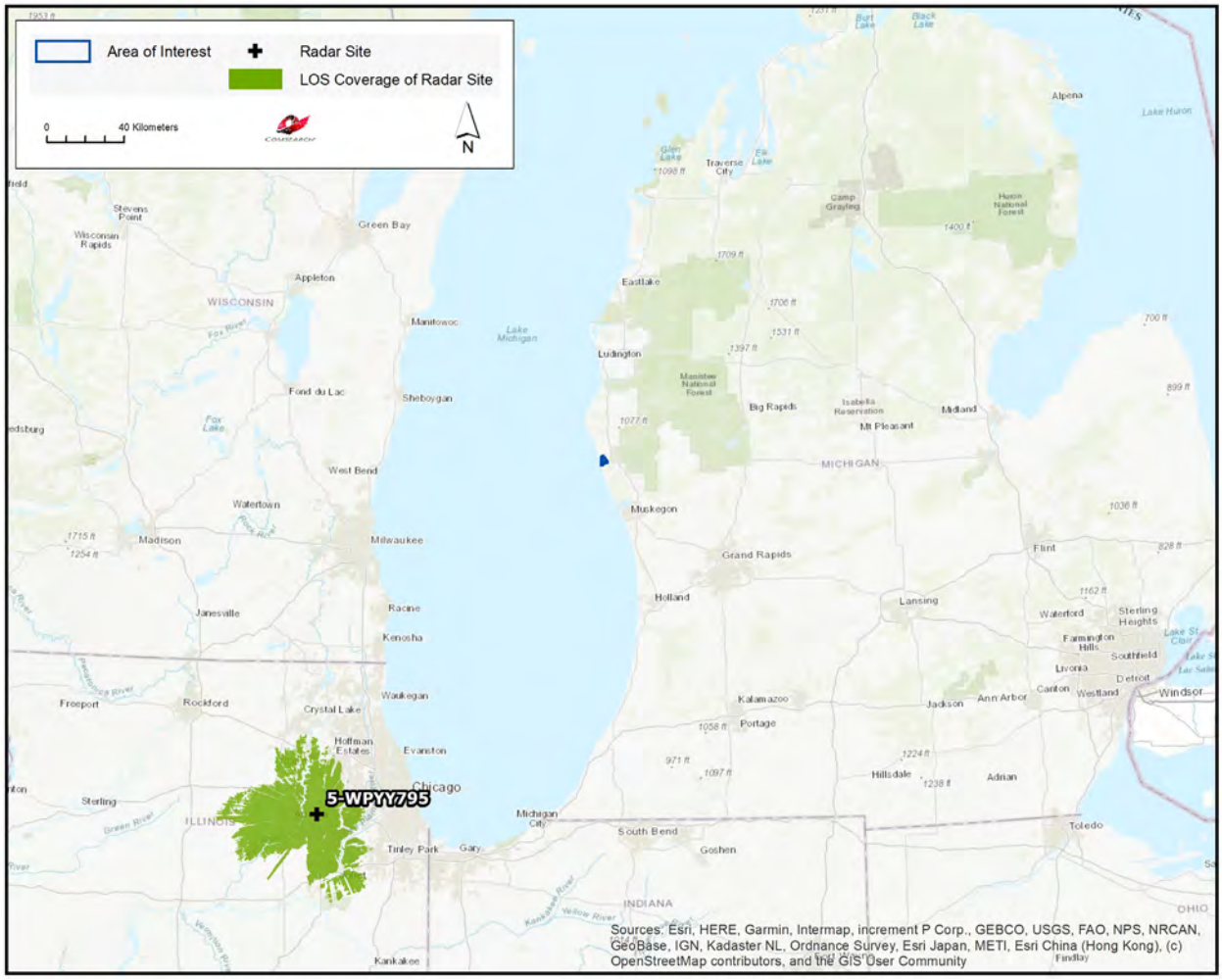


Figure A1-5: Line-of-Sight Coverage of WPYY795 with Respect to Lakeside Solar Project

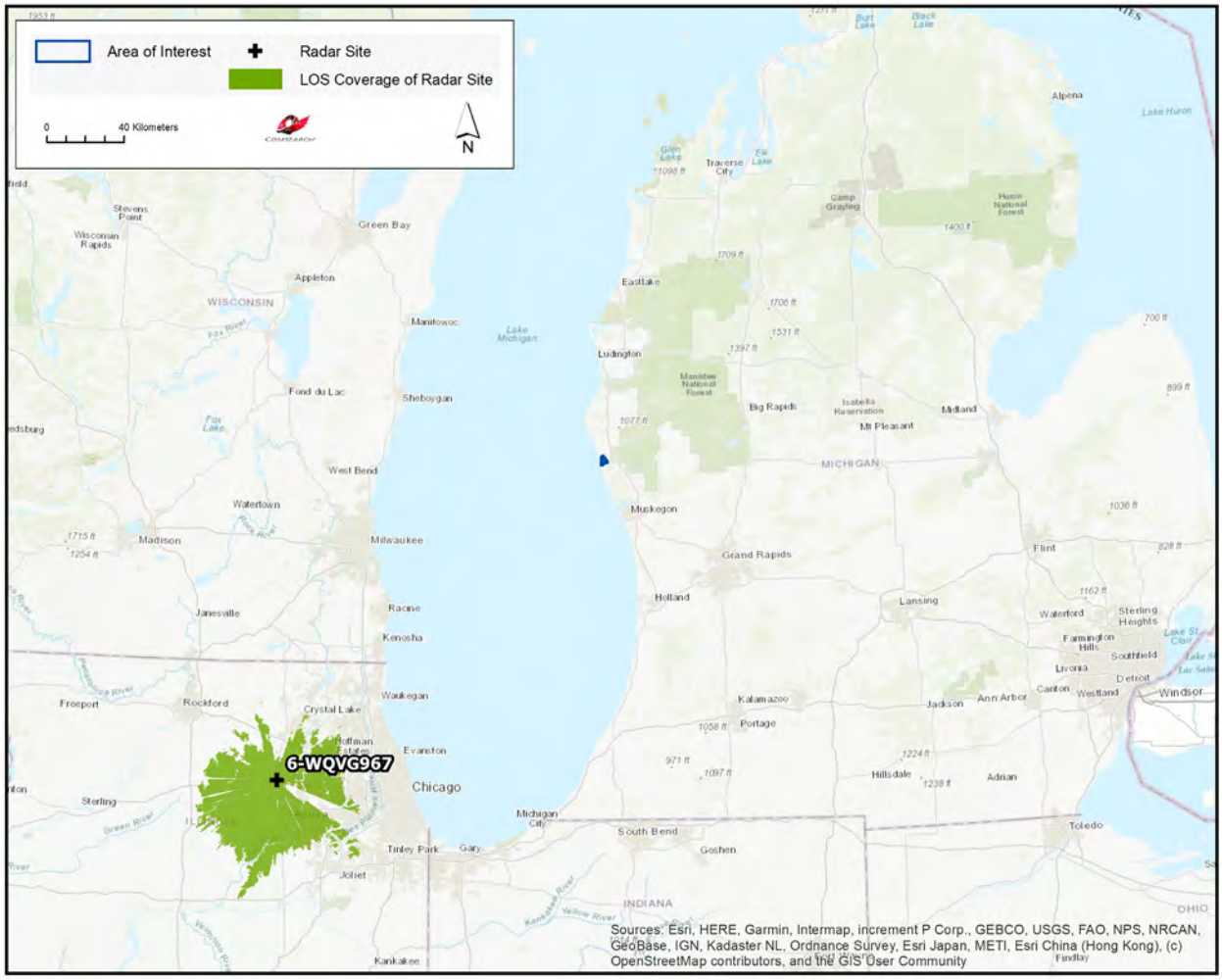


Figure A1-6: Line-of-Sight Coverage of WQVG967 with Respect to Lakeside Solar Project

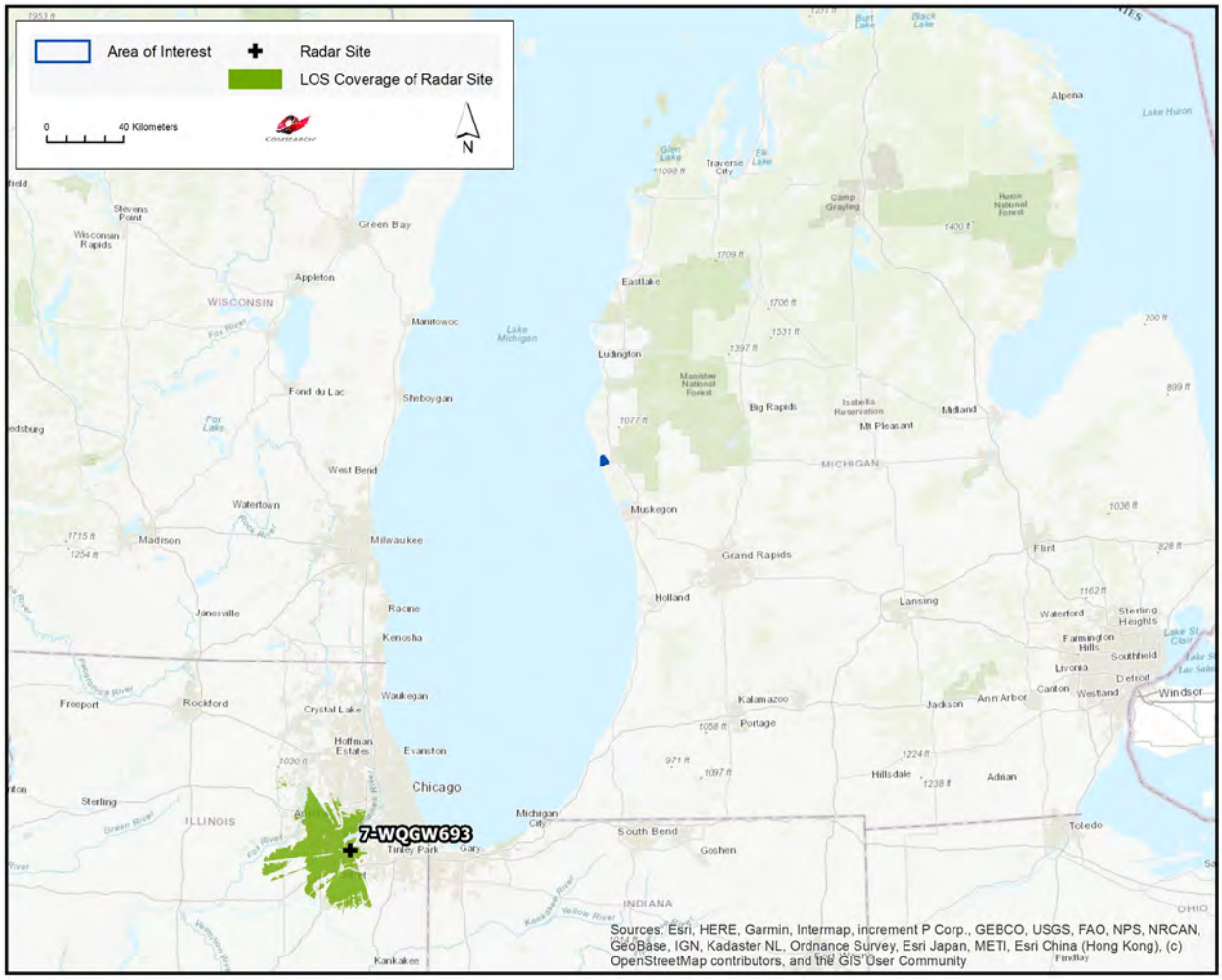


Figure A1-7: Line-of-Sight Coverage of WQGW693 with Respect to Lakeside Solar Project

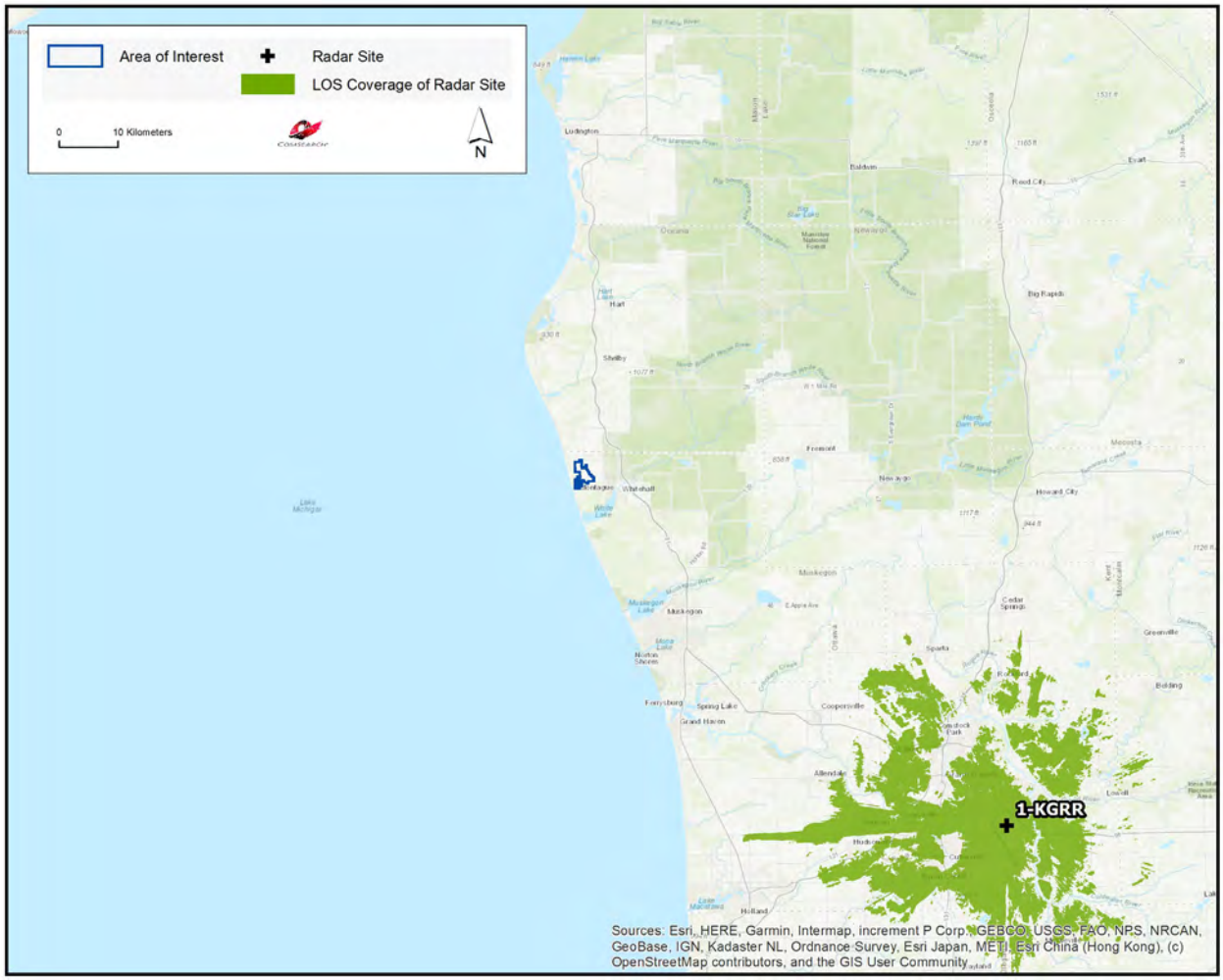


Figure A2-1: Line-of-Sight Coverage of KGRR with Respect to Lakeside Solar Project

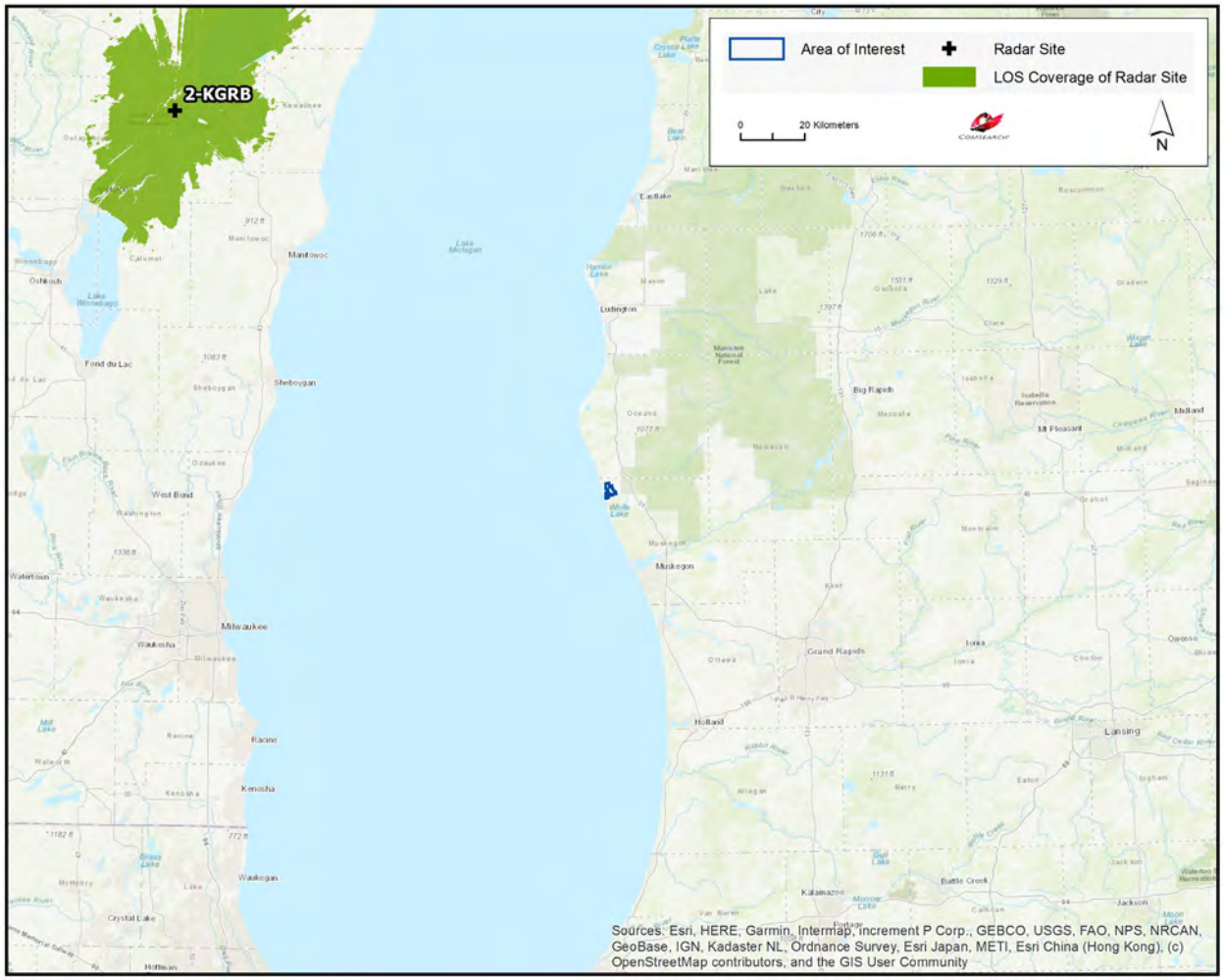


Figure A2-2: Line-of-Sight Coverage of KGRB with Respect to Lakeside Solar Project

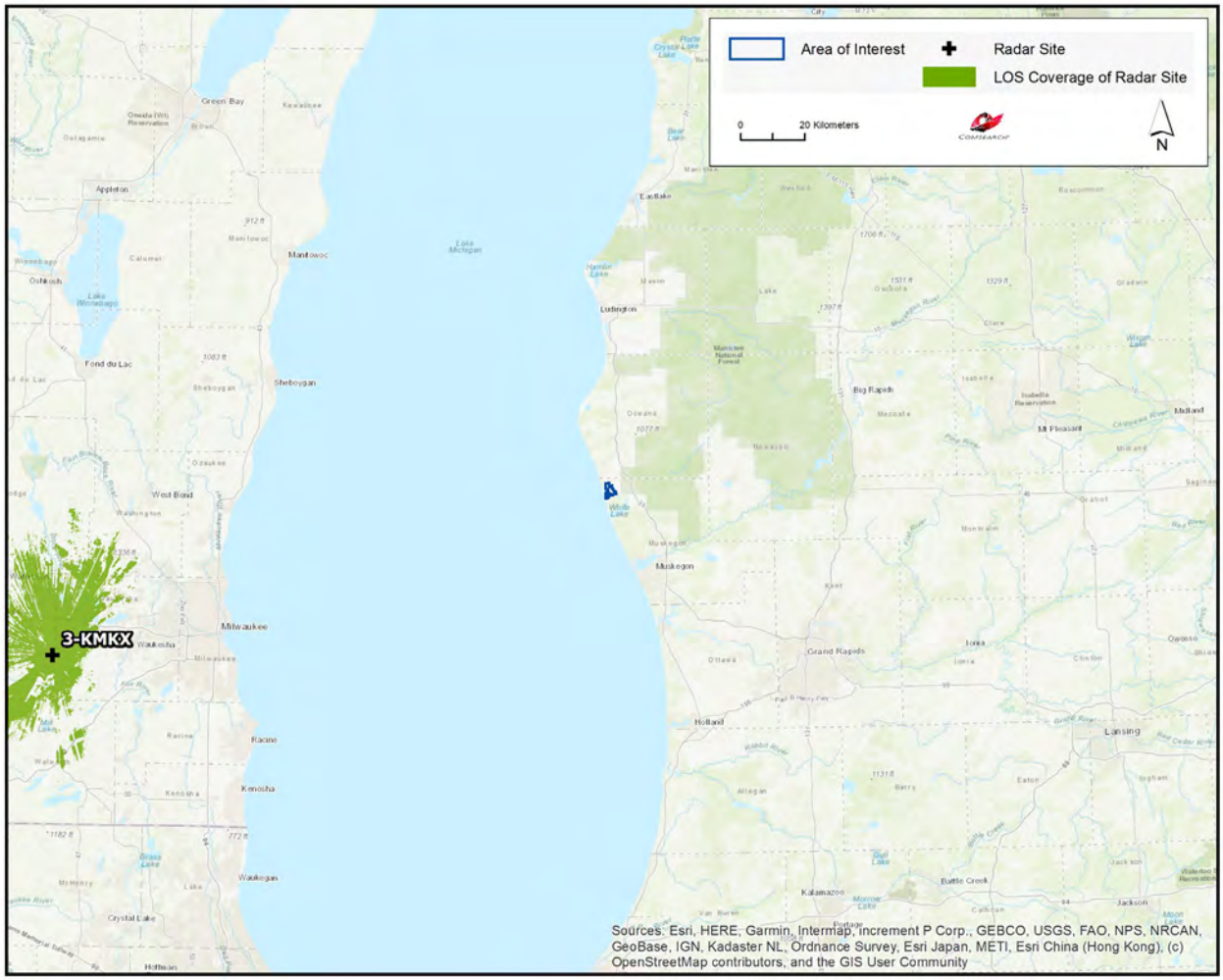


Figure A2-3: Line-of-Sight Coverage of KMKX with Respect to Lakeside Solar Project

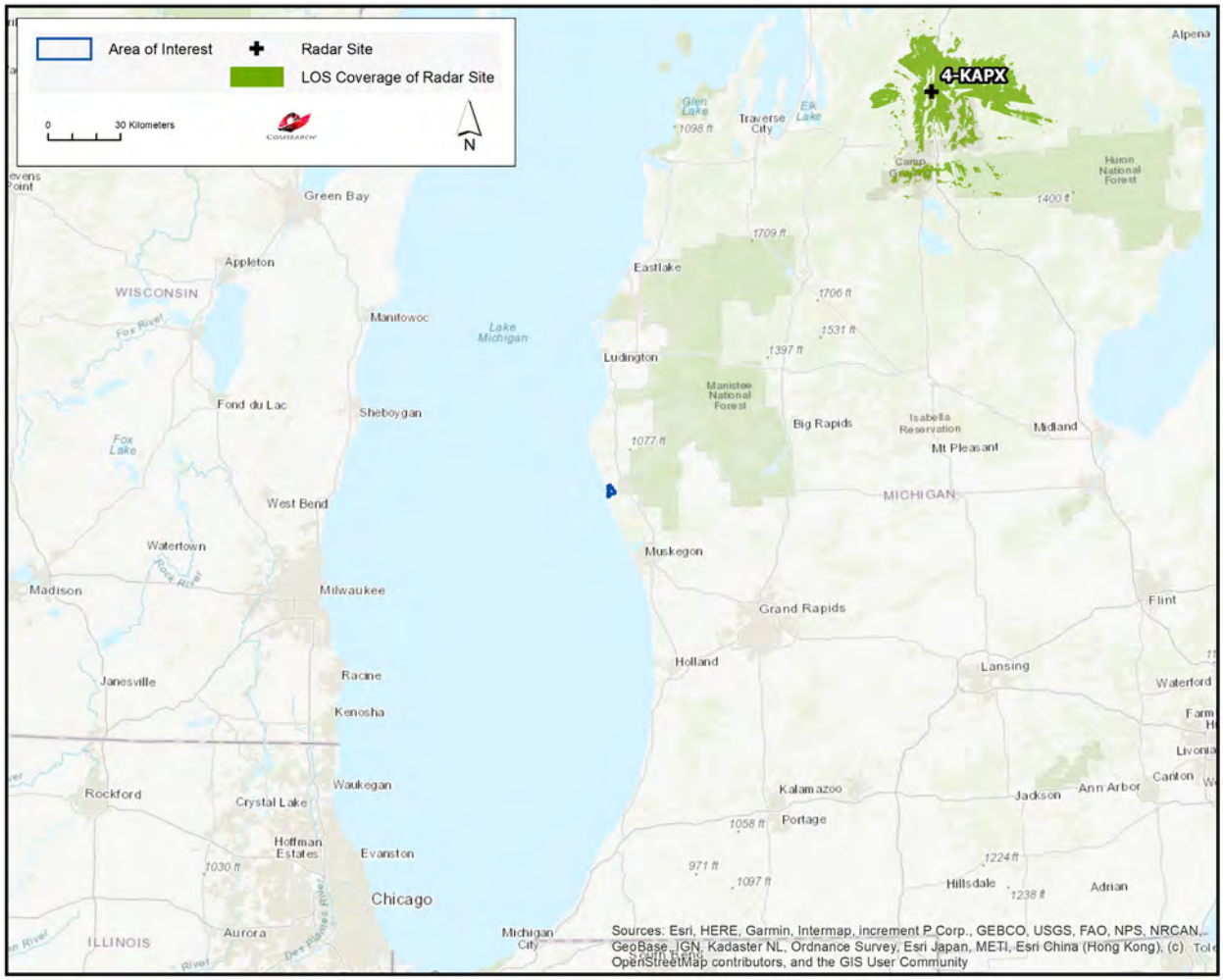


Figure A2-4: Line-of-Sight Coverage of KAPX with Respect to Lakeside Solar Project

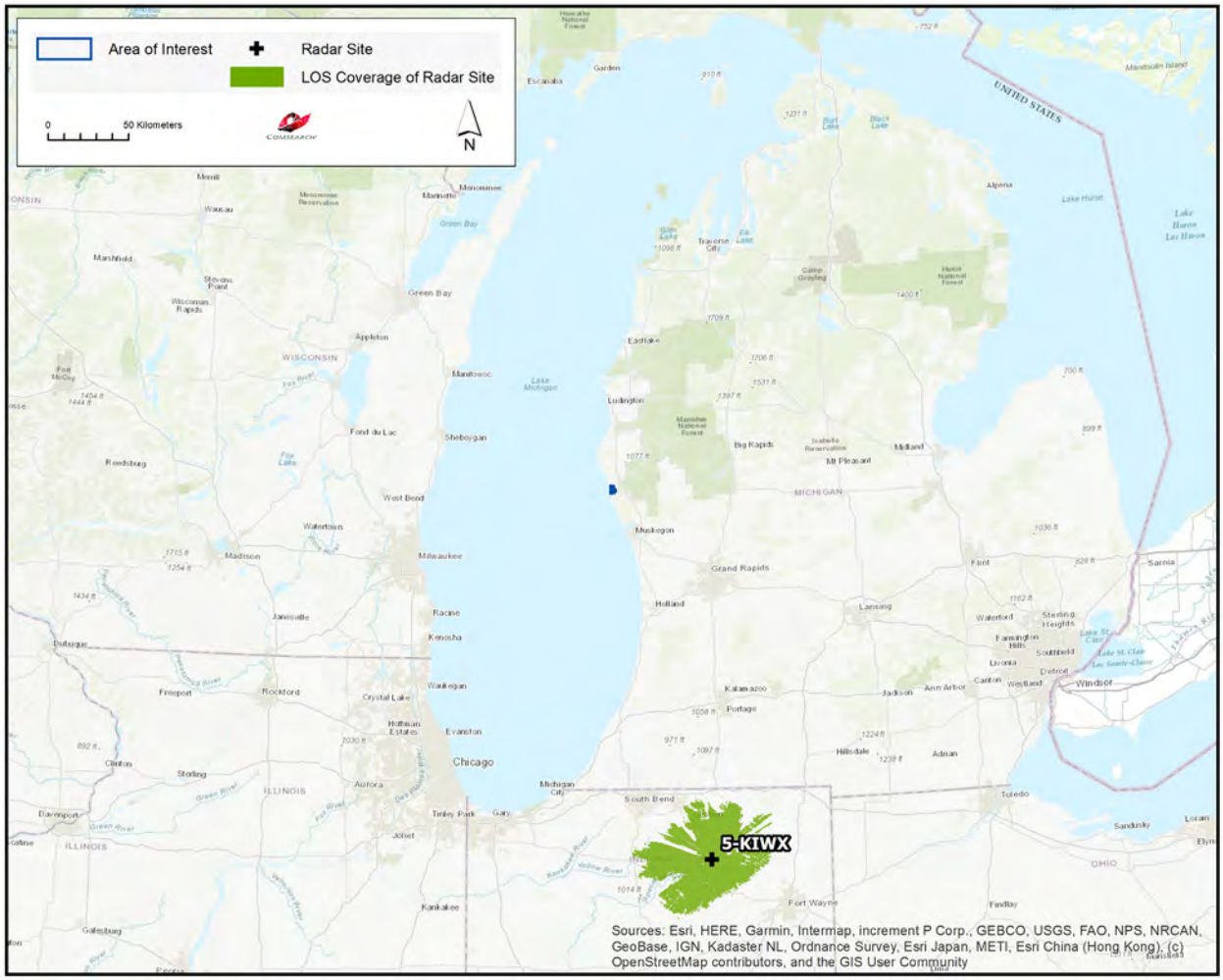


Figure A2-5: Line-of-Sight Coverage of KIWX with Respect to Lakeside Solar Project

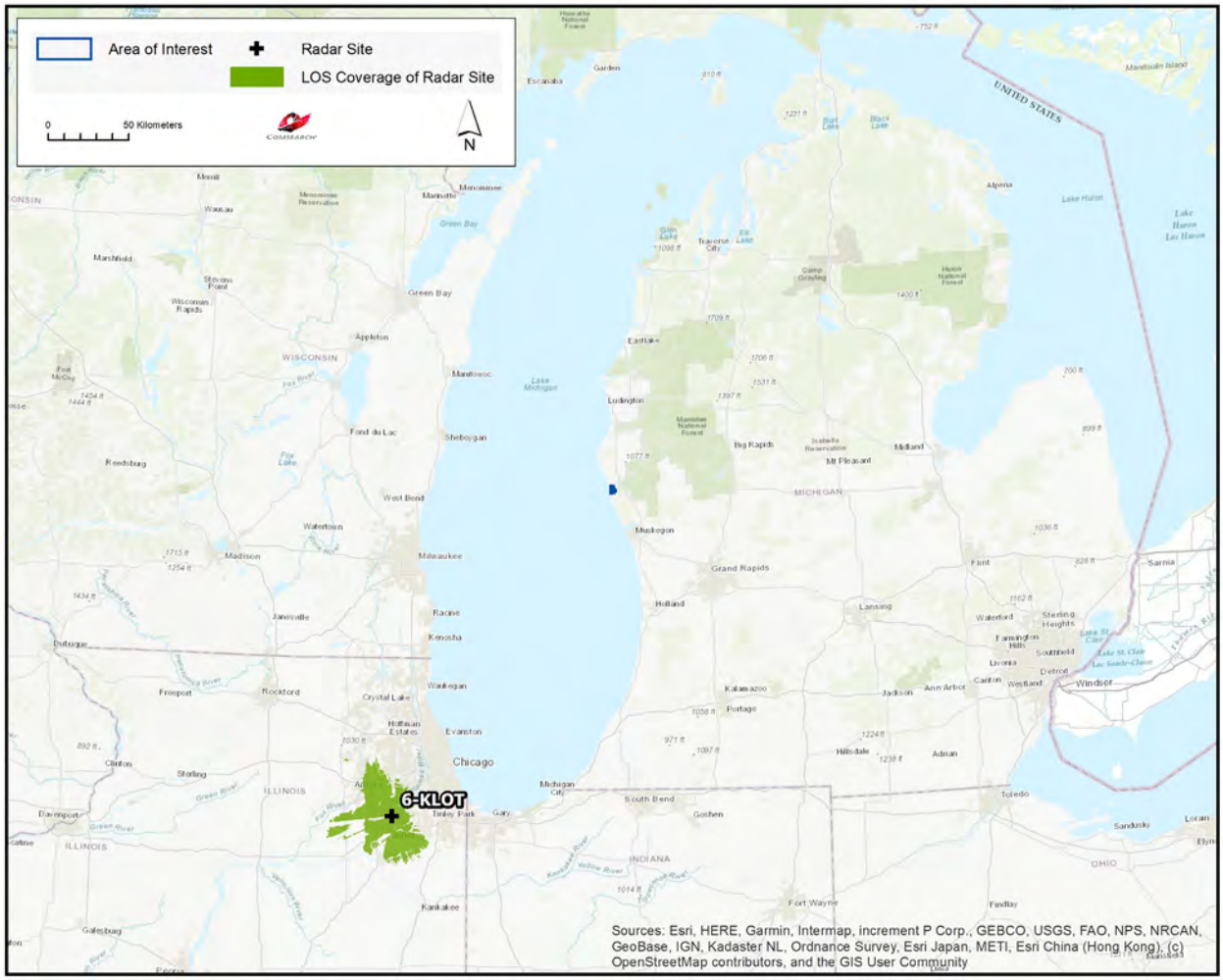


Figure A2-6: Line-of-Sight Coverage of KLOT with Respect to Lakeside Solar Project

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Mobile Phone Carrier Report

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 19, 2025

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1. Introduction

Comsearch has developed and maintains comprehensive technical databases containing information on licensed mobile phone carriers across the US. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service (AWS), Personal Communication Service (PCS), 700 MHz Band, Wireless Communications Service (WCS), and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties.

This report focuses on the potential impact of a proposed solar farm on mobile phone operations in and around the project area. Lakeside Solar, LLC is proposing to construct and place in utility service the Lakeside Solar Project, an electric generation facility located in Muskegon County, Michigan. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers as well as substation, battery and transmission structures. It will have an installed capacity of up to 200 MW AC.

2. Summary of Results

Methodology

Our mobile phone analysis was performed using Comsearch's proprietary carrier database, which is derived from a variety of sources including the Federal Communications Commission (FCC). Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. Then we compiled a list of all mobile phone carriers in the main counties that intersect the solar farm. A depiction of the proposed solar farm in Muskegon County appears below.

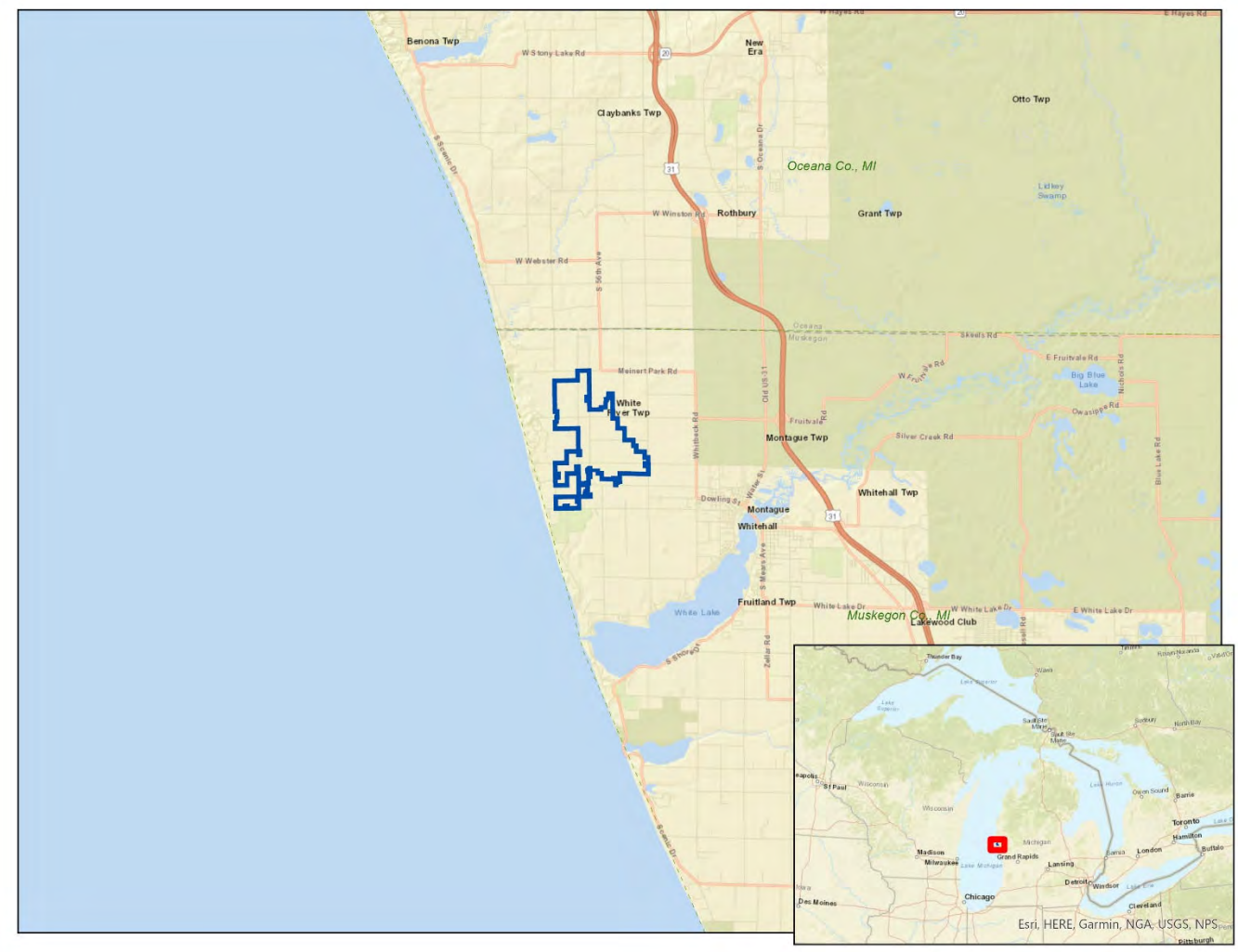


Figure 1: Counties that intersect the Solar Farm

Results
The Lakeside Solar Project is located in Muskegon County, Michigan. We have identified the type of service, channel block, market ID and FCC callsign for each carrier in the county of interest. A description of the various service types and geographic market areas is below with a summary table on the following page.

AWS
AWS licensees won their spectrum in an auction that started in August 2006. The licensees are authorized by 734 Cellular Market Areas (CMA) for Block A, 176 Economic Areas (BEA) for Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Blocks D, E and F. This spectrum at 1.7 and 2.1 GHz was allocated for mobile broadband and advanced wireless services. Partitioning and leases are permitted in the band.

Cellular
Licensees are authorized by Metropolitan and Rural Statistical Areas, also known as CMAs. Unserved areas can be covered by licensees other than the original A or B block licensee. To determine the most realistic coverage, we compiled the Cellular Geographic Service Areas (CGSA) from the 32 dBu contours defined by Part 22.911(a) of the FCC rules. Mobile services are provided at 800 MHz and partitioning and leases are permitted in the band.

PCS
There have been nine auctions for this band, with the last one being held in August 2008. Licensees are authorized by 51 Major Trading Areas (MTA) for Blocks A and B, 493 Basic Trading Areas (BTA) for Blocks C through F, and 176 Economic Areas (EA) for Block G. This band has been heavily partitioned and disaggregated both by counties and by smaller polygons within counties (known as undefined areas or partial counties). The 1.9 GHz PCS carriers provide mobile services and leases are permitted in the band.

700 MHz Band
Originally used for analog television broadcasting, this band consists of an upper and lower band, each having its own set of frequency blocks. There have been three auctions in this band with the last one (Auction 73) being held in 2008 and mobile phone carriers eventually winning licenses for Blocks A, B, and C of the Lower 700 MHz band and Block C of the Upper 700 MHz band. Licensees are authorized by 176 Economic Areas (EA) for Lower Block A, 734 Cellular Market Areas (CMA) for Lower Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Upper Block C. Partitioning and leases are permitted in the band.

WCS
Mobile services provided in the 2.3 GHz band occupy frequency blocks above and below the spectrum allocated for Satellite Digital Audio Radio Service (SDARS) from 2320 MHz to 2345 MHz. WCS licensees are authorized by 52 Major Economic Areas (MEA) for Blocks A and B and 12 Regional Economic Area Groupings (REAG) for Blocks C and D. Partitioning and leases are permitted in the band.

Service[1]	Mobile Phone Carrier	Channel Block	County	ST	Market ID	Callsign
700 MHz	T-Mobile	Lower A	Muskegon	MI	BEA062	WQJQ706
700 MHz	AT&T	Lower B	Muskegon	MI	CMA181	WQIZ355
700 MHz	AT&T	Lower C	Muskegon	MI	CMA181	WPZA219
700 MHz	AT&T	Lower D	Muskegon	MI	EAG704	WPZA238
700 MHz	DISH Network	Lower E	Muskegon	MI	BEA062	WQJZ204
700 MHz	Verizon	Upper C	Muskegon	MI	REA003	WQJQ691
AWS	AT&T	A	Muskegon	MI	CMA181	WQGA804
AWS	T-Mobile	B	Muskegon	MI	BEA062	WQPZ990
AWS	T-Mobile	C	Muskegon	MI	BEA062	WQGA727
AWS	Verizon	D	Muskegon	MI	REA003	WQPW450
AWS	Verizon	E	Muskegon	MI	REA003	WQPZ950
AWS	Verizon	F	Muskegon	MI	REA003	WQGA717
Cellular	AT&T	A	Muskegon	MI	CMA181	KNKA552
Cellular	Verizon	B	Muskegon	MI	CMA181	KNKA506
PCS	AT&T	A	Muskegon	MI	MTA005	KNLF210
PCS	AT&T	A	Muskegon	MI	MTA005	WQBG992
PCS	T-Mobile	B	Muskegon	MI	MTA005	KNLF211
PCS	T-Mobile	B	Muskegon	MI	MTA005	WQJJ972
PCS	Verizon	C	Muskegon	MI	BTA310	KNLF516
PCS	Verizon	C	Muskegon	MI	BTA310	WQYV613
PCS	Verizon	C	Muskegon	MI	BTA310	WRJE974
PCS	AT&T	D	Muskegon	MI	BTA310	KNLG669
PCS	AT&T	E	Muskegon	MI	BTA310	KNLH302
PCS	AT&T	F	Muskegon	MI	BTA310	KNLF924
PCS	T-Mobile	G	Muskegon	MI	BEA062	WQKT276
WCS	AT&T	A	Muskegon	MI	MEA016	KNLB304
WCS	AT&T	B	Muskegon	MI	MEA016	KNLB278
WCS	AT&T	C	Muskegon	MI	REA003	WPQL632
WCS	AT&T	D	Muskegon	MI	REA003	KNLB325

Table 1: Mobile Phone Carriers in the Solar farm

[1] AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
700 MHz: Commercial Mobile Phone at 700 MHz
WCS: Wireless Communication Service at 2.3 GHz

FCC-Licensed Sites

For competitive and confidentiality reasons, most mobile phone carriers' individual sites are not licensed with the FCC. However, in the cellular band, if a base station extends the existing Cellular Geographic Service Area (CGSA), then it must be recorded with the FCC. We identified no licensed cellular sites within the Lakeside Solar Project, the closest being more than seven km from the Area of Interest.

Impact Assessment and Distance Setback Requirements

Mobile cellular phone networks are typically unaffected by the presence of a solar farm because they are designed to operate reliably in a non-line-of-sight (NLOS) environment using multiple base transmitter stations or cell towers that cover a large geographic area. Additionally, these networks are designed with coverage overlap such that if a mobile unit is unable to make a connection to one base station, the network would handoff the mobile unit to an adjacent base station to maintain the connection. Consequently, any signal blockage caused by the solar farm does not materially degrade the reception because the end user would receive signals from neighboring transmitter locations. Therefore, reliable mobile phone service is made possible even in places that are congested with larger structures such as downtown urban areas, and we do not anticipate any significant harmful effect to mobile phone services in the solar farm project area.

3. Recommendation

For cellular towers in the project region, no setback distance is required from an interference standpoint due to the higher frequencies in which they operate within the UHF band. Electromagnetic interference (EMI) from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency operation of the inverter, EMI does not normally extend above 1 MHz. Based on the frequency range for the mobile phone licenses identified in the area from 700 MHz – 2.3 GHz, we do not anticipate any harmful interference impact on mobile phone operations due to EMI from the Lakeside Solar Project. There is also no impact from the battery storage facility to mobile phone operations. No mitigation techniques or additional recommendations are required.

To minimize the risk of causing harmful interference to mobile phone service near the transmission line, there should be an effective quality control maintenance program for the useful life cycle of the transmission line system. Power lines fall under the category of "incidental radiators" per 47 CFR 15.3 of the Code of Federal Regulations. While they are not designed to intentionally generate or emit radio frequency (RF) energy, they could generate radio frequency noise due to a phenomenon known as corona discharge, especially during foul weather. As such, project developers and utility providers should employ sound engineering practices to minimize such occurrences and thereby reduce the likelihood of radio frequency (RF) interference that transmission lines may cause to communication systems such as mobile phone networks.

4. Contact Us

For questions or information regarding the Mobile Phone Carrier Report, please contact:

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Fax:	703-726-5595
Email:	DMeyer@comsearch.com
Web site:	www.comsearch.com

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Microwave Study

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 20, 2025

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1. Introduction

Microwave bands that may be affected by the solar generation facilities operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of a proposed solar project on licensed, proposed, and applied non-federal government microwave systems.

2. Project Overview

The proposed Lakeside Solar Project is located in Muskegon County, Michigan. The facility will generate electricity using photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 200 MW ac.

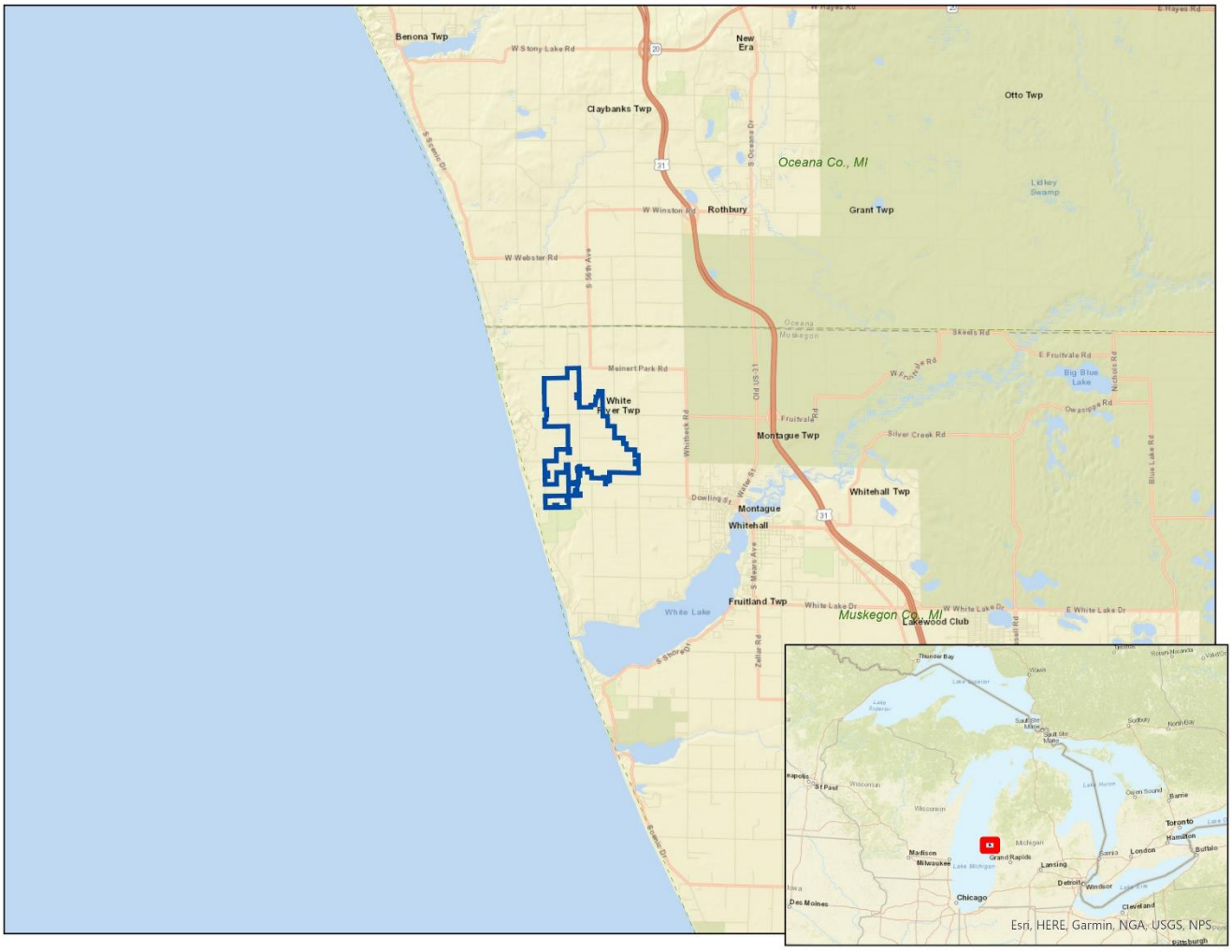


Figure 1: Area of Interest

3. Two-Dimensional Fresnel Zone Analysis

Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz[1]. First, we determined all microwave paths within the proposed solar project[2] and listed them in Table 1. These paths and the solar project area of interests which is one mile from the project area are shown in Figure 2 below.

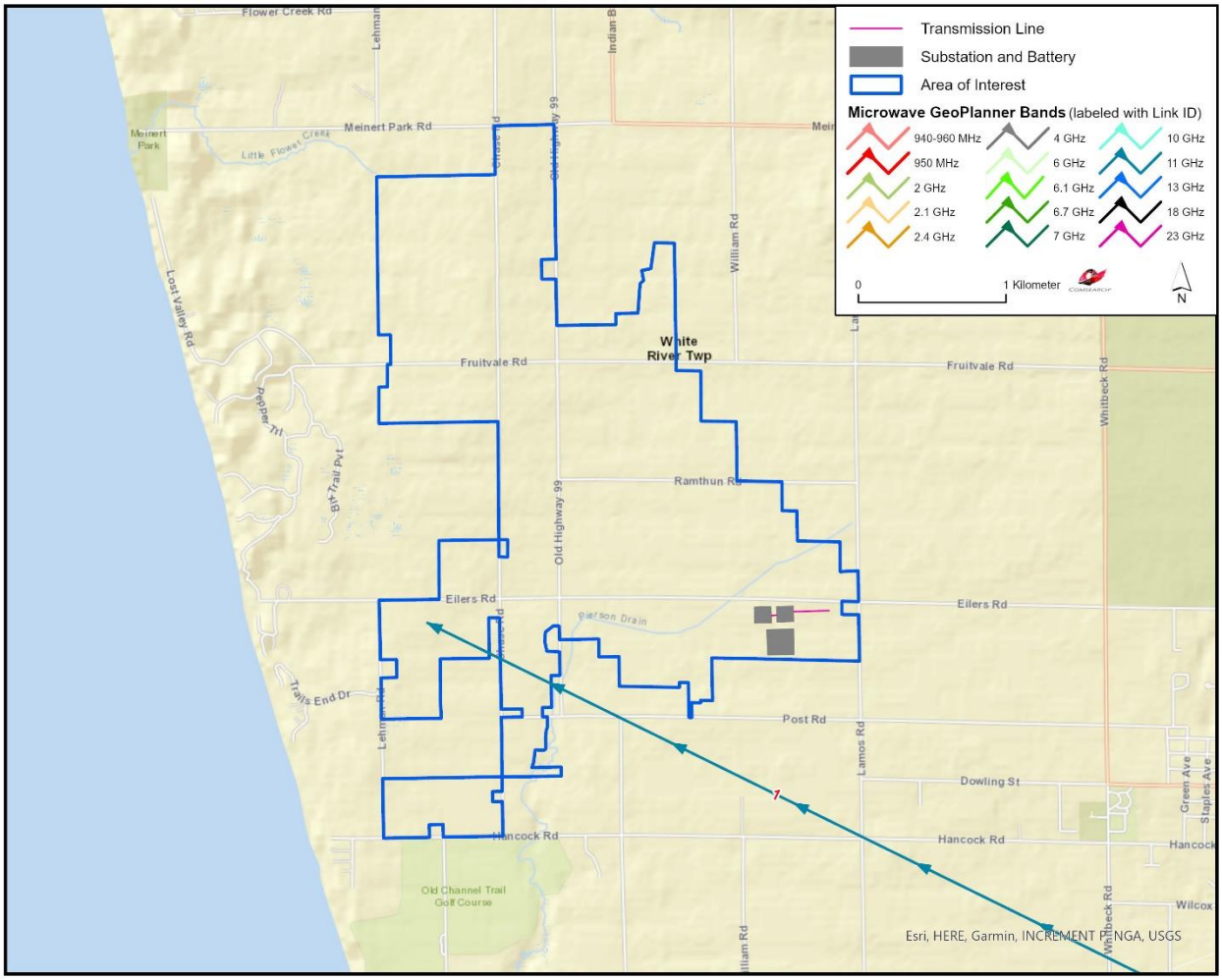


Figure 2: Microwave Paths that Intersect the Area of Interest

[1] Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

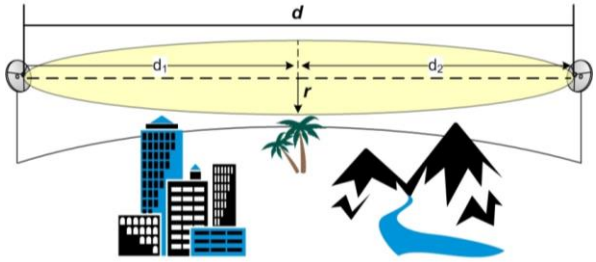
[2] We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.

ID	Status	Callsign 1	Callsign 2	Band	Path Length (km)	Licensee
1	Licensed	WRWT484	WSHQ550	11 GHz	9.51	T-Mobile MW LLC

Table 1: Summary of Microwave Paths that Intersect the Area of Interest
(See enclosed mw_geopl.xlsx for more information and
GP_dict_matrix_description.xls for detailed field descriptions)

Next, we calculated the 1st Fresnel zone for each path based on the following formula:

$$r \cong 17.3\sqrt{\frac{n}{F_{GHz}}\left(\frac{d_1 d_2}{d_1 + d_2}\right)}$$



Where,

r	=	Fresnel zone radius at a specific point in the microwave path, meters
n	=	Fresnel zone number, 1
F_{GHz}	=	Frequency of microwave system, GHz
d_1	=	Distance from antenna 1 to a specific point in the microwave path, kilometers
d_2	=	Distance from antenna 2 to a specific point in the microwave path, kilometers

For this case, 60% of the 1st Fresnel zone (i.e., n = 1) is the area where the planned structures should be avoided in order to maintain clear line-of-sight (LOS) between the two endpoints of the microwave beam path. Likewise, Comsearch recommends that an area directly in front of each microwave antenna should be avoided. This corresponds to the Consultation Zone which measures 1 kilometer along the main beam of the antenna and 24 ft (7.3 meters) wide. A depiction of the individual Fresnel and Consultation Zones is shown in Figure 3, and is also included in the enclosed shapefiles[3,4].

[3] The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 16 projected coordinate system.

[4] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

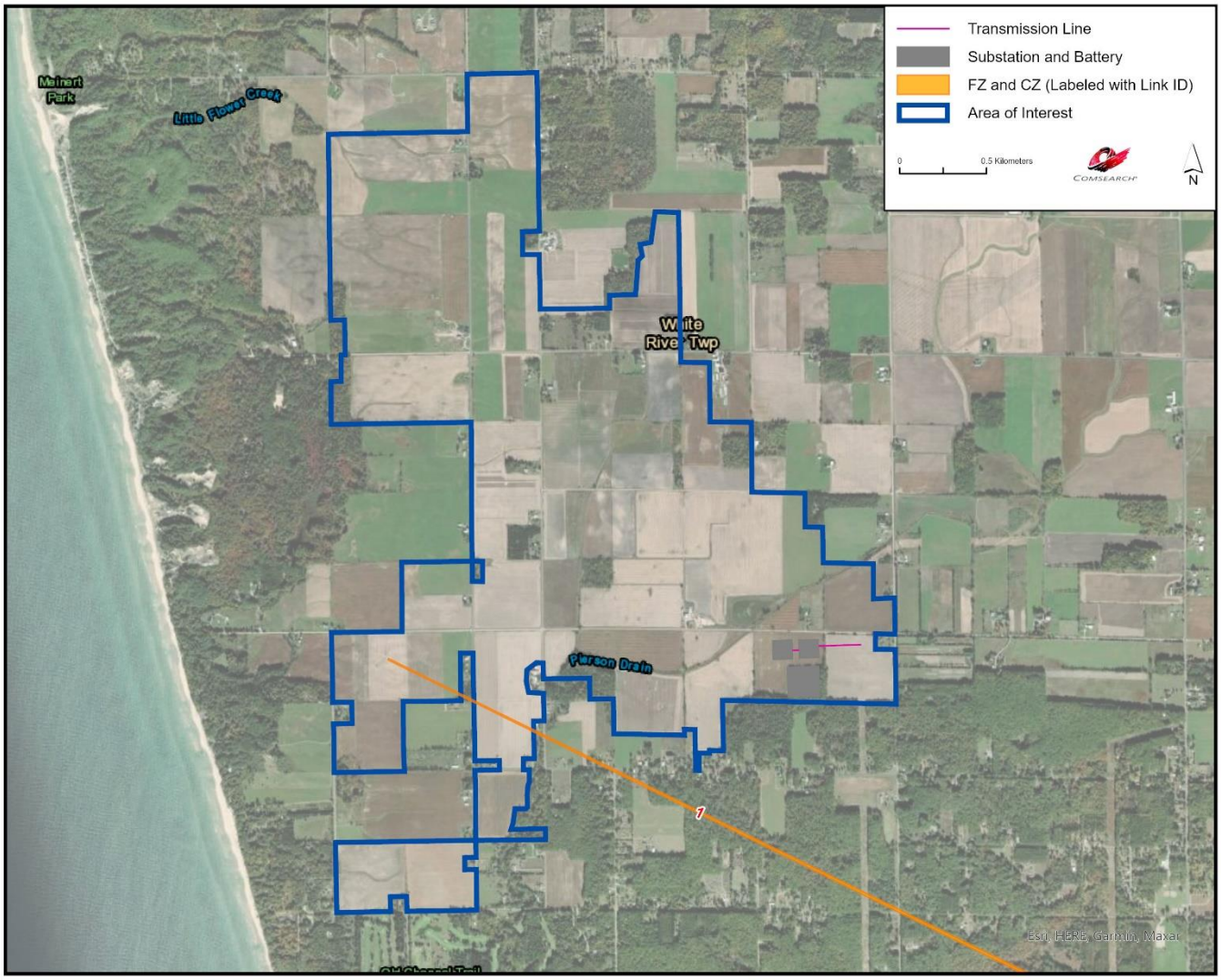


Figure 3: Fresnel Zones and Consultation Zones in the Area of Interest

4. Three-Dimensional Fresnel Zone Analysis

Our two-dimensional analysis in the previous section identified one microwave path that intersects the proposed solar project. This section further analyzes this path with respect to its Fresnel zone in the vertical dimension. We determine whether they would achieve three-dimensional clearance by taking into consideration the terrain elevation profile between the two endpoints of each affected microwave beam path inside the project area of interest.

To do this calculation we used USGS 1/3 arcsecond terrain elevation data to get elevation measurements along each path at 10-meter intervals. For each of these locations we also calculated the height of the top and bottom of the 60% Fresnel Zone bounds. This is the height in which obstructions should be avoided at the particular location. This analysis determined that the lowest clearance above ground level for this path in the project area is 84 meters.

5. Conclusion

The lower edge of the 60% Fresnel Zones for this path was found to be at least 84 meters (275 feet) above ground level throughout the project area. The solar panels have a maximum height of 20 feet, therefore there is no expected impact on these microwave paths from the proposed solar project. The microwave path does no pass over the transmission line or battery storage components.

6. Contact

For questions or information regarding the Microwave Study, please contact:

Contact person: David Meyer
Title: Senior Manager
Company: Comsearch
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Telephone: 703-726-5656
Fax: 703-726-5595
Email: dmeyer@comsearch.com
Web site: www.comsearch.com

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an ANDREW company



GeoPlanner™

Land Mobile & Emergency Services Report

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 21, 2025

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1. Introduction

An assessment of the emergency services in the Lakeside Solar Project area was performed by Comsearch to identify potential impact from the proposed solar farm. Comsearch evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. We also identified all industrial and business land mobile radio (LMR) systems and commercial E911 operators in proximity of the solar farm project. This information is useful in the planning stages of the project because the data can be used in support of facility communications needs and to evaluate any potential impact on the emergency services provided in that region. An overview of the project area, located in Muskegon County, Michigan, appears in Figure 1.

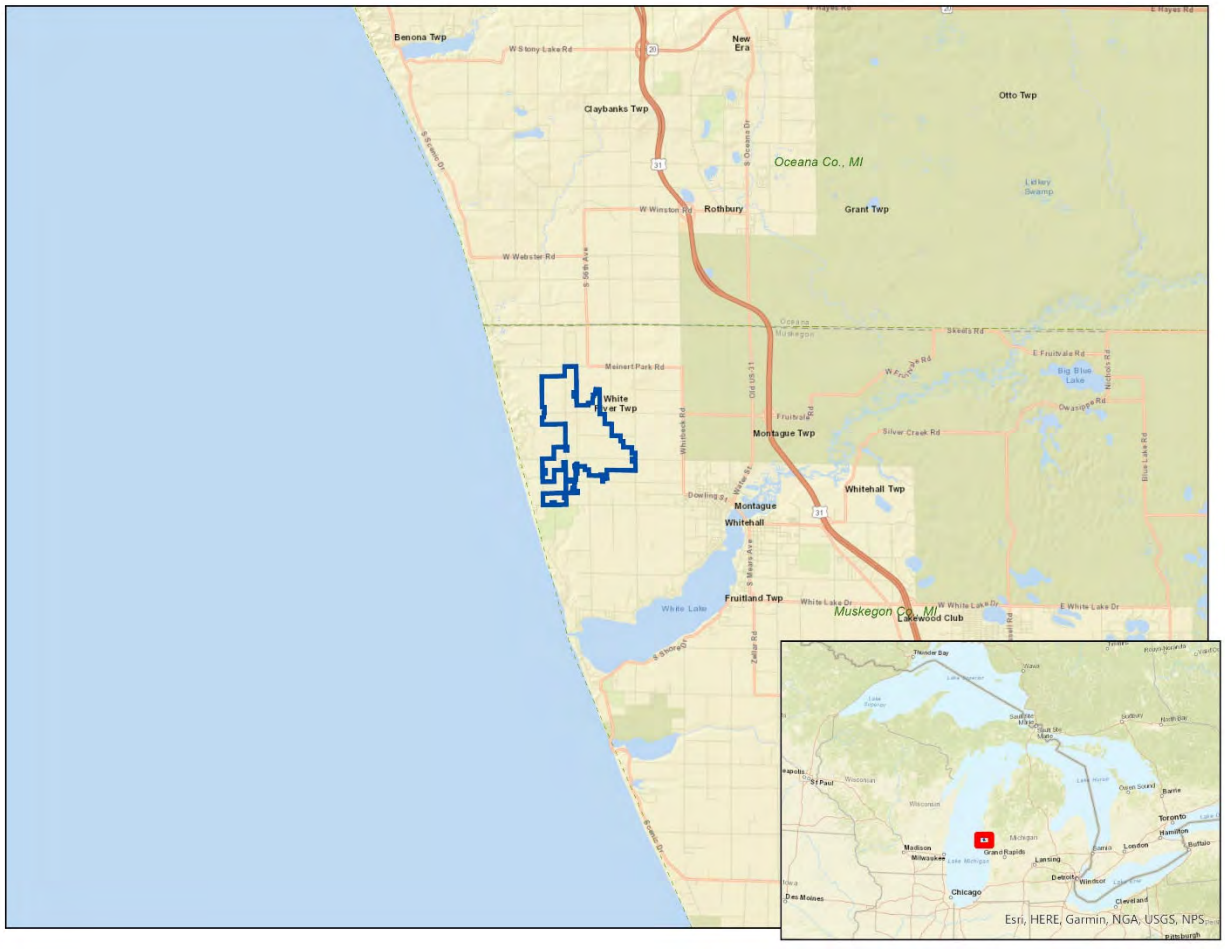


Figure 1: Area of Interest (AOI)

2. Summary of Results

Our land mobile and emergency services incumbent data[1] was derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. We identified both site-based licenses as well as regional area-wide licenses designated for public safety use.

Site-Based Licenses

The site-based licenses were imported into GIS software and geographically mapped relative to the solar farm project area of interest as defined by the customer. Comsearch identified no licensed sites within the Lakeside Solar Project Area of Interest.

Mobile Licenses

In addition to the fixed-site licenses, 201 mobile licenses defined by center point and radius were found to intersect the Lakeside Solar Project. Appendix A contains a tabular summary of these stations.

Area-Wide Licenses

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the wind energy project area. The Lakeside Solar Project is located in Muskegon County, Michigan, part of Public Safety Region #21, which contains all the counties in Michigan. The regional public safety operations are overseen by the entity listed below.

Keith M. Bradshaw - Chair
Address: 1200 North Telegraph Road
Pontiac MI 48341
Phone: 248 858 1100
Email: Bradshawkm@oakgov.com

The chairperson for Region #21 serves as the representative for all public safety entities in the area and is responsible for coordinating current and future public safety use in the wireless spectrum. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, twelve licenses were found for the State of Michigan and five for the County of Muskegon (see Table 1). These area-wide licenses are designated for mobile use only.

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the land mobile station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	American National Red Cross	Statewide: MI	25-50
2	BERRIEN COUNTY PUBLIC SAFETY COMMUNICATION CENTER	Statewide: MI	150-174
3	GRAND RAPIDS, CITY OF	Statewide: MI	150-174
4	LANSING, CITY OF	Statewide: MI	150-174
5	MICHIGAN DEPT OF Health and Human Services	Statewide: MI	450-470
6	MICHIGAN, STATE OF	Statewide: MI	0-10, 25-50, 150-174, 421-430, 450-470, 769-775/799-805, 800/900, 2450-2500, 4940-4990
7	Muskegon	Countywide: MUSKEGON, MI	150-174
8	Muskegon Central Dispatch 911	Statewide: MI	150-174
9	MUSKEGON, CITY OF	Countywide: MUSKEGON, MI	150-174, 450-470
10	MUSKEGON, CITY OF	Statewide: MI	150-174
11	MUSKEGON, COUNTY OF	Countywide: MUSKEGON, MI	150-174, 450-470
12	MUSKEGON, COUNTY OF	Statewide: MI	150-174
13	NATIONAL SKI PATROL SYSTEM INC	Statewide: MI	150-174
14	PROFESSIONAL MED TEAM AMBULANCE	Countywide: MUSKEGON, MI	150-174, 450-470
15	STATE OF MICHIGAN, DEPT OF HEALTH AND HUMAN SERVICES	Statewide: MI	150-174
16	UNIVERSITY OF MICHIGAN HOSPITALS	Statewide: MI	150-174
17	WHITEHALL, CITY OF	Countywide: MUSKEGON, MI	150-174

Table 1: Regional Licenses

E911 Operators

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. We have identified the type of service for each carrier in Muskegon County, Michigan, in Table 2.

Mobile Phone Carrier	Service[2]
AT&T	700 MHz, AWS, Cellular, PCS, WCS
Blue Ridge Wireless II	AWS
DISH Network	700 MHz, AWS
T-Mobile	700 MHz, AWS, PCS
Verizon	700 MHz, AWS, Cellular, PCS

Table 2: Mobile Phone Carriers in Area of Interest with E911 Service

[2] AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
WCS: Wireless Communications Service at 2.3 GHz
700 MHz: Lower 700 MHz Service

3. Impact Assessment

The first responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications as described in this report are typically unaffected by the presence of a solar farm, and we do not anticipate any significant harmful effect to these services in the solar farm project area. Although each of these services operates in different frequency ranges and provides different types of service including voice, video and data applications, there is commonality among these different networks with regard to the impact of a solar farm on their service. Each of these networks is designed to operate reliably in a non-line-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells.

Furthermore, the heights of the solar panels whose range will not exceed 20 feet above ground level are generally lower than the antenna height of the land mobile systems identified. Therefore, any signal blockage caused by the solar farm does not materially degrade the reception due to the height differential or because the end user is likely capable of receiving signals from multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate over and through the solar panels, transmission lines and battery storage facilities. As a result, very little, if any, change in their coverage should occur when the solar farm is installed.

4. Recommendations

No recommendation with regard to coverage impact mitigation is necessary, as the proposed solar farm is not expected to cause any significant degradation in signal strength after construction of the solar farm.

With regard to electromagnetic interference (EMI) emissions, Comsearch recommends a minimum setback distance for the PV inverters. When planning their locations in the project area of interest, a conservative approach would dictate not locating any power conversion station (PCS) within 77.5 meters of land mobile fixed-base stations to avoid any possible impact to the communications services that they provide. This distance is based on FCC interference emissions from electrical devices in the land mobile frequency bands. Therefore, as long as the PCS installations which house the PV inverters are located more than 77.5 meters from the land mobile stations, they will meet the setback distance criteria for FCC interference emissions in the land mobile bands. The battery storage facility is expected to have no impact on the land mobile stations.

To minimize the risk of causing harmful interference to land mobile stations operating near the transmission line, there should be an effective quality control maintenance program for the useful life cycle of the transmission line system. Power lines fall under the category of “incidental radiators” per 47 CFR 15.3 of the Code of Federal Regulations. While they are not designed to intentionally generate or emit radio frequency (RF) energy, they could generate radio frequency noise due to a phenomenon known as corona discharge, especially during foul

weather. As such, project developers and utility providers should employ sound engineering practices to minimize such occurrences and thereby reduce the likelihood of radio frequency (RF) interference that transmission lines may cause to communication systems such as land mobile systems.

5. Contact

For questions or information regarding the Land Mobile & Emergency Services Report, please contact:

Contact person:	David Meyer
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Company:	Comsearch
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Fax:	703-726-5595
Email:	DMeyer@Comsearch.com
Web site:	www.comsearch.com

Appendix A

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
1	KDL305	450-470	Antenna Designs LLC	97	42.796139	-85.649472
2	WCE473	450-470	Antenna Designs LLC	121	42.737222	-85.621111
3	WNVK875	450-470	Antenna Designs LLC	121	42.796139	-85.649472
4	WPQA411	150-174	Antenna Designs LLC	40	43.353889	-86.327222
5	WQIZ348	450-470	ANTENNA DESIGNS, LLC	64	43.661889	-86.379611
6	WRFY553	150-174	ANTENNA DESIGNS, LLC	40	43.584167	-86.225361
7	WRFY553	450-470	ANTENNA DESIGNS, LLC	40	43.566972	-86.037833
8	WPUA409	150-174	ASPHALT PAVING INC	40	43.209167	-86.223889
9	WRDS375	150-174	BAROTHY LODGE	64	43.933611	-86.100083
10	KKQ277	150-174	BAXTERS TOWING & STORAGE INC.	40.2	43.148083	-86.115889
11	WPMZ946	450-470	BEARDSLEY, CRAIG L	250	41.694194	-87.687556
12	KPG474	150-174	BEASLEY MEDIA GROUP LICENSES, LLC	322	42.470861	-83.249917
13	KNIZ753	150-174	BORGMAN, KENNETH & JAMES	32	43.234750	-86.144778
14	KNIZ753	25-50	BORGMAN, KENNETH & JAMES	40	43.234750	-86.144778
15	KD28631	450-470	BRINK'S INCORPORATED	121	42.953639	-85.698639
16	WNWS432	150-174	BURNETTE FOODS OCEANA LLC	13	43.555833	-86.343972
17	WNWV452	150-174	BUTEYN PETERSON CONSTRUCTION COMPANY INC	121	43.806194	-87.759361
18	WNSA823	450-470	C & C COMMUNICATIONS INC	32	43.225861	-86.180611
19	WPMQ976	450-470	C & C COMMUNICATIONS INC	32	43.225833	-86.180556
20	WPNX316	450-470	C & C COMMUNICATIONS INC	32	43.659167	-86.378139
21	WPZA317	450-470	C & C COMMUNICATIONS INC	32	43.659167	-86.378139
22	KNAG689	450-470	C & C COMMUNICATIONS INC DBA MIDCOM SERVICE	40	43.225833	-86.180556
23	WQDJ870	150-174	C & C COMMUNICATIONS INC DBA MIDCOM SERVICE	40	43.225833	-86.180556
24	WPVC907	450-470	C & C COMMUNICATIONS, INC.	32	43.417056	-86.364500

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
25	WPGZ851	450-470	C&C COMMUNICATIONS INC	32	43.225861	-86.180611
26	WPMN377	450-470	C&C COMMUNICATIONS INC DBA MIDCOM SERVICE	32	43.225861	-86.180611
27	WQK278	150-174	CASCADE, TOWNSHIP OF	121	42.911389	-85.509167
28	WQGQ797	450-470	COLES QUALITY FOODS, INC.	32	43.226556	-86.275250
29	WREZ827	450-470	COMMUNITY FOUNDATION FOR MUSKEGON COUNTY	32	43.234833	-86.253361
30	KNNI453	450-470	CONFESSCO FIRE PROTECTION INC	41	43.247250	-86.239500
31	WQDS300	150-174	DALTON, TOWNSHIP OF	24	43.339472	-86.198111
32	WRDB261	450-470	DIVERSIFIED MACHINE MONTAGUE, LLC	8	43.409833	-86.373472
33	WPIW400	450-470	DTE Gas Company	40	43.450028	-86.000056
34	WPLD615	450-470	DTE Gas Company	32	43.607944	-86.341639
35	WPNW710	450-470	DTE Gas Company	32	43.235028	-86.244500
36	WPRF777	150-174	DTE Gas Company	40	43.607778	-86.341750
37	WQZX301	800/900	DTE Gas Company	113	43.860472	-86.416694
38	WQZX301	800/900	DTE Gas Company	113	43.316389	-85.106111
39	WQZX746	800/900	DTE Gas Company	113	44.260806	-85.612944
40	WQZX937	800/900	DTE Gas Company	113	42.978250	-85.667167
41	WQZX937	800/900	DTE Gas Company	113	43.653333	-85.486389
42	WQZX937	800/900	DTE Gas Company	113	43.013889	-85.478056
43	WQZZ273	800/900	DTE Gas Company	113	43.410278	-86.228333
44	WQZZ273	800/900	DTE Gas Company	113	44.097500	-86.179444
45	WRMA692	800/900	DTE Gas Company	113	43.410083	-86.369694
46	WRMA692	800/900	DTE Gas Company	113	43.239083	-86.248306
47	WRMA692	800/900	DTE Gas Company	113	43.145472	-86.243389
48	WRMA692	800/900	DTE Gas Company	113	43.253778	-86.201361
49	WRMA692	800/900	DTE Gas Company	113	43.260556	-86.076944

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
50	WRMA692	800/900	DTE Gas Company	113	43.262667	-85.807694
51	WPEG452	450-470	DUHADWAY, KENDALL & ASSOCIATES	121	42.971417	-85.667806
52	WNSW610	450-470	EL COM SERVICES INC	120.7	44.230278	-86.305917
53	WQVK758	450-470	Erickson's Muskegon	32	43.263194	-86.254667
54	WQEG374	450-470	FITZPATRICK ACQUISITIONS LLC DBA WMCR CO.	79	43.052444	-86.220611
55	WRPE208	450-470	Fleet Engineers Inc	32	43.216417	-86.198389
56	WRFK264	450-470	FLURESH LLC	80	42.940556	-85.673389
57	KLB951	150-174	FRUITPORT, TOWNSHIP OF	32	43.190861	-86.182833
58	WPDH606	450-470	GERALD R FORD COUNCIL DBA BOY SCOUTS OF AMERICA	32	43.444361	-86.194611
59	WPDH606	450-470	GERALD R FORD COUNCIL DBA BOY SCOUTS OF AMERICA	32	43.446750	-86.190917
60	KC24054	450-470	GRAND VALLEY STATE UNIVERSITY	72.4	42.959750	-85.895861
61	WQYE350	450-470	Gray & Company	32	43.687889	-86.360111
62	WRBP707	800/900	Great Lakes Energy Cooperative, Inc.	113	44.016667	-85.840278
63	WQBY657	150-174	GREINER FARMS INC	40	43.755556	-86.258306
64	WNBN639	150-174	HAIN, JAMES E DBA HAINS SPECIAL SERVICE	40	43.466333	-86.448000
65	WSED766	150-174	HART PUBLIC SCHOOLS	40	43.669722	-86.373139
66	WQBQ695	450-470	HART, CITY OF	32	43.681389	-86.373056
67	WQBQ695	450-470	HART, CITY OF	32	43.691028	-86.363944
68	WQBQ695	450-470	HART, CITY OF	32	43.686278	-86.357389
69	WPIU362	150-174	HECKMAN, JERRY	40	43.563917	-86.041444
70	WPAH447	450-470	HERMAN MILLER INC	121	42.803917	-85.995306
71	WNFK270	150-174, 450-470	HESPERIA COMMUNITY SCHOOLS	40	43.566972	-86.037833
72	WSCA255	450-470	Hickory Knoll Golf Course, Inc	8	43.401028	-86.322167
73	WQQL433	450-470	Hilite International	8	43.387722	-86.329833
74	KNNT270	450-470	HOLLADAY, HARRY	30	43.712222	-86.296750

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
75	WPTU926	450-470	HOLTON PUBLIC SCHOOLS	32	43.410028	-86.080056
76	KC25111	450-470	HOLY FAMILY COMMUNICATIONS, INC	402	40.766167	-83.837167
77	WNJB423	450-470	HOWMET CORPORATION	8	43.398278	-86.350111
78	WNJB423	450-470	HOWMET CORPORATION	8	43.398500	-86.349667
79	WNJB423	450-470	HOWMET CORPORATION	8	43.392528	-86.344028
80	WNJB423	450-470	HOWMET CORPORATION	8	43.391778	-86.336250
81	WNJB423	450-470	HOWMET CORPORATION	8	43.383333	-86.333333
82	KFG615	150-174	iHM Licenses, LLC	100	42.964472	-85.669417
83	WPJK914	450-470	iHM Licenses, LLC	40	43.188361	-86.236167
84	WPQE345	450-470	iHM Licenses, LLC	48	43.238083	-86.250611
85	WQA985	450-470	iHM Licenses, LLC	100	42.964472	-85.669417
86	WNFN916	450-470	KATT, MARK J DBA KNK CONSTRUCTION CO	48	43.068639	-86.142278
87	WQTI921	450-470	Kolosci Incorporated	32	43.656056	-86.520722
88	WPIR608	150-174	LAKESHORE HOSPITAL	24	43.665278	-86.359250
89	WPMK676	450-470	LEWIS ORCHARDS	32	43.564444	-86.367861
90	WQJF384	450-470	Loeks Theatres, Inc.	32	43.198278	-86.222167
91	WQJF384	450-470	Loeks Theatres, Inc.	32	43.175167	-86.220583
92	KWO688	150-174	LOUIS PADNOS IRON & METAL CO	40	43.249194	-86.236722
93	WPNR833	450-470	MEL TROTTER MINISTRIES	121	42.737250	-85.621139
94	WRAC267	450-470	Melching, Inc	32	43.188167	-86.228750
95	WPRK231	450-470	MERCY GENERAL HEALTH PARTNERS	32	43.206639	-86.208278
96	WPRK231	450-470	MERCY GENERAL HEALTH PARTNERS	32	43.206139	-86.207833
97	WQDS753	150-174	MERCY GENERAL HEALTH PARTNERS	32	43.206639	-86.208278
98	WQSL514	450-470	MICHIGAN CROSSROADS COUNCIL - BSA	32	43.444361	-86.194611
99	WQSL514	450-470	MICHIGAN CROSSROADS COUNCIL - BSA	32	43.444583	-86.190222

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
100	WPCY389	150-174	MICHIGAN, STATE OF	56	43.207806	-86.172000
101	WSIP434	800/900	MICHIGAN, STATE OF	14	43.530861	-86.369194
102	KNJM404	150-174	MICHIGANS ADVENTURE INC	40	43.342500	-86.280611
103	WQWH207	150-174	Mid-Michigan Railroad	40	43.246694	-86.239111
104	WPEK822	150-174	MILLER, KEN	48	43.351694	-85.952000
105	WPUL487	450-470	MONTAGUE AREA PUBLIC SCHOOLS	32	43.416944	-86.363944
106	WNAL633	150-174	MONTAGUE, CITY OF	24	43.416944	-86.354778
107	WPZP254	150-174	MONTAGUE, CITY OF	24	43.411222	-86.369944
108	KVH405	450-470	MUSKEGON AREA INTERMEDIATE SCHOOL DISTRICT	32	43.241139	-86.219778
109	KNNP963	800/900	MUSKEGON CENTRAL DISPATCH 911	45	43.222222	-86.208389
110	WSIR904	450-470	Muskegon Quality Builders Inc	32	43.199667	-86.245056
111	WPXQ668	150-174	MUSKEGON, COUNTY OF	40	43.236694	-86.252556
112	KQK425	150-174	MUSKEGON, TOWNSHIP OF	45	43.225861	-86.180611
113	KQA918	150-174	MUSKEGON,CITY OF	40	43.385556	-86.288611
114	KQA918	150-174	MUSKEGON,CITY OF	40	43.222222	-86.208389
115	WPTA881	150-174, 450-470	Newaygo County Regional Educational Service Agency	40	43.468278	-85.918000
116	WQDW510	150-174	NEWKIRK ELECTRIC ASSOCIATES INC	40	43.168361	-86.215139
117	WPZX310	150-174	NORTH MUSKEGON, CITY OF	22	43.255000	-86.266444
118	WPAH495	800/900	NORTHERN INDIANA PUBLIC SERVICE COMPANY	257	41.116167	-86.163889
119	WQSJ209	450-470	NORTHERN INDIANA PUBLIC SERVICE COMPANY	257	41.116167	-86.163889
120	WPGX305	150-174	NORTHVIEW PUBLIC SCHOOLS	121	43.042806	-85.625583
121	KSI896	150-174	NORTHWAY COMMUNICATIONS INC	322	44.888028	-89.652056
122	KTM982	150-174	NORTON SHORES, CITY OF	32	43.165583	-86.262917
123	KQP326	450-470	Nugent Sand Company	24	43.344639	-86.234278

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
124	WQWC412	150-174	OCEANA BROADCASTERS, INC	30	43.674722	-86.422583
125	WQWC607	450-470	OCEANA BROADCASTERS, INC	30	43.674722	-86.422583
126	WQQM563	150-174	Oceana County Emergency Management	35	43.665750	-86.359444
127	WPDQ605	450-470	OCEANA COUNTY FREEZER STORAGE INC	32	43.609722	-86.382583
128	KRF372	150-174	OCEANA, COUNTY OF	40	43.664083	-86.358528
129	WQZH302	450-470	OHIO SEMITRONICS OF CA, INC	80	42.961667	-85.672222
130	WPQH424	800/900	OTTAWA, COUNTY OF	113	43.056972	-86.241167
131	WPQH424	800/900	OTTAWA, COUNTY OF	113	42.836944	-85.985833
132	WPQH424	800/900	OTTAWA, COUNTY OF	113	42.958639	-85.901417
133	WRWY473	150-174	PORT CITY CAB	40	43.205583	-86.262250
134	WNVJ383	450-470	Professional Med Team Ambulance	32	43.225833	-86.180556
135	KGG520	450-470	PROFESSIONAL MED TEAM AMBULANCE	32	43.225833	-86.180556
136	KPG675	450-470	RADIO LICENSE HOLDING CBC, LLC	80	42.964472	-85.667528
137	WQCN403	450-470	RADIO LICENSE HOLDING CBC, LLC	45	43.190944	-86.237667
138	WRCW864	450-470	RE-SOURCE INDUSTRIES, INC	80	43.225694	-86.225083
139	WNKG236	450-470	REETHS PUFFER SCHOOLS	32	43.278361	-86.222000
140	BLP00446	800/900	Rincon Broadcasting Milwaukee LLC	160.9	43.090278	-87.957306
141	WNSQ590	150-174	RYCENGA BUILDING CENTER	80	43.064750	-86.207833
142	WPPZ229	450-470	S & N MACHINE & FABRICATING INC	10	43.500639	-86.348472
143	WPQG781	800/900	SACKETT, BRIAN	113	43.569194	-85.231139
144	KPF376	150-174	SCRIPPS BROADCASTING HOLDINGS LLC	354	42.470583	-83.250194
145	WPZJ420	150-174	SEAVERS LAWN SERVICE INC	40	43.418056	-86.383667
146	WRWI834	800/900	Semco Energy Gas Company	113	43.056000	-86.237250
147	WRWI834	800/900	Semco Energy Gas Company	113	43.062944	-86.225083
148	WRWI834	800/900	Semco Energy Gas Company	113	42.755000	-86.086028

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
149	WRWI834	800/900	Semco Energy Gas Company	113	43.001111	-85.959722
150	WRWI834	800/900	Semco Energy Gas Company	113	43.127583	-85.875861
151	WRWI842	800/900	Semco Energy Gas Company	113	42.938889	-86.086944
152	WSHR456	800/900	Semco Energy Gas Company	113	42.668889	-86.168611
153	WSHR456	800/900	Semco Energy Gas Company	113	42.593333	-86.063611
154	WSHR456	800/900	Semco Energy Gas Company	113	42.505833	-86.055000
155	WSHR456	800/900	Semco Energy Gas Company	113	42.570000	-85.908056
156	WSHR456	800/900	Semco Energy Gas Company	113	42.675000	-85.611944
157	WSHR457	800/900	Semco Energy Gas Company	113	42.757500	-86.118333
158	WSHR457	800/900	Semco Energy Gas Company	113	42.641111	-85.843889
159	WSBB607	800/900	SEMCO Energy Gas Company	113	42.719500	-85.451250
160	WSBB617	800/900	SEMCO ENERGY GAS COMPANY	113	42.836944	-85.985833
161	WSBB617	800/900	SEMCO ENERGY GAS COMPANY	113	42.958611	-85.901389
162	WSBB617	800/900	SEMCO ENERGY GAS COMPANY	113	42.795750	-85.872639
163	WSBB617	800/900	SEMCO ENERGY GAS COMPANY	113	42.850667	-85.858528
164	WSBB617	800/900	SEMCO ENERGY GAS COMPANY	113	42.884444	-85.818056
165	WQYR614	25-50	SHELBY PUBLIC SCHOOLS	26	43.618556	-86.360583
166	WROL262	150-174	SHELBY PUBLIC SCHOOLS	32	43.618556	-86.360583
167	WQPA456	150-174	SILVER LAKE BUGGY RENTAL, LLC	32	43.668056	-86.484889
168	WRQL673	150-174	Silverback OffRoad Rental	40	43.681278	-86.497583
169	WRQJ221	450-470	SUNBUGGY FUN RENTALS	32	43.681111	-86.498667
170	KRC350	450-470	T & W ELECTRONICS INC	121	42.796694	-85.650028
171	KRC350	450-470	T & W ELECTRONICS INC	121	42.796139	-85.649472
172	KRC350	450-470	T & W ELECTRONICS INC	121	42.737250	-85.621139
173	WNLN664	450-470	T & W ELECTRONICS INC	121	43.442778	-85.801944

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
174	WNLN664	450-470	T & W ELECTRONICS INC	121	42.737222	-85.621111
175	WNLN664	450-470	T & W ELECTRONICS INC	121	43.041694	-85.587528
176	WNLN664	450-470	T & W ELECTRONICS INC	121	43.291694	-85.361694
177	WPES401	450-470	T & W ELECTRONICS INC	121	42.737250	-85.621139
178	WPES401	450-470	T & W ELECTRONICS INC	121	43.887250	-85.593944
179	WPES401	450-470	T & W ELECTRONICS INC	121	43.524472	-85.391417
180	WPIJ821	150-174, 450-470	T & W ELECTRONICS INC	121	42.982806	-85.665306
181	WPIS323	450-470	T & W ELECTRONICS INC	121	42.982806	-85.665306
182	WPDY895	450-470	TRT Partners	40	43.204472	-86.029222
183	WPLT467	450-470	TTWN Networks, LLC	95	42.963361	-85.670028
184	WPBI927	450-470	VAN HOVEN, DAVID	100	42.827250	-85.926417
185	WPIB561	450-470	VAN HOVEN, DAVID	100	42.827250	-85.926417
186	WPIB561	450-470	VAN HOVEN, DAVID	100	42.811139	-85.821139
187	WRUG234	25-50	Vobbe, Frederick R	212	43.798083	-84.092083
188	WPKZ635	150-174	WALKERVILLE AREA FIRE AND RESCUE	40	43.688056	-86.255611
189	WPMY854	450-470	WEBB CHEMICAL SERVICE CORP	32	43.202250	-86.231167
190	WPXC663	450-470	WEESIES BROTHERS FARMS INC	9	43.408333	-86.338667
191	WQWC416	150-174	WHITE LAKE BROADCASTERS, INC	30	43.392500	-86.325889
192	WQWD468	150-174, 450-470	WHITE LAKE BROADCASTERS, INC	30	43.392500	-86.325889
193	WPWZ331	150-174	WHITEHALL CITY OF	32	43.408889	-86.342000
194	WNHM575	450-470	WHITEHALL DISTRICT SCHOOLS	32	43.408333	-86.341722
195	KVW807	150-174	WHITEHALL, CITY OF	24	43.408889	-86.342000
196	WQCY419	800/900	WHITEHALL, CITY OF	40	43.408889	-86.342000
197	KD50657	150-174	WISCONSIN POWER AND LIGHT COMPANY	241	43.005000	-89.196222
198	WPMH460	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.715556	-87.705083

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
199	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.715556	-87.705083
200	WPNX937	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.715556	-87.705083
201	WPFY658	450-470	Zeeland Farm Services, Inc.	80	42.790583	-86.065583

Table A: Mobile Licenses Intersecting Project Area

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an ANDREW company



GeoPlanner™

GPS Study

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 20, 2025

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1. Introduction

This report examines whether or not the proposed Lakeside Solar Project would cause signal blockage of GPS antennas which are used as part of a network of continuously operating reference stations (CORS). These stations are registered with the NOAA CORS database and are used to measure GPS carrier phase and code range information to mitigate the effects of the atmosphere, multipath, and timing errors on satellite signals. These measurements are used to generate correction files which are then stored and used to post-process GPS data collected by various users including government, academic and private organizations to improve data accuracy. The correction files are available free of charge and can be found at the following website link: www.ngs.noaa.gov/CORS from a few days to several months after the GPS data was collected.

Likewise, this report examines the impact on the FAA's Wide-Area Augmentation System (WAAS) which was developed primarily to assist aerial navigation but could also be used for agricultural, surveying, recreational and other applications. WAAS antennas are located throughout North America which collect signals from GPS satellites to correct position, velocity, or timing errors and improve data accuracy. Unlike the CORS methodology for correcting GPS data, the WAAS network provides GPS error correction in real time. If real-time correction is not needed, however, CORS offers greater accuracy. Each WAAS station sends data to one of three WAAS Master Stations (WMS) via a terrestrial communications link and transmits messages to one of three WAAS geosynchronous (GEO) satellites using any one of six ground uplink stations (GUS). GPS users could then access the correction data via downlink from one of the GEO satellites.

2. Project Area

The location of the Lakeside Solar Project in Muskegon County, Michigan is shown in Figure 1.

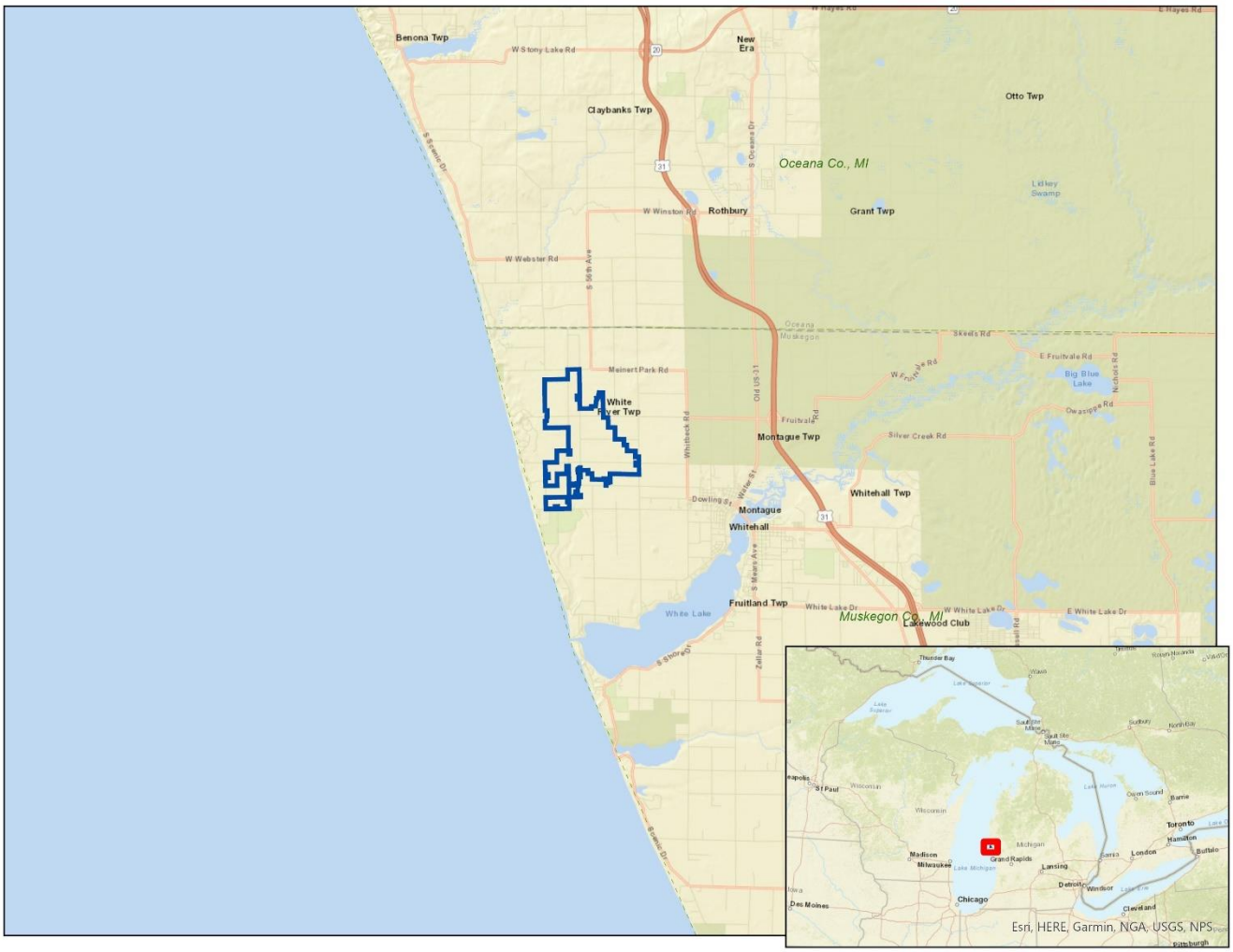


Figure 1: Location of the Lakeside Solar Project in Michigan

3. Impact Assessment

The locations of the project area of interest (AOI) with respect to the three nearest CORS antenna locations are shown in Figure 2. The callsigns of the three antennas and corresponding distances from the area of interest are listed in table 1.

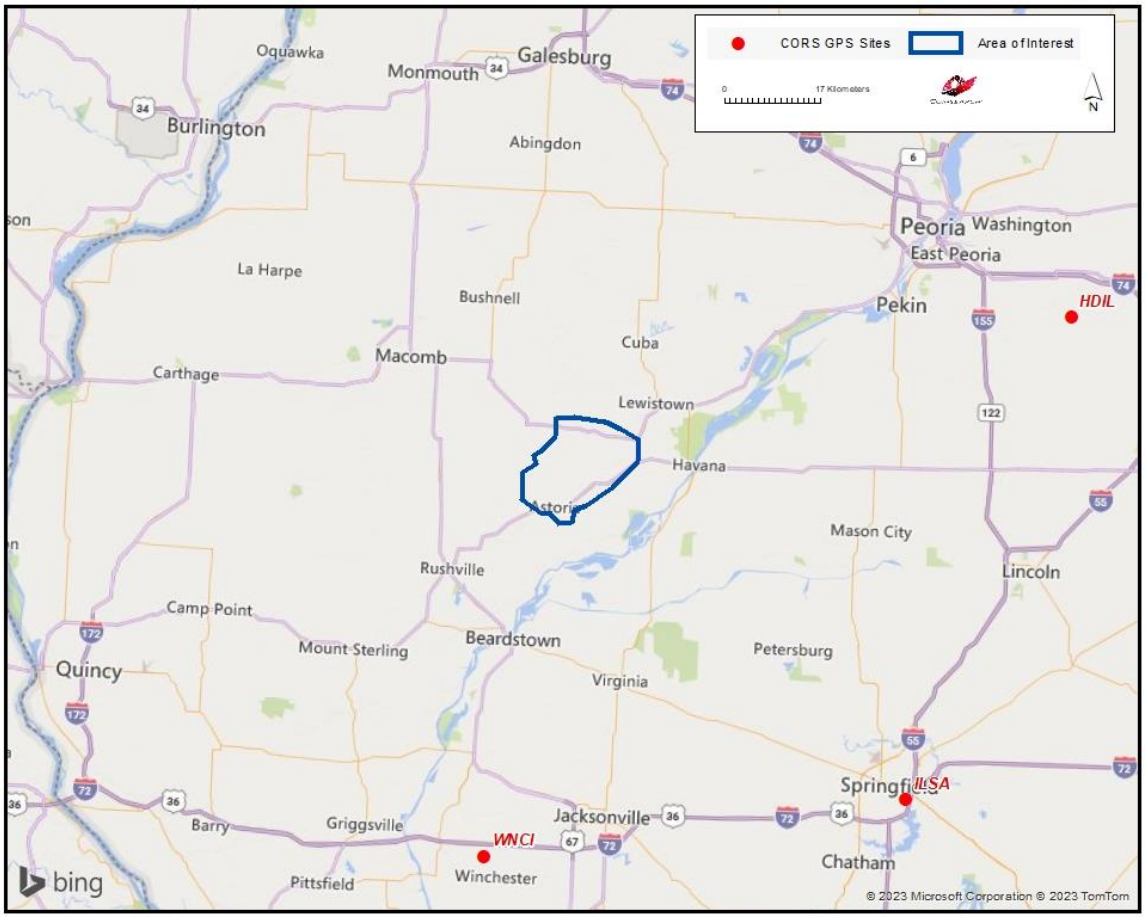


Figure 2: Nearest CORS Antennas and Solar Project Area

Name	Latitude (NAD83)	Longitude (NAD83)	Distance to the Area of Interest (km)
MIHT	43.688056	-86.364444	25.82
MIMK	43.203056	-86.249167	27.55
MSKY	43.237500	-86.054444	34.79

Table 1: Nearest CORS Antennas and Distances from Area of Interest

The closest WAAS antenna is registered under callsign KZAU and is 149 km from the Area of Interest in Aurora, Illinois.

To determine the potential impact of the proposed Solar Project on the CORS or WAAS GPS antennas, the horizon distance of the nearest GPS antenna is calculated. If this distance is greater than its separation distance from Project Area, then line-of-sight (LOS) to certain satellites could be obstructed from the GPS antenna, assuming relatively flat terrain with no nearby trees or buildings looking towards the AOI from the GPS antenna.

The distance to the horizon for a given GPS antenna is a function of its height and is given by:

$$D = (2*H_G)^{½} \qquad \text{(Equation 1)}$$

Where:

- D = Distance to horizon from GPS antenna in miles
- H_G = Height of GPS antenna in feet

Using an estimated antenna height of 15 ft AGL, the horizon distance from the nearest CORS station (MIHT) is determined. From Equation 1, this gives a horizon distance of roughly 5 miles or 7.9 km. Since MIHT is the nearest station to the project area, which is located 25.82 km away, no harmful impact to the GPS station antennas is anticipated.

4. Conclusion and Recommendations

Based on the calculated separation distances discussed in Section 3, no harmful impacts to antenna line-of-sight are anticipated to the closest CORS or WAAS GPS antennas.

Furthermore, GPS antennas receive signals from an ample number of medium earth orbit (MEO) satellites that encircle the globe. While the number of GPS satellites varies depending on their life cycle and how many spares are in orbit, there are currently 32 MEO satellites orbiting the Earth along six different orbital planes, each of which are inclined 55 degrees from the equator. Therefore, MEOs form a constellation so that a minimum of four satellites are at least 15 degrees above the horizon at any given time across the globe. And since MEO satellites are in constant motion relative to the Earth, if one becomes obstructed by objects such as trees, solar panels, transmission lines, energy structures, etc, then other satellites in orbit from the constellation reappear in another part of the sky with a stronger signal.

Therefore, while GPS antennas are capable of detecting signals even from satellites very low on the horizon, it is constantly monitoring and utilizing stronger signals from multiple satellites as they move in different directions across the sky. As a result, Comsearch does not anticipate any harmful impact on the CORS or WAAS system.

5. Contact

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Solar Power GeoPlanner™

AM and FM Radio Report

Lakeside Solar Project

Prepared on Behalf of
Lakeside Solar, LLC

August 21, 2025

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1. Introduction

Lakeside Solar, LLC is proposing to construct and place in utility service the Lakeside Solar Project, an electric generation facility that will be located in Muskegon County, Michigan. The facility will generate electricity using photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 200 MW ac.

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Lakeside Solar Project.

2. Summary of Results

AM Radio Analysis

Comsearch found two database records[1] for AM stations within approximately 30 kilometers of the project, as shown in Table 1 and Figure 1. The closest station to the project area of interest (AOI) is WLAW, licensed out of Whitehall, Michigan and located 7.45 km to the southeast of the solar project.

ID	Call Sign	Status[2]	Frequency (kHz)	Transmit ERP[3] (kW)	Operation Time	Latitude (NAD 83)	Longitude (NAD 83)	Required Separation Distance[4] (km)	Distance to the AOI (km)
1	WLAW	LIC	1490	1.0	Unlimited	43.384444	-86.325056	0.20	7.45
2	WKBZ	LIC	1090	1.0	Daytime	43.276694	-86.253944	2.75	20.27

Table 1: AM Radio Stations within 30 Kilometers of Solar Project

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

[3] ERP = Transmit Effective Radiated Power.

[4] The required separation distance is based on the lesser of 10 wavelengths or 3 kilometers for directional antennas and 1 wavelength for non-directional antennas.

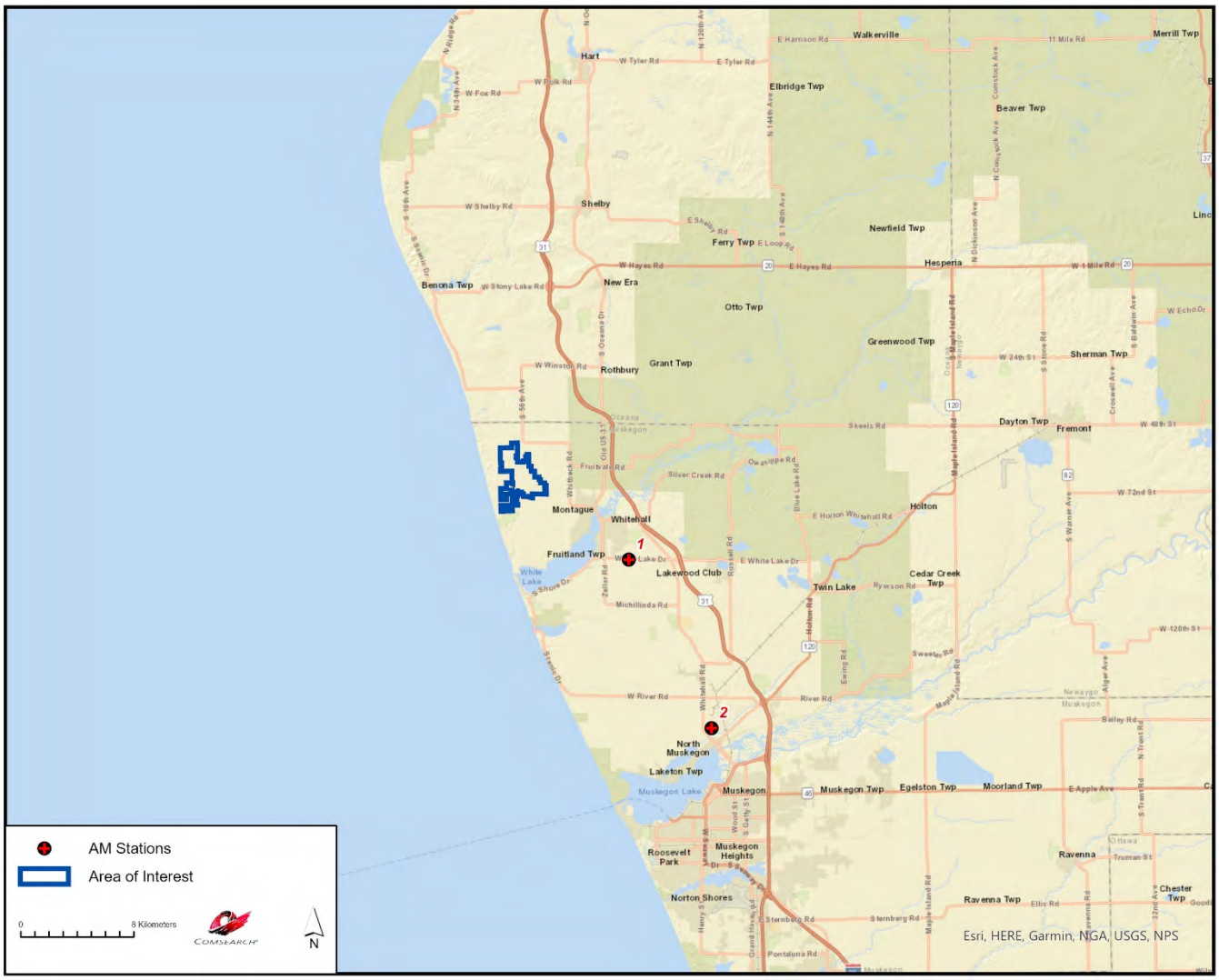


Figure 1: AM Radio Stations within 30 Kilometers of Solar Project

FM Radio Analysis

Comsearch determined that there were twenty-one database records for FM stations within a 30-kilometer radius of the Lakeside Solar Project, as shown in Table 2 and Figure 2. All of these stations are currently licensed and operating, one of which is operating under an STA. Six of the stations are low power, three are translator stations and one is an auxiliary (backup) station that operates with limited range. The closest station to the solar array is WLAW-FM, which is currently licensed in Whitehall, Michigan, and is located inside the project area. The station is located 2.32 km from the battery storage facility and 2.35 km from the transmission line. The 2nd closest station is WAXT-LP, which is located 6.86 km from the project AOI.

ID	Call Sign	Status[5]	Service[6]	Frequency (MHz)	Transmit ERP[7] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Solar Array (km)
1	WLAW-FM	LIC	FM	97.5	6.0	43.429028	-86.433028	0.00
2	WAXT-LP	LIC	FL	98.9	0.054	43.3925	-86.325889	6.86
3	WLAW-FM	LIC	FS	97.5	0.04	43.384111	-86.325306	7.45
4	WGVS-FM	LIC	FM	95.3	2.0	43.353889	-86.327278	9.83
5	WHEY	LIC	FM	88.9	1.0	43.279167	-86.342278	16.66
6	WMRR	LIC	FM	101.7	12.0	43.277222	-86.334778	17.12
7	WMUS	LIC	FM	107.9	15.0	43.277222	-86.334778	17.12
8	WLCS	LIC	FM	98.3	1.6	43.313917	-86.154778	23.25
9	WVIB	LIC	FM	100.1	2.9	43.313917	-86.154778	23.25
10	WEEH-LP	LIC	FL	100.5	0.06	43.674722	-86.422583	23.92
11	WJLQ-LP	AMD	FL	99.7	0.085	43.233611	-86.229722	25.34
12	W214CA	LIC	FX	90.7	0.013	43.218361	-86.244778	26.19
13	WUGM-LP	LIC	FL	106.1	0.1	43.218361	-86.244778	26.19
14	WUVS-LP	LIC	FL	103.7	0.1	43.218361	-86.244778	26.19
15	WFFR-LP	LIC	FL	100.9	0.1	43.191028	-86.267083	28.14
16	WSMZ-FM	LIC	FM	88.3	1.5	43.676111	-86.238972	28.24
17	WWKR	LIC	FM	94.1	5.0	43.676111	-86.238972	28.24
18	WDRZ	LIC	FM	89.1	0.45	43.676111	-86.238889	28.25
19	WSMZ-FM	STA	FM	88.3	1.5	43.676111	-86.238889	28.25
20	W273CI	LIC	FX	102.5	0.25	43.225833	-86.180556	28.35
21	W256DM	LIC	FX	99.1	0.25	43.190944	-86.237667	29.17

Table 2: FM Radio Stations within 30 Kilometers of Solar Project

[5] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

[6] FM = FM broadcast station; FX = FM translator station; FL = Low-power FM station; FS = FM auxiliary (backup) station; FB = FM booster station.

[7] ERP = Transmit Effective Radiated Power.

ID	Call Sign	Status[8]	Frequency (MHz)	Antenna Make	Antenna Model	Antenna Size (m)	Recommended Minimum Separation Distance[9] (km)
1	WLAW-FM	LIC	97.5	Unknown	3 sections	9.22	0.055

Table 3: FM Radio Stations within 2 km of the Project Area with Separation Distances

[8] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

[9] Recommended minimum separation distance is based on the far field distance of the antenna or 1.5 km if no antenna information is available and includes separation from both the turbine towers and blades.

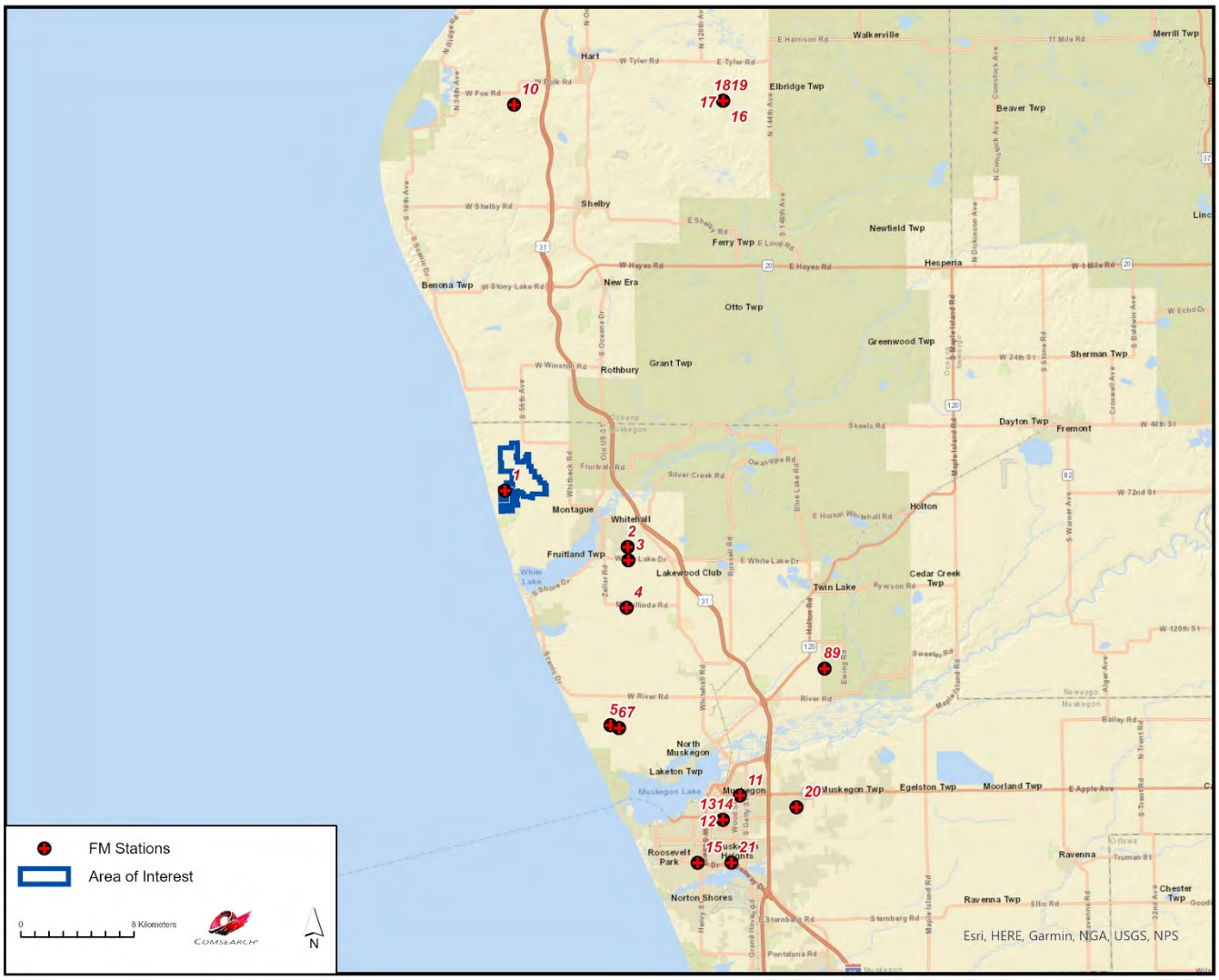


Figure 2: FM Radio Stations within 30 Kilometers of Solar Project

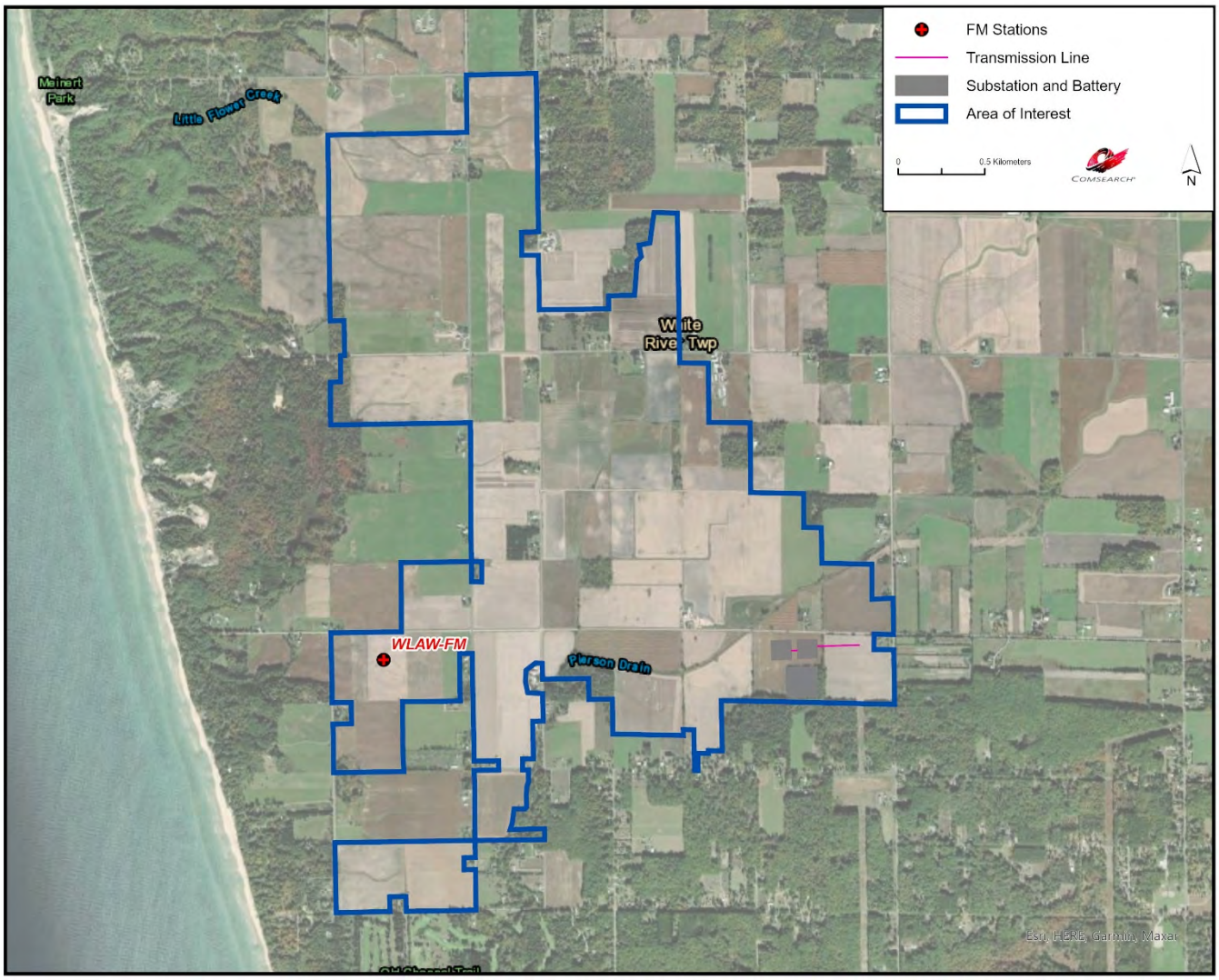


Figure 3: FM Radio Station WLAW-FM inside the project AOI

3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from the solar farm. The closest AM station to the project area is WLAW, which is located at a separation distance of approximately 7.45 kilometers from the project AOI. Since there were no stations found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by large objects, such as solar farms, transmission lines and battery storage facilities, especially when they are sited in the far-field region of the radiating FM antenna. The nearest operational FM station to the Lakeside Solar Project, WLAW-FM is located inside the project AOI. Based on the licensed antenna information, station WLAW-FM requires a minimum separation distance of 0.055 km. At this distance there should be adequate separation to avoid radiation pattern distortion. All other FM stations are located 6.86 km or further from the AOI and would not be impacted by the wind project.

Unlike AM and FM stations which transmit signals and thus require an exclusion distance in order to avoid distorting the radiation pattern of their broadcast antenna, radio units receive the signals and thus are susceptible to potential reception issues due to electromagnetic interference (EMI).

Electromagnetic interference from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency (60 Hz) operation of the PV inverter, EMI from solar farms does not normally extend above 1 MHz. Furthermore, Title 47 Part 15B of the FCC rules and regulations provide guidelines that specify the maximum field strength limits for the emissions from unintentional radiators such as inverters.

EMI from a transmission line is caused by an induction field created by the 60 Hz electrical power carried on the transmission line conductors as well as the harmonics of the 60 Hz fundamental waveform. Interference can also result from corona or gap discharges of electrical energy. Corona discharge takes place when a localized electric field from a transmission line is highly concentrated and ionizes the air near the conductors and thereby generates noise. This is a phenomenon that usually occurs during foul weather at various points that are randomly distributed along transmission lines operating at 345 kV and higher. On the other hand, a gap discharge takes place at small “gaps” between mechanically connected metal parts which, in turn, can spark and form an electric arc across the gap, also generating noise. Typically, this affects low-voltage lines due to loose wire and hardware connections that are on wooden poles. In any case, the interfering signal is amplitude-modulated (AM) and can propagate at distances that extend up to around 500 feet. The frequency range of the noise produced by corona discharge extends up to 100 MHz, whereas that produced by gap discharge can reach up to the GHz range.

Therefore, radio units that could be affected by EMI from a solar farm and transmission lines would be AM radios, which operate between 0.5 and 1.6 MHz. The degree of degradation to AM reception would be a function of the separation distance of the AM radio from the inverters of the solar farm or transmission lines and the strength of the received signal. However, to the extent that the inverters used throughout the proposed facility are FCC Part 15B compliant, the degradation from either source would be no different than what occurs when a car radio passes under or near existing high voltage transmission lines that interconnect utility companies and their sub stations throughout the state. There should be no EMI impact from the Battery Storage Facility.

4. Recommendations

Since no impact on the licensed and operational AM broadcast stations was identified in our analysis, no recommendations or mitigation techniques are required for AM stations for this project.

All solar panels should be located 0.055 km (55 meters) from station WLAW-FM or further. If this minimum separation distance is met, no other recommendations or mitigation techniques are required for this project.

5. Contact

For questions or information regarding the Microwave Study, please contact:

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Title:	Senior Manager
Company:	Comsearch
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Telephone:	703-726-5656
Email:	DMeyer@comsearch.com
Web site:	www.comsearch.com

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-8.1
Expected Tax Revenue Paid by the Energy Facility to Local Taxing Districts



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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(a) Provide a description of the expected public benefits of the proposed energy facility, including, but not limited to, the list below. Explain how the public benefits of the proposed energy facility justify its construction. 1

EXHIBIT A-8.1: EXPECTED TAX REVENUE PAID BY THE ENERGY FACILITY TO LOCAL TAXING DISTRICTS. 1

LIST OF FIGURES

Figure A-8.1-1: Total Local Taxes Paid by the Lakeside Solar Project 2

LIST OF ATTACHMENTS

Attachment A-8.1 A Economic Benefits to the Local Community

EXHIBITS A-8.1 THROUGH A-8.5: PUBLIC BENEFITS

Exhibit A-8.1 provides an economic impact analysis detailing expected tax revenue paid by Lakeside Solar, LLC (Lakeside) for the Lakeside Solar and battery energy storage system (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 Planned Facilities and Exhibit A-1.2 Area Land Use Information provide an overview of the Project facilities. Exhibit A-8.1 was prepared in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist.

(a) Provide a description of the expected public benefits of the proposed energy facility, including, but not limited to, the list below. Explain how the public benefits of the proposed energy facility justify its construction.

EXHIBIT A-8.1: EXPECTED TAX REVENUE PAID BY THE ENERGY FACILITY TO LOCAL TAXING DISTRICTS.

The Project will be socioeconomically beneficial to the landowners, local governments, and communities. Construction of the Project would provide temporary increases to the revenue of the area through increased demand for lodging, food services, fuel, transportation, and general supplies. Additional income will also be generated by circulation and recirculation of dollars paid out by the Project as business expenditures and state and local taxes. Lakeside retained Strategic Economic Research, LLC to prepare a report documenting the economic benefits to the local community, including revenue paid by the Project to local taxing districts. This report is included as Attachment A-8.1 A. The proposed Project will result in significant public benefits through a substantial increase in tax revenue to local taxing districts. The total Project represents an investment in excess of $429 million. The total development is anticipated to result in the following:

- Over $18.7 million in total school district local taxes over the life of the Project
- Over $8.0 million in total county local taxes for Muskegon County over the life of the Project
- Over $46.1 million in total local taxes for all taxing districts over the life of the Project

Figure A-8.1-1 depicts the distribution of local taxes paid over the life of the Project by taxing jurisdiction.

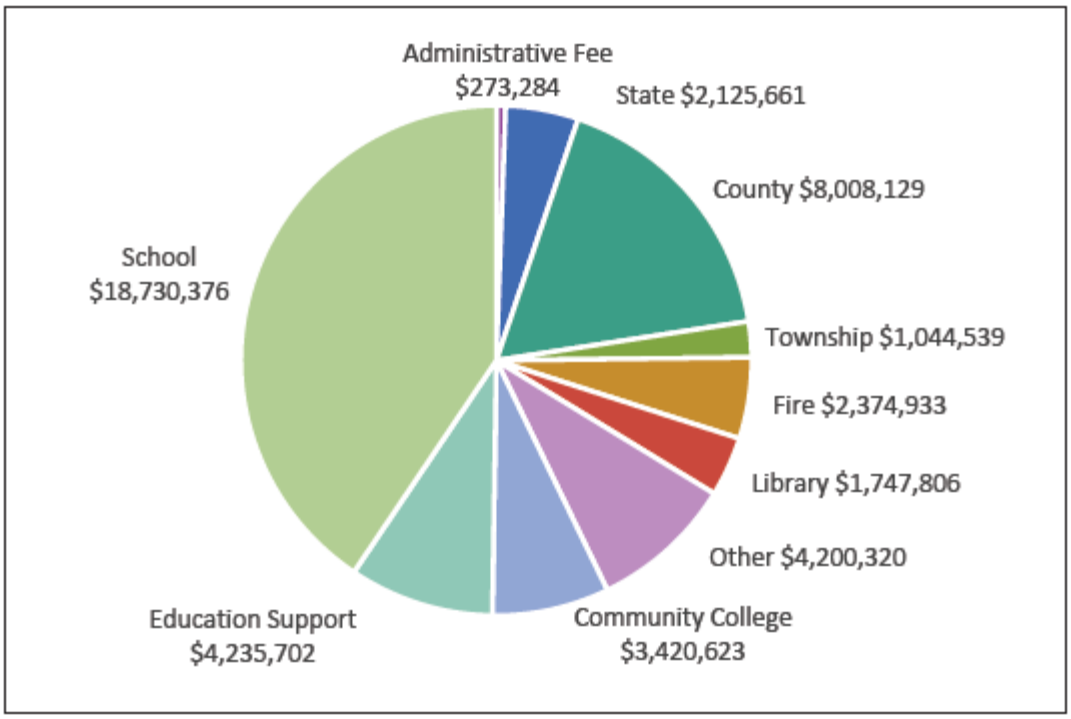


Figure A-8.1-1: Total Local Taxes Paid by the Lakeside Solar Project

These funds will support local schools, public safety, infrastructure improvements, and essential community services. The scale and duration of these public benefits provide compelling justification for the construction of the proposed energy facility.

Attachment A-8.1 A

Economic Impact Analysis of the Lakeside Solar Project

Strategic Economic Research, LLC



ECONOMIC IMPACT ANALYSIS OF THE LAKESIDE SOLAR PROJECT

June 2026

Dr. David G. Loomis, Bryan Loomis, and Chris Thankan

Strategic Economic Research, LLC
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About Strategic Economic Research

WHO WE ARE

Strategic Economic Research, LLC (SER) provides economic impact and local tax analyses for energy projects throughout the United States. SER reports show the jobs, earnings, output, and property taxes that these projects bring to local communities. The company has analyzed over 700 projects (over 132 gigawatts of energy) in 38 states. SER has primarily worked on renewable energy projects, including wind, solar, and storage. The company also produces analyses for other projects, including transmission, natural gas, nuclear, data centers, and more. In addition to written reports, the SER team combines years of experience to provide expert testimony for permitting of energy projects. Dr. David G. Loomis, the founder and President of SER, is a widely-recognized expert in energy economics.



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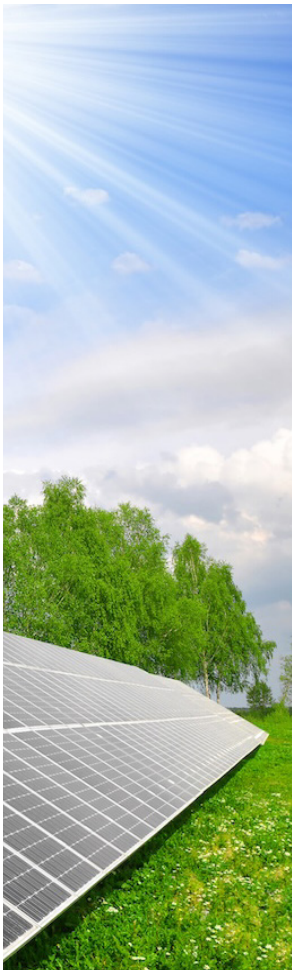


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I. Executive Summary

Lakeside Solar Project | 150 MWac and 150 MW



Geronimo Power is developing the Lakeside Solar Project in Muskegon County, Michigan. The purpose of this report is to aid decision makers in evaluating the economic impacts of this Project on Muskegon County and the State of Michigan. The basis of this analysis is to study the direct, indirect, and induced impacts on job creation, wages, and total economic output.

The Lakeside Solar Project is an estimated 150-megawatt alternating current (MWac) utility-scale solar-powered electric generation facility that will utilize photovoltaic (PV) panels installed on a single-axis tracking system. The Project will also include an estimated 150-megawatt (MW) Battery Energy Storage System (BESS). The total Project represents an investment in excess of $429 million. The total development is anticipated to result in the following: [1]

Jobs[2]

- 174 local jobs during construction for Muskegon County
- 431 local jobs during construction for the State of Michigan
- 17.3 local long-term jobs for Muskegon County
- 30.2 local long-term jobs for the State of Michigan

Earnings[3]

- Over $15.0 million in local earnings during construction for Muskegon County
- Over $39.4 million in local earnings during construction for the State of Michigan
- Over $1.1 million in local long-term earnings for Muskegon County annually
- Over $2.1 million in local long-term earnings for the State of Michigan annually

[1] State of Michigan impacts are inclusive of Muskegon County impacts.

[2] All jobs values are full-time equivalents (FTEs) and are the sum of the direct, indirect, and induced jobs during construction and annual operations which can be found in the Economic Impact Results section.

[3] Earnings are a measurement in dollars of the total wages and benefits produced by the jobs found by the analysis. These earnings are categorized by construction impacts and operations impacts.

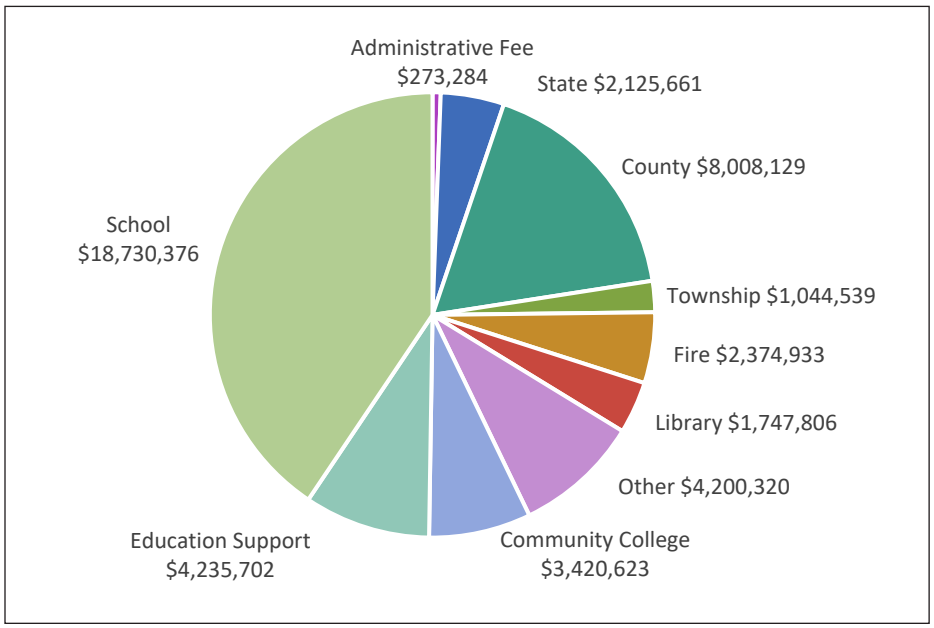
Output[4]

- Over $40.7 million in local output during construction for Muskegon County
- Over $139 million in local output during construction for the State of Michigan
- Over $2.6 million in local long-term output for Muskegon County annually
- Over $5.3 million in local long-term output for the State of Michigan annually

Local Taxes

- Over $18.7 million in total school district local taxes over the life of the Project
- Over $8.0 million in total county local taxes for Muskegon County over the life of the Project
- Over $46.1 million in total local taxes for all taxing districts over the life of the Project

Figure 1.1 – Total Local Taxes Paid by the Lakeside Solar Project



[4] The value of production in the state or local economy. It is an equivalent measure to the Gross Domestic Product.

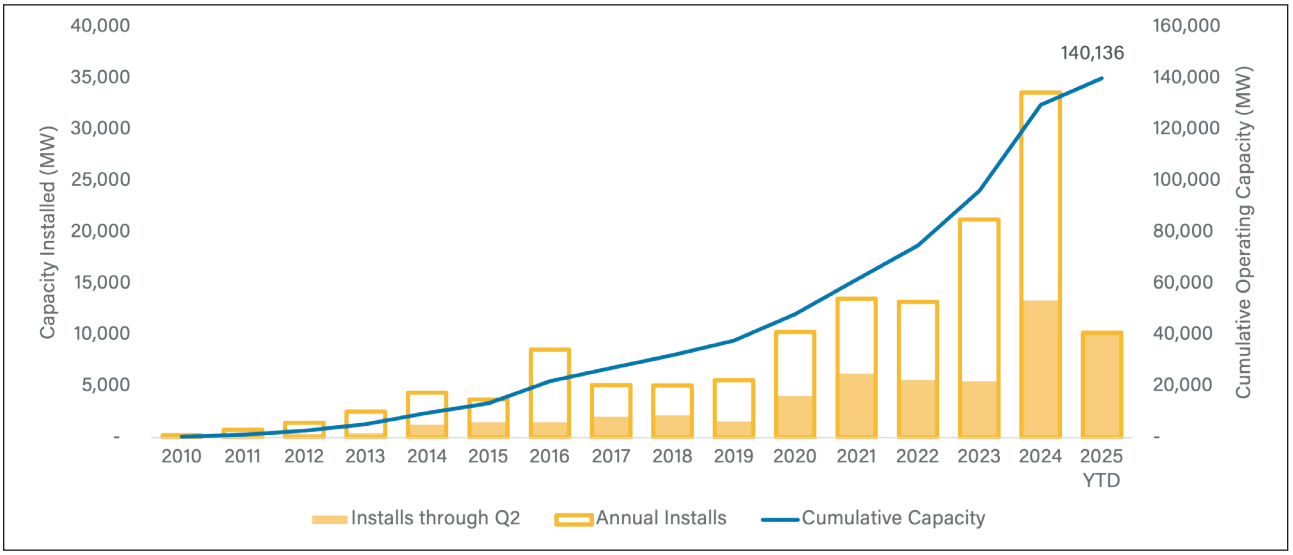
II. Energy Industry Growth & Economic Development

a. U.S. Solar PV Industry Growth

The U.S. solar industry is growing at a rapid but uneven pace. Solar energy systems are installed for on-site use — including residential, commercial, and industrial properties — and utility-scale solar-powered electric generation facilities intended for wholesale distribution. The Lakeside Solar Project is a utility-scale solar PV project intended for wholesale markets through the transmission grid. From 2013 to 2018, the amount of solar-generated electricity more than quadrupled, increasing by 444% (SEIA, 2020). The industry has continued to add PV systems to the grid. Figure 2.1 shows the historical capacity additions. The primary driver of this overall sharp pace of growth is large price declines in solar equipment. According to Figure 2.2, utility-scale solar fixed tilt and single-axis tracking have decreased from an average of $6/watt in 2010 to slightly more than $1/watt in 2023. Solar PV also benefits from the Federal Investment Tax Credit (ITC), which provides a tax credit for residential and commercial properties.

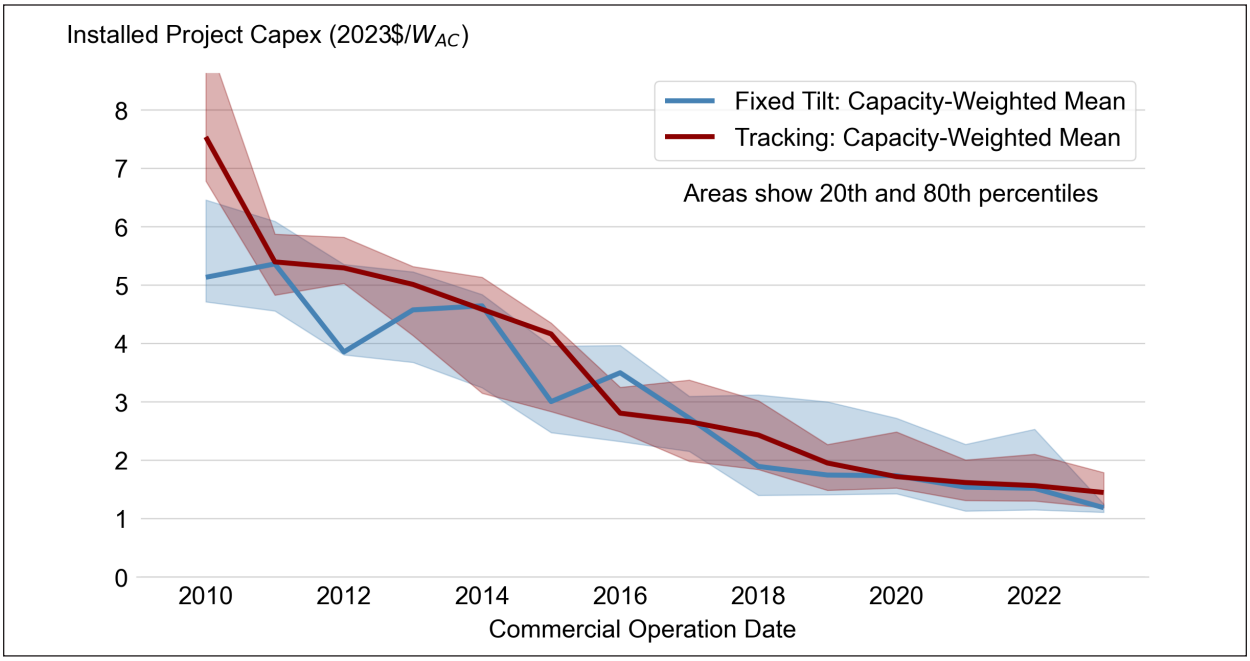
According to Figure 2.3, utility-scale PV installations jumped in the fourth quarter of 2024 to over 16,000 MWdc. Even with this large ramp-up of installations, there are an additional 60,000 MWdc of contracted utility-scale installations that have yet to be built.

Figure 2.1 – U.S. Annual and Cumulative Utility-Scale Solar Capacity Growth, 2010 – Q2, 2025



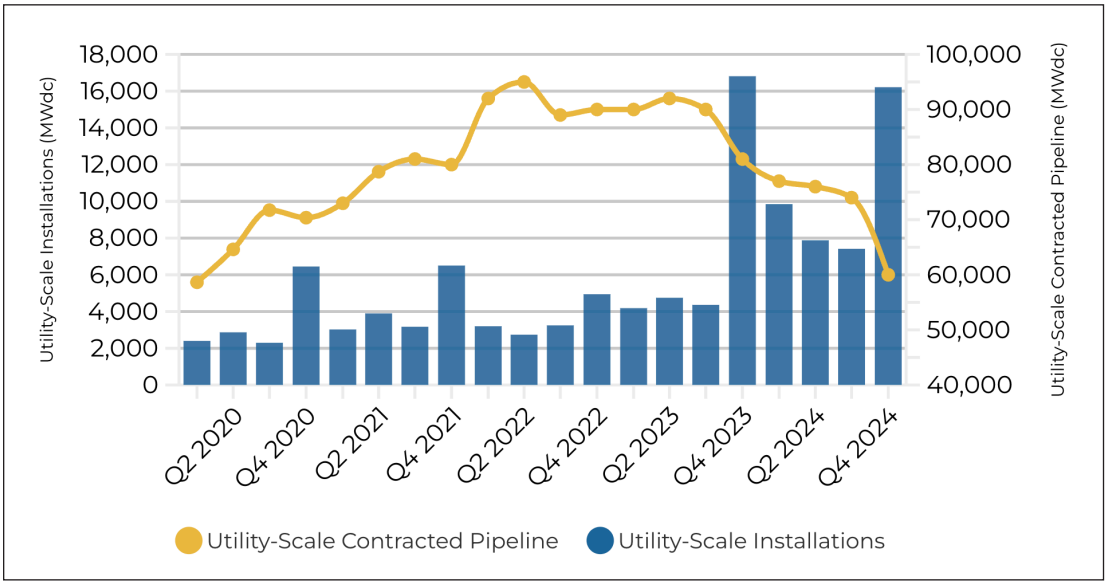
Source: ACP, Clean Power Market Report, Q2 2025

Figure 2.2 – Installed Costs of Utility-Scale Solar from 2010 to 2023 (adjusted for inflation)



Source: Lawrence Berkeley National Laboratory, Utility-Scale Solar, 2024 Edition

Figure 2.3 – U.S. Utility PV Installations vs. Contracted Pipeline



Source: Solar Energy Industries Association, Solar Market Insight Report Q4 2024

b. Michigan Solar PV Industry

According to the Solar Energy Industries Association (SEIA), Michigan is ranked 24th in the U.S. cumulative installations of solar PV. Texas, California, and Florida are the top three states for utility-scale solar PV which may not be surprising because of the high solar irradiance that they receive (ACP, Q2, 2025). However, there are other states with similar solar irradiance to Michigan that rank highly for utility-scale solar. In 2025, Michigan installed 667 MW of solar electric capacity, bringing its cumulative capacity to 2,573 MW.

Michigan has great potential to expand its solar installations. Table 2.1 has a list of the utility-scale solar farms in operation in Michigan through 2026 (some small projects below 20 MW were omitted from the table). The estimated 150-MW Lakeside Solar Project will be amongst the largest installations in Michigan to date. (The megawatts listed in this paragraph are MWac. To convert to MWdc, multiply the MWac by 1.3 to get the approximate MWdc capacity.)

There are 212 solar companies in Michigan including 76 manufacturers, 74 installers/developers, and 62 others ("other" includes sales and distribution, project management, and engineering). Figure 2.4 shows the locations of solar companies in Michigan at the time of this report. Currently, there are 4,385 solar jobs in the State of Michigan according to SEIA.

Figure 2.5 shows the Michigan historical installed capacity by year according to the SEIA. Solar installation saw huge growth in 2023 and 2025 and is forecasted to continue to grow. Over the next five years, solar in Michigan is projected to grow by 7,581 MW.

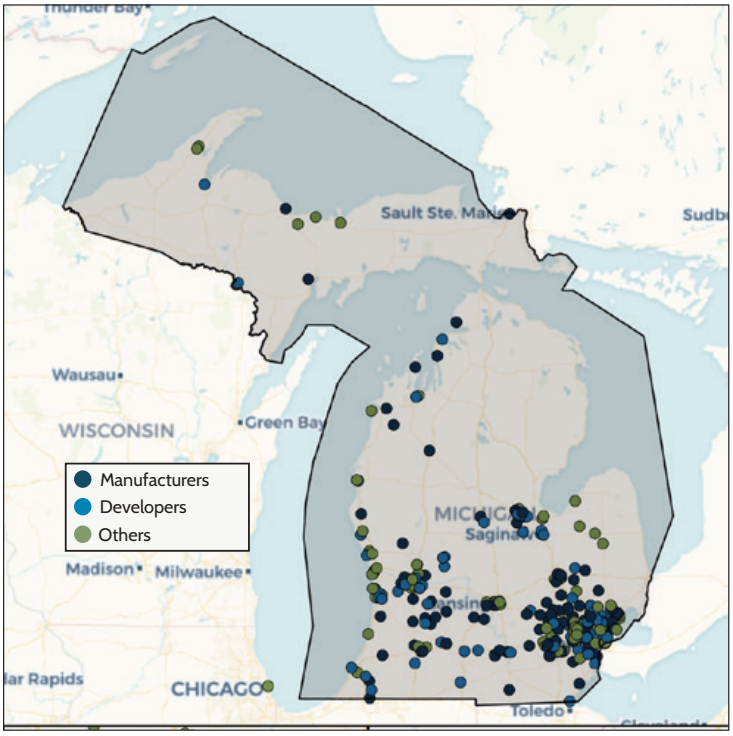
The Energy Information Administration (EIA) calculated the number of megawatt-hours generated from different energy sources in 2024. As shown in Figure 2.6, the greatest percentage of electricity generated in Michigan came from natural gas with 44.5% followed by nuclear energy with 21.0% and coal with 20.6%. Approximately 1.5% of the total electricity power generated in Michigan came from solar thermal and solar PV in 2024.

The U.S. Department of Energy sponsors the U.S. Energy and Employment Report each year. Electric Power Generation (EPG) covers all utility and non-utility employment across electric generating technologies, including fossil fuels, nuclear, and renewable technologies. It also includes employees engaged in facility construction, turbine and other generation equipment manufacturing, operations and maintenance, and wholesale parts distribution for all electric generation technologies. According to Figure 2.7, employment in Michigan in the solar energy industry (5,758) is larger than traditional hydroelectric generation (5,106), wind electric generation (5,100), and natural gas generation (4,025).

Table 2.1 – Michigan Solar Projects

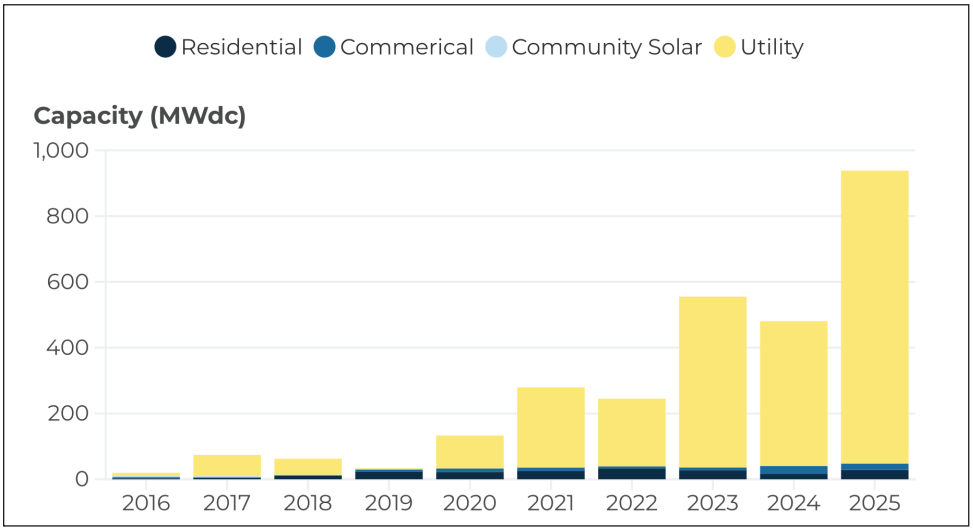
Utility-Scale Solar Farm	Capacity (MW)	County Name	Year Online
Demille Solar Farm	28.56	Lapeer County	2017
Delta Solar Power	24	Eaton County	2018
Assembly Solar Project	239	Shiawassee County	2020
Bingham Solar	20	Clinton County	2021
Temperance Solar, LLC	20	Monroe County	2021
Cement City Solar	20	Jackson County	2022
Lyons Road Solar Farm	20	Shiawassee County	2022
Macbeth Solar	20	Muskegon County	2022
Pullman Solar	20	Allegan County	2022
Calhoun Solar Energy Center	200	Calhoun County	2023
Cereal City Solar	100	Calhoun County	2023
Blue Elk Solar	72.5	Genesee, Ingham, and Lenawee Counties	2023
Greenstone Solar	20	Branch County	2023
Midcontinent Solar Project	20	Shiawassee County	2023
Shipsterns Solar	20	Calhoun County	2023
Willford Solar	20	Gladwin County	2023
River Fork Solar Project	149	Calhoun County	2024
Calhoun County Solar Project	125	Calhoun County	2024
Holcim - Alpena Solar Project	25	Alpena County	2024
Surbrook Solar	20	Jackson County	2024
Sauk Solar	150	Branch County	2025
Polaris	100	Gratiot County	2025
Pine River	80	Gratiot County	2025
Muskegon Solar Project	250	Muskegon County	2026

Figure 2.4 – Solar Company Locations in Michigan



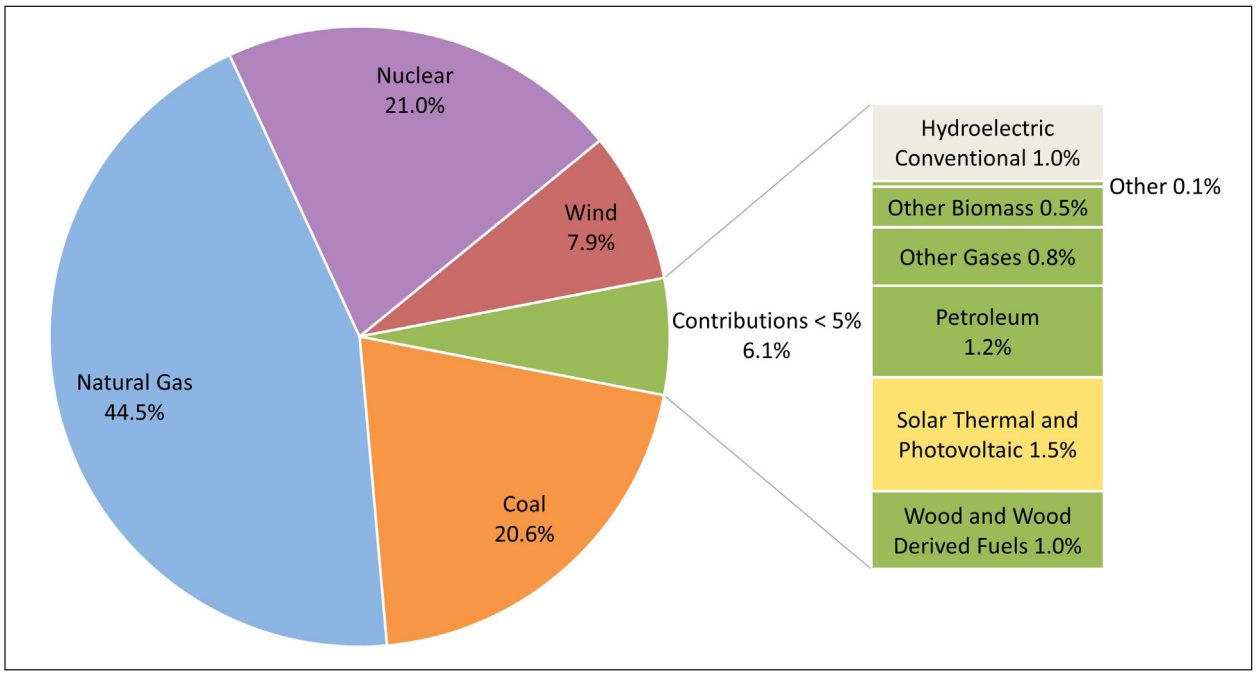
Source: Solar Energy Industries Association, Solar Spotlight: Michigan Q2 2025

Figure 2.5 – Michigan Annual Solar Installations



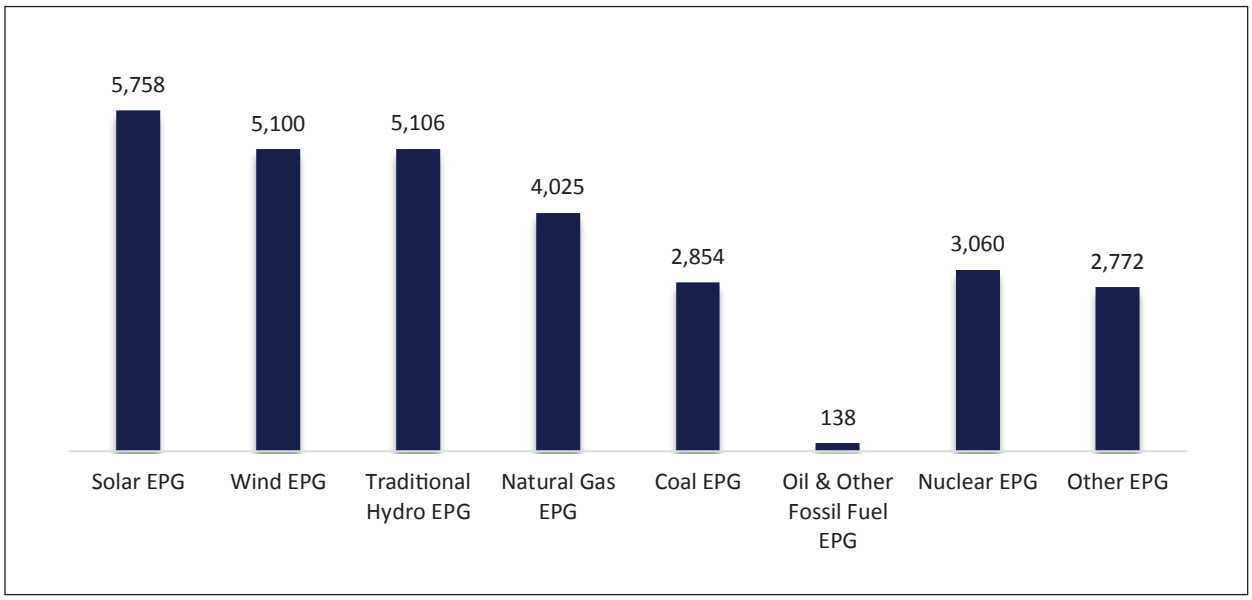
Source: Solar Energy Industries Association, Solar Spotlight: Michigan Q2 2025

Figure 2.6 – Electric Generation by Fuel Type for Michigan in 2024



Source: U.S. Energy Information Administration (EIA): Michigan 2024

Figure 2.7 – Electric Generation Employment by Technology



Source: U.S. Energy and Employment Report 2025: Michigan

c. Economic Benefits of Utility-Scale Solar PV Energy

Utility-scale solar-powered electric generation facilities provide numerous economic benefits. Solar PV installations create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. In addition to the workers directly involved in the construction and maintenance of the solar energy project, numerous other jobs are supported through indirect supply chain purchases and the higher spending that is induced by these workers. Solar PV projects strengthen the local tax base and help improve county services and local infrastructure, such as public roads.

Bessette et al. (2024) state that the potential economic benefits of a utility-scale solar project would include "increased property tax revenue, landowner payments, and increased employment" (Bessette et al., 2024, p. 7). They highlight the fact that the tax benefits are difficult for residents to understand – perhaps because they are not quantified clearly. They also mention both the direct and indirect (supply chain) economic impacts.

Numerous studies have quantified the economic benefits of United States solar PV projects and have been published in peer-reviewed academic journals using the same methodology as this report. Some of these studies examine smaller-scale solar systems while some examine utility-scale solar energy. Croucher (2012) uses NREL's Jobs and Economic Development Impacts ("JEDI") modeling methodology to determine which states would receive the greatest economic impact from installing one hundred 2.5 kW residential systems. According to the report, Pennsylvania ranked first, supporting 28.98 jobs during installation and 0.20 jobs during operations. Illinois ranked second, supporting 27.65 jobs during construction and 0.18 jobs during operations.

More recently, Michaud et al. (2020) performed economic impact analyses of utility-scale solar energy projects in the State of Ohio. They detail three scenarios: low (2.5 GW), moderate (5 GW), and high (7.5 GW). Using the JEDI model, they conclude that between 18,039 and 54,113 jobs would be supported during construction and between 207 and 618 jobs would be supported annually during operations. In addition, these projects would generate between $22.5 million and $67.5 million annually in tax revenues.

Loomis et al. (2016) estimate the economic impact for the State of Illinois if it were to reach its maximum potential for solar PV. This study details three different scenarios — new solar project installations of either 2,292 MW, 2,714 MW, or 11,265 MW. The study assumes that 60% of the capacity is utility-scale solar, 30% of the capacity is commercial, and 10% of the capacity is residential. It concludes that employment impacts would vary from 26,753 to 131,779 job-years during construction and from 1,223 to 6,010 job-years during operations.

The Michigan Conservative Energy Forum (2018) commissioned a study by The Hill Group in 2018 to examine the economic impacts of different renewable portfolio standards for the State of Michigan. They found that "the 12.5 percent by 2019 scenario indicates that the selected activities as a whole could have a potential gross impact of nearly $3.8 billion on Michigan, including more than 20,100 job-years supported and nearly $1.4 billion in employee compensation."

Barnes et al. (2025) measured the economic impact of the U.S. solar industry in their study. Their assessment includes residential, commercial, and industrial uses of solar at the rooftop, community, and utility-scale levels. In addition to national results, they estimate state-level results using the same input-output model used in this study. For Michigan, they estimate that the 555.4 MW of solar PV systems installed in 2023 (bringing the state's total solar PV capacity to 1,425.9 MW) resulted in 7,500 jobs, $558.9 million in labor income, and $1.3 billion in economic output.

Finally, Jenniches (2018) performed a literature review assessing the regional economic impacts of renewable energy sources. After reviewing all of the different techniques for analyzing the economic impacts, he concludes "for assessment of current renewable energy developments, beyond employment in larger regions, IO [Input-Output] tables are the most suitable approach" (Jenniches, 2018, p. 48). Input-Output analysis is the basis for the methodology used in the economic impact analysis of this report.



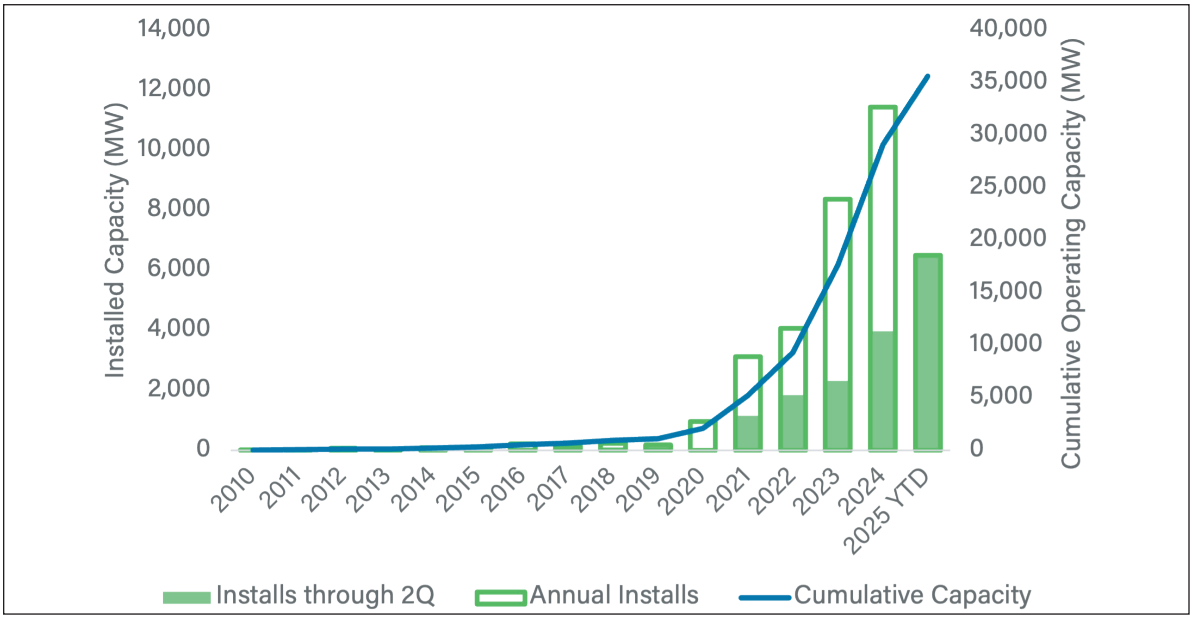
d. U.S. Energy Storage Industry Growth

The U.S. energy storage industry is composed primarily of large-scale battery energy storage systems (BESS) and is a recent addition to the electrical grid system. As shown in Figure 2.8, the large-scale battery capacity has grown rapidly since 2019. The U.S. Energy Information Administration (U.S. EIA) expects the installation of 10,000 megawatts of BESS in the next few years – 10 times the capacity installed in 2019 (U.S. EIA, 2021). The primary driver of this overall sharp pace of growth is large price declines in BESS equipment.

Battery systems are used for price arbitrage, to store electricity when prices are low, and discharge electricity when prices are high. Batteries also maintain grid reliability through frequency regulation, ramp generation, spinning reserves, absorbing excess generation, and in some cases, black start capabilities.

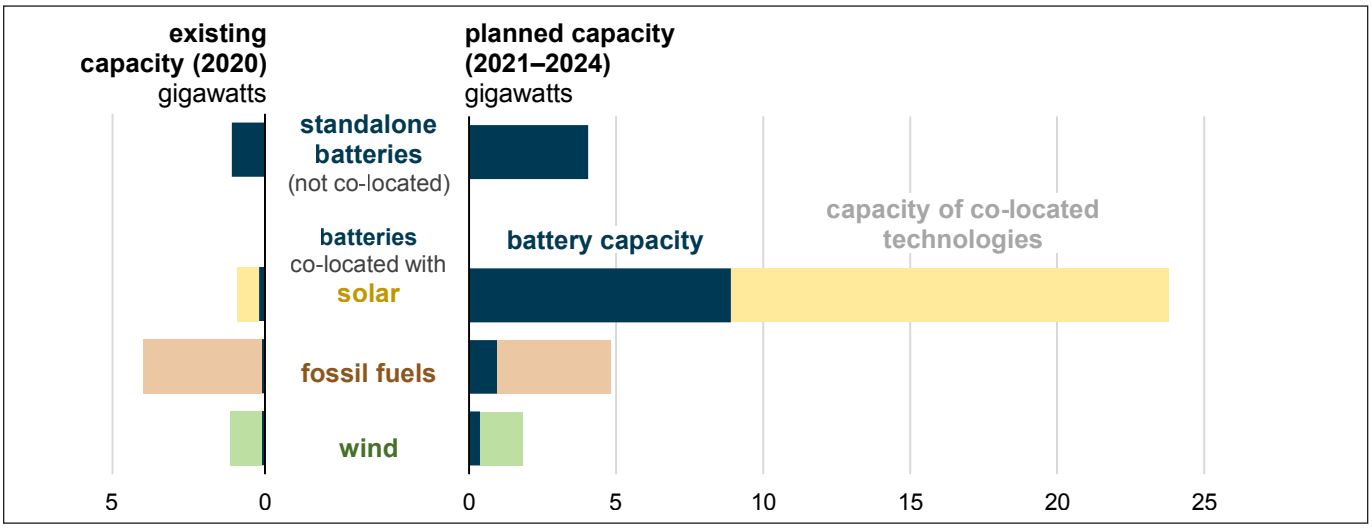
Some battery storage systems are paired with solar energy generators, wind energy generators, or fossil fuel generators. Standalone battery storage systems are increasingly common according to Figure 2.9.

Figure 2.8 – Large-Scale Battery Storage Cumulative Power Capacity, 2010 – Q2, 2025



Source: ACP, Clean Power Market Report, Q2 2025

Figure 2.9 – U.S. Large-Scale Battery Storage Power Capacity Additions, Standalone and Co-located



Source: U.S. Energy Information Administration, Battery Storage Additions, 2021

e. Michigan Energy Storage Industry

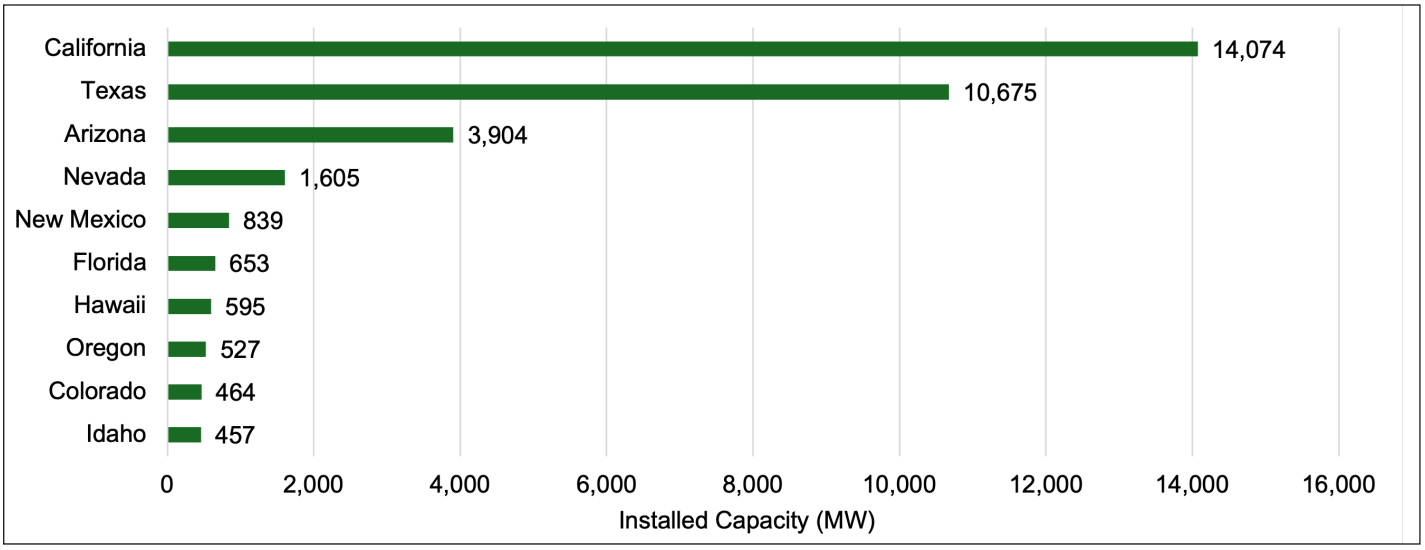
According to American Clean Power (ACP), Michigan is ranked 19th in the U.S. in cumulative installations of battery storage systems. As shown in Figure 2.10, California, Texas, and Arizona are the top three states for battery storage (ACP, 2025).

Michigan has great potential to expand its battery storage installations. Michigan has several utility-scale battery storages in operation: Tibbits Battery Storage (100 MW) in Branch County and Slocum Battery Energy Storage (14 MW) in Wayne County. The estimated 150-MW Lakeside Solar Project will be amongst the largest installations in Michigan to date.

Battery storage is expected to increase substantially over the next several years. "One of the most critical factors is the ability to store energy as it is generated and then redistribute it when needed, rather than as it is produced. This ability reduces the need to curtail renewable generation and allows the energy to be deployed during periods of high electricity demand" (EIA, 2020). In addition to storage, batteries can also provide frequency regulation, transmission and distribution support, and other ancillary services.

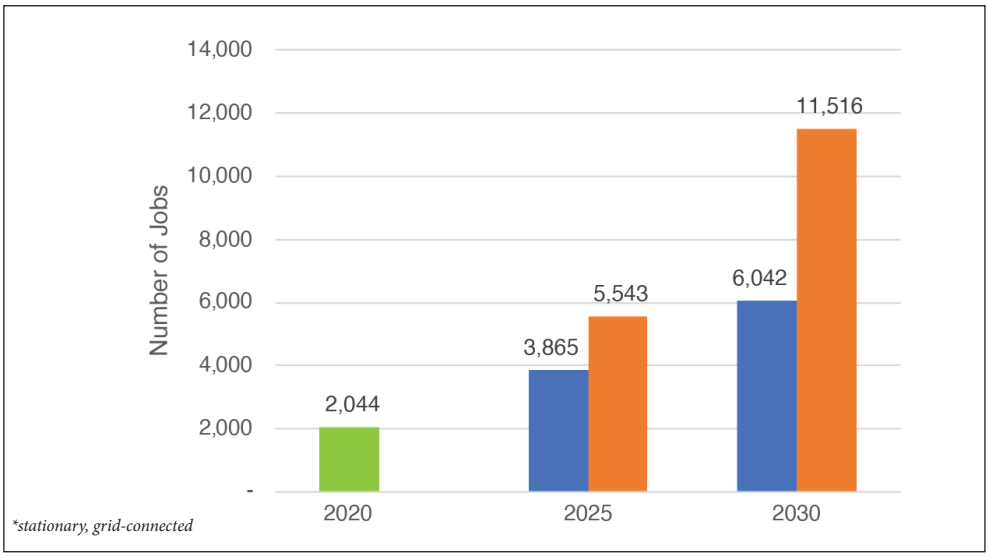
NREL (Truitt et al., 2022) made projections of the employment increases due to the battery storage sector. Figure 2.11 shows projections of 3,865 to 5,543 jobs by 2025 and 6,042 to 11,516 jobs by 2030 for the State of Michigan. They find that 2,044 jobs exist in the industry as of 2020.

Figure 2.10 – Operational Energy Storage Capacity for Top Ten States



Source: American Clean Power (ACP), Battery Storage by State, 2025

Figure 2.11 – Battery Storage Job Estimates in Michigan, 2020-2030



Source: NREL, Michigan Clean Energy Jobs Potential through 2030, March 2022

f. Economic Benefits of Energy Storage

Battery storage facilities have numerous economic benefits. BESS installations create local area job opportunities during both the construction phase and the operational phase. In addition to the workers directly involved in the construction and maintenance of the project, numerous other jobs are supported through indirect supply chain purchases and worker spending. Battery storage projects strengthen the local tax base and help improve county services and local infrastructure, such as public roads.

Several studies have quantified the economic benefits of battery storage projects across the United States. Gorman et al. (2020) demonstrate the economic value that battery storage brings to the electric grid. Using wholesale market prices, they find that the additional revenues earned after adding batteries to solar projects are higher than the additional costs these projects require. They do not quantify the economic impact that battery storage will make.

In a 2022 study for NREL, Truitt et al. make state-level employment projections for battery storage (along with wind, solar, and energy storage). According to this source — which uses the same IMPLAN model multipliers as this present study — 66,751 people were employed in the United States battery storage sector in 2020. 126,000-181,000 further jobs will be in the sector by 2025, and 197,000-376,000 jobs will be in the sector by 2030 (Truitt, 2022, p. vi).

The Energy Storage Association (2020) predicted that energy storage will create at least 200,000 jobs by 2030. They cite a "2017 Navigant analysis that assumed that industry jobs per new MW of storage capacity installed would decline from 50 per MW in 2021 to 34 per MW by 2025. The attainment of 100 GW by 2030 would involve rapidly growing annual installations between 2025 and 2030, but a continued decline in jobs/MW as the industry continues to refine construction techniques and management" (ESA, 2020, pp. 8-9). We avoid such projections by analyzing the company's construction and operating costs instead of using broad industry assumptions.

Although not directly aimed at battery storage impacts, Jenniches (2018) performed a literature review to assess the regional economic impacts of renewable energy sources. After reviewing all of the different techniques for analyzing those economic impacts, he concludes "for assessment of current renewable energy developments, beyond employment in larger regions, IO [Input-Output] tables are the most suitable approach" (Jenniches, 2018, p. 48). Input-Output analysis is the basis for the methodology used in the economic impact analysis of this report.

III. Project Description and Location

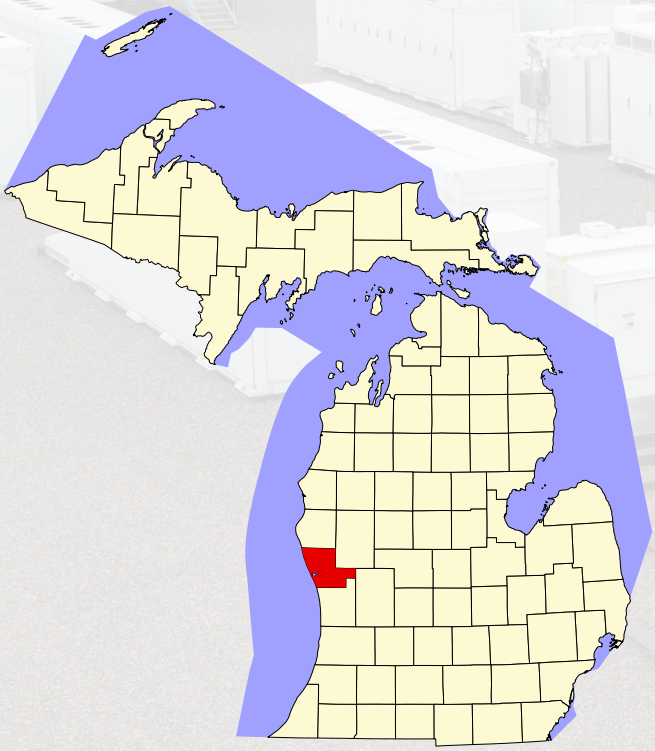
a. Lakeside Solar Project

Geronimo Power is developing the Lakeside Solar Project in Muskegon County, Michigan. The Project consists of an estimated 150-MWac utility-scale solar-powered electric generation facility that will utilize PV panels installed on a single-axis tracking system. The Project will also include an estimated 150-MW BESS. The total Project represents an investment in excess of $429 million.

b. Muskegon County Economic and Demographic Statistics

Muskegon County is located in the western part of Michigan (see Figure 3.1). It has a total area of 1,460 square miles, and the U.S. Census estimates that the population was 177,428 with 75,942 housing units in 2024. The county has a population density of 356 (persons per square mile) compared to 175 for the State of Michigan (2024). Median household income in the county was $63,495 in 2023 (U.S. Census Bureau, 2024).

Figure 3.1 – Location of Muskegon County, Michigan



Source: Wikipedia, 2024. Data from nationalatlas.gov

Table 3.1 – Employment by Industry in Muskegon County

Industry	Number	Percent
Manufacturing	13,830	16.1%
Health Care and Social Assistance	12,417	14.4%
Retail Trade	11,443	13.3%
Accommodation and Food Services	8,293	9.6%
Administrative Government	7,051	8.2%
Other Services (except Public Administration)	6,477	7.5%
Professional, Scientific, and Technical Services	4,497	5.2%
Construction	4,234	4.9%
Real Estate and Rental and Leasing	3,710	4.3%
Administrative and Support and Waste Management and Remediation Services	2,945	3.4%
Finance and Insurance	2,500	2.9%
Wholesale Trade	1,949	2.3%
Transportation and Warehousing	1,794	2.1%
Arts, Entertainment, and Recreation	1,152	1.3%
Educational Services	1,149	1.3%
Agriculture, Forestry, Fishing and Hunting	1,035	1.2%
Information	558	0.6%
Government Enterprises	367	0.4%
Utilities	231	0.3%
Management of Companies and Enterprises	199	0.2%
Mining, Quarrying, and Oil and Gas Extraction	126	0.1%

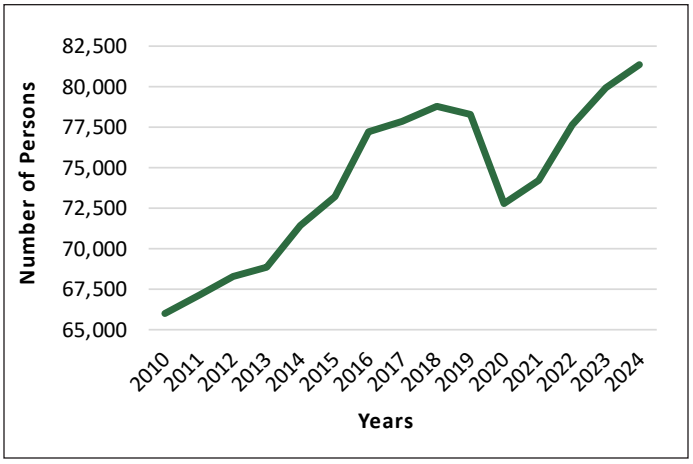
Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry, 2024

As shown in Table 3.1, the largest industries in the county are "Manufacturing," "Health Care and Social Assistance," and "Retail Trade." These data for Table 3.1 come from IMPLAN covering the year 2024 (the latest year available).

Table 3.1 provides the most recent snapshot of total employment but does not examine the historical trends within the county.

Figure 3.2 shows the number of employed persons in Muskegon County from 2010 to 2024. The total number of employed persons was at its lowest at 65,964 in 2010 and its highest at 81,340 in 2024 (FRED, 2025).

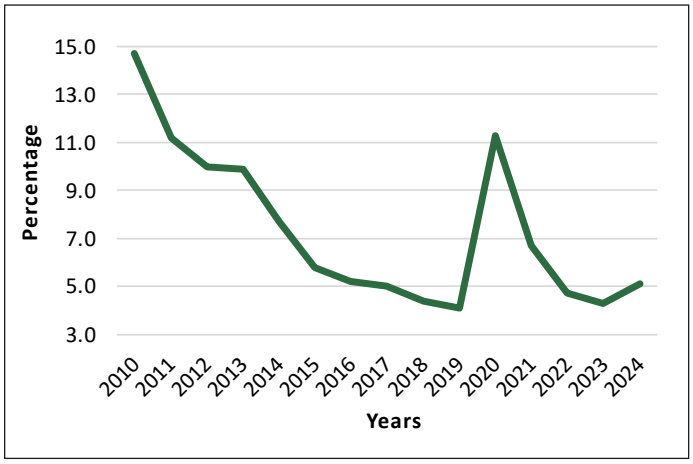
Figure 3.2 – Total Employed Persons in Muskegon County from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Employed Persons, 2010-2024

The unemployment rate signifies the percentage of the labor force without employment in the county. Figure 3.3 shows the unemployment rates from 2010 to 2024. Unemployment in Muskegon County was at its highest at 14.7% in 2010 and its lowest at 4.1% in 2019 (FRED, 2025). The unemployment rate spiked to 11.3% in 2020 but normalized to 4.3% in 2023.

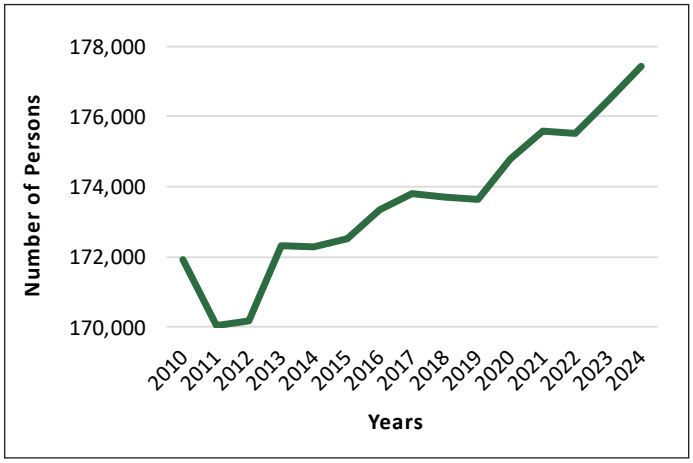
Figure 3.3 – Unemployment Rate in Muskegon County from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Unemployment Rates, 2010-2024

The overall population in the county has increased, as shown in Figure 3.4. Muskegon County's population was 171,923 in 2010 and 177,428 in 2024, a gain of 5,505 people (FRED, 2025). The average annual population increase over this time period was 393 people.

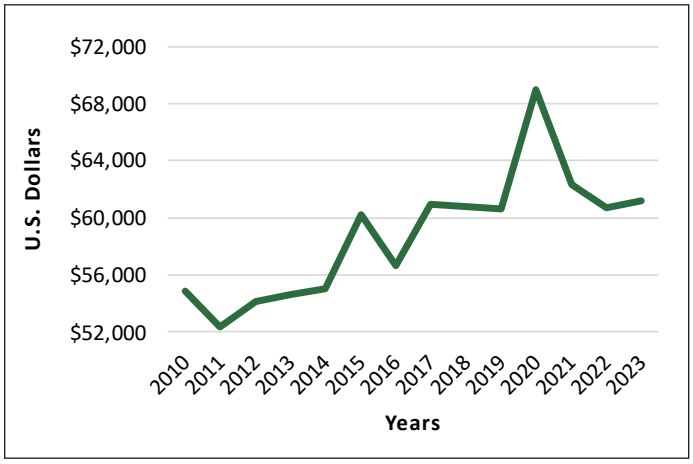
Figure 3.4 – Population in Muskegon County from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Population Estimates, 2010-2024

Household income has trended upward in the county. Figure 3.5 shows the real median household income in Muskegon County from 2010 to 2023. Using the national Consumer Price Index (CPI), the nominal median household income for each year was adjusted to 2023 dollars. Household income was at its lowest at $52,394 in 2011 and its highest at $68,958 in 2020 (FRED, 2024).

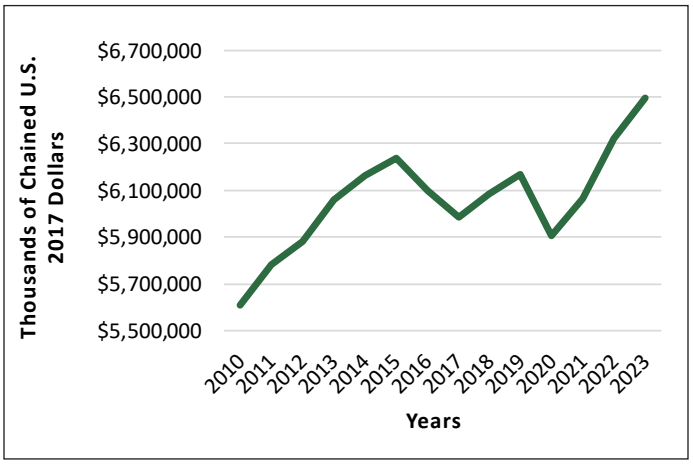
Figure 3.5 – Real Median Household Income in Muskegon County from 2010 to 2023



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income, 2010-2023

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Muskegon County has trended upward since hitting a low in 2010, as shown in Figure 3.6 (FRED, 2024).

Figure 3.6 – Real Gross Domestic Product (GDP) in Muskegon County from 2010 to 2023



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Real Gross Domestic Product, 2010-2023

IV. Economic Impact Methodology

The economic analysis of the Project was created using IMPLAN (IMpact analysis for PLANning). IMPLAN software and parameters are based on government data collected at federal, state, and local levels. IMPLAN is a leading provider of economic development software that is widely used by economists and economic development professionals. More information about IMPLAN can be found at implan.com.

IMPLAN is an input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output. In other words, IMPLAN demonstrates how one industry's output can be used as an input for another. For example, when a PV system is installed, there are both soft costs — consisting of permitting, installation, and customer acquisition costs — and hardware costs, of which the PV module is the largest component. The purchase of a module not only increases demand for manufactured components and raw materials, but it also supports the labor required to build and install the module. When a module is purchased from a manufacturing facility, the manufacturer uses some of that money to pay its employees. Then, the employees spend that money on goods and services within their community. Likewise, when a developer pays workers to install the systems, those workers spend money in the local economy which boosts economic activity and supports employment in other sectors. The goal of an economic impact analysis is to quantify all reverberations throughout the county and state economies.

IMPLAN modeling uses construction cost data, operations cost data, and data relating to the percentage of goods and services acquired in the county and state to calculate the jobs, earnings, and economic output associated with this information.

The results are split into the construction period and the annual operations period of the solar project. Within each period, impacts are further divided into direct, indirect, and induced impacts.

Direct impacts during the construction period refer to the changes that occur in the on-site construction industries in which the direct final demand (i.e., spending on construction labor and services) change is made. On-site construction-related services include installation labor, engineering, design, and other professional services. **Direct impacts during operating years** refer to the final demand changes in on-site spending required for solar operations and maintenance workers, their managers, and administrative/clerical staff.

The initial spending for a project's construction and operation will create a second layer of impacts, referred to as "supply chain impacts" or "indirect impacts." **Indirect impacts during the construction period** consist of changes in inter-industry purchases resulting from the direct final demand changes. These impacts stem from construction spending on solar farm materials (PV modules, inverters, tracking systems, cabling, foundations, etc.) as well as purchases of offsite services like materials transportation, road repair, accounting/payroll, legal guidance, etc. **Indirect impacts during the operations period** also consist of changes in inter-industry purchases resulting from the direct final demand changes, but these impacts result from spending on equipment/materials pertaining to a solar farm's annual operations and maintenance (vehicles, gasoline, tools, etc.) and other services (i.e. repair work, vegetation management, wildlife monitoring, etc.). Property tax payments during annual operations create indirect impacts in the county and state that show up in the operations portion of the results.

These payments do not support the day-to-day operations and maintenance of the solar farm; they are more of a latent effect resulting from the solar farm's presence.

Induced impacts during construction refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes during construction. Local employees (working directly or indirectly on the project), who receive their paychecks and then spend money in the community, are supporting additional local jobs and economic activity. For example, in-county and in-state construction workers constructing the solar farm will spend a portion of their wages in the local economy at restaurants, grocery stores, retail establishments, hospitals, medical offices, etc. **Induced impacts during operating years** refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects from final demand changes during annual operations and maintenance work. For example, when on-site solar technicians and contracted landscapers residing in-county and in-state are paid for their work on the solar farm, they can then spend their wages at local establishments which spurs more local economic activity.

To estimate the economic impacts of the Project, SER uses two separate Multi-Regional Input-Output (MRIO) IMPLAN models with 2024 economic data, the most recent data year available at the time of analysis. The first IMPLAN model calculates construction period impacts using the project specific county economic data in conjunction with aggregated economic data that is combined from every other county in the state. Costs are then assigned to either region according to client-provided expected spending patterns, SER industry knowledge honed from over 400 previous analyses, and IMPLAN data related to the availability of relevant goods and services within the county and state economies. When results for the two regions are combined, they create the state's total construction period impacts. This method allows for more precise assignment of construction spending within the project's county and/or state.

The second model calculates impacts stemming from the annual operations and maintenance of the solar project. Like the construction period model, the operations period model also utilizes economic data from both the project's county and a region comprised of every other county in the state combined. Results from these two regions create the state's total annual operations period economic impacts.

The majority of project employees needed during the construction phase are construction workers, but there are other occupations involved as well. Likewise, there are more occupations than solar technicians involved during the project's operations phase. A sample of those occupations, the education/training they require, and wage percentiles are contained in Table 7.1 in the Appendix. A larger description of those occupations, including their work environment and future growth potential, is located in Table 7.2 in the Appendix.

SER analyzes the gross number of jobs a new solar project development supports but not the potential loss of jobs due to declines in other forms of electricity generation. Impacts are determined by the robustness and applicability of the county and state economies, the client's intended spending in the project's county and state, and the labor levels within the county and state.

V. Economic Impact Results

The economic impact results[5] were derived from detailed project cost estimates supplied by Geronimo Power. In addition, Geronimo Power and SER estimated the percentages of project materials and labor that will be coming from within Muskegon County and the State of Michigan.

The results from these models are shown in Tables 5.1 to 5.3. Table 5.1 lists the Project's total employment impacts for Muskegon County and the State of Michigan. Table 5.2 shows the total earnings impacts, and Table 5.3 contains the total output impacts. The results are divided into one-time construction impacts and ongoing annually recurring operations impacts that are expected to last the Project's lifetime. Project Development and On-site Labor Impacts correspond to direct impacts as defined in the methodology section. Supply Chain Impacts are the indirect impacts during construction, and Local Revenue and Supply Chain Impacts are indirect impacts during operations.

Table 5.1 – Total Employment Impacts from the Lakeside Solar Project

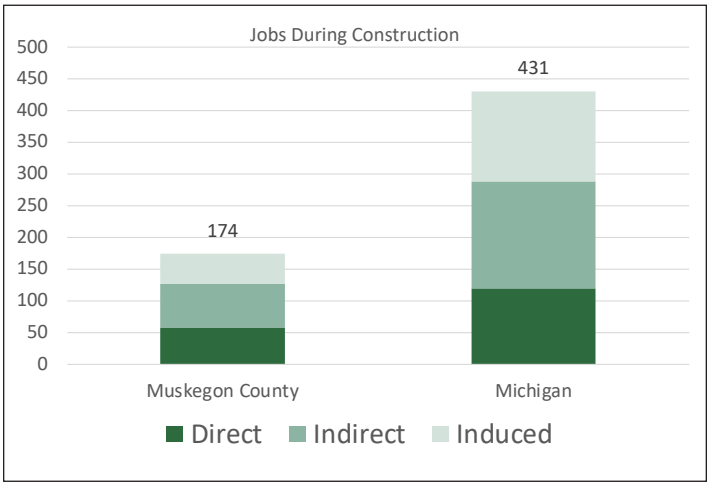
	Muskegon County Jobs	State of Michigan Jobs
Construction		
Project Development and On-site Labor Impacts	58	120
Supply Chain Impacts	69	169
Induced Impacts	47	142
Local Jobs during Construction	174	431
Operations (Annual/Ongoing)		
On-site Direct Impacts	2.0	4.0
Local Revenue and Supply Chain Impacts	7.6	12.8
Induced Impacts	7.7	13.4
Local Long-Term Jobs	17.3	30.2

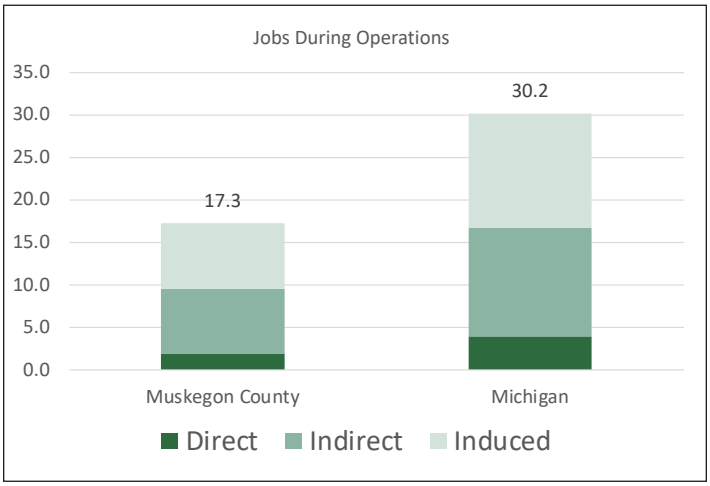
[5] Results are not intended to be a precise forecast; they are an estimate of potential activity resulting from a specific set of intended costs and assumed spending in-county and in-state.

The results from the IMPLAN model show significant employment impacts from the Lakeside Solar Project. Direct jobs created during the construction phase typically last anywhere from 12 to 18 months depending on the size of the project; however, the direct job numbers present in Table 5.1 from the IMPLAN model are based on a full-time equivalent (FTE) basis for a year. In other words, 1 job = 1 FTE = 2,080 hours worked in a year. A part-time or temporary job would constitute only a fraction of a job according to the model. For example, the IMPLAN model results show 58 direct jobs during construction in Muskegon County, though the construction of the Project could involve closer to 116 workers working half-time for a year. Thus, due to the short-term nature of construction projects, IMPLAN often significantly understates the actual number of people, i.e. "boots on the ground," hired to work on the project. Conversely, if the construction period lasts for two years, the job numbers from Table 5.1 would mean that the actual number of workers at any given time would be half of the reported number. It is important to keep this fact in mind when viewing or reporting the numbers.

As shown in Table 5.1, local jobs created or retained during construction total 174 for Muskegon County and 431 for the State of Michigan. Local long-term jobs created from the Lakeside Solar Project total 17.3 for Muskegon County and 30.2 for the State of Michigan.

Figure 5.1 – Total Employment Impacts from the Lakeside Solar Project





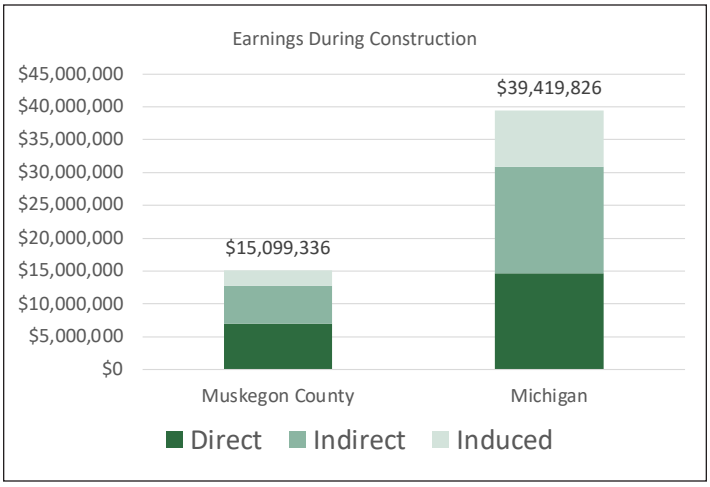
Direct jobs created during the operational phase last the life of the project. Direct construction jobs and operations and maintenance jobs both require highly skilled workers in the fields of construction, management, and engineering. These well-paid professionals can boost economic development in communities that have experienced economic downturns. For a list of occupations expected to be employed, their wages, benefits, total compensation, and hours worked, please see Tables 7.3 to 7.5 in the Appendix.

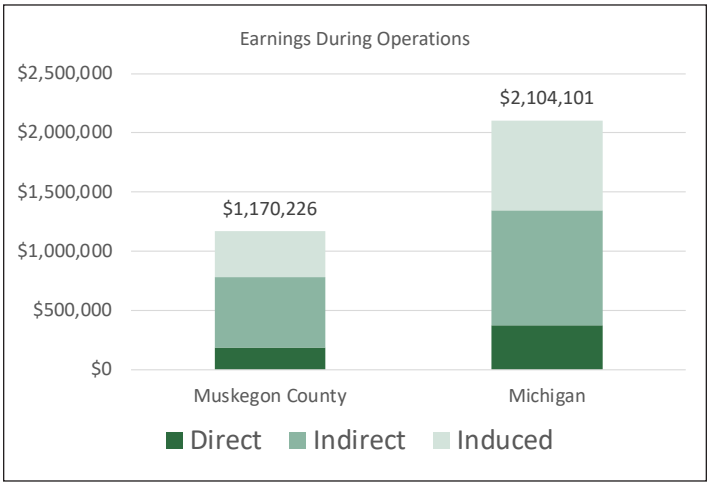
Accordingly, it is important to look at both the number of jobs and the earnings they produce. Table 5.2 shows the earnings impacts from the Lakeside Solar Project, which are categorized by construction impacts and annual operations impacts. The local earnings during construction total over $15.0 million for Muskegon County and over $39.4 million for the State of Michigan. The local long-term earnings total over $1.1 million for Muskegon County and over $2.1 million for the State of Michigan.

Table 5.2 – Total Earnings Impacts from the Lakeside Solar Project

	Muskegon County	State of Michigan
Construction		
Project Development and On-site Labor Earnings Impacts	$7,014,534	$14,613,096
Supply Chain Impacts	$5,718,363	$16,298,759
Induced Impacts	$2,366,439	$8,507,971
Local Earnings during Construction	$15,099,336	$39,419,826
Operations (Annual/Ongoing)		
On-site Labor Earnings Impacts	$188,118	$376,237
Local Revenue and Supply Chain Impacts	$591,520	$971,897
Induced Impacts	$390,588	$755,967
Local Long-Term Earnings	$1,170,226	$2,104,101

Figure 5.2 – Total Earnings Impacts from the Lakeside Solar Project





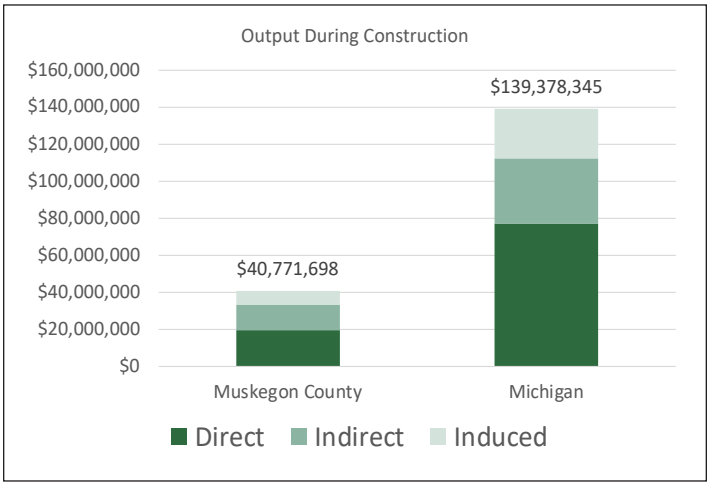
Output is akin to Gross Domestic Product (GDP) and refers to economic activity or the value of production in the state or county economy. Economic output includes the earnings reported in Table 5.2 but also measures other factors, such as landowner payments, property taxes, and other economic activity that are neither earnings nor benefits from employment.

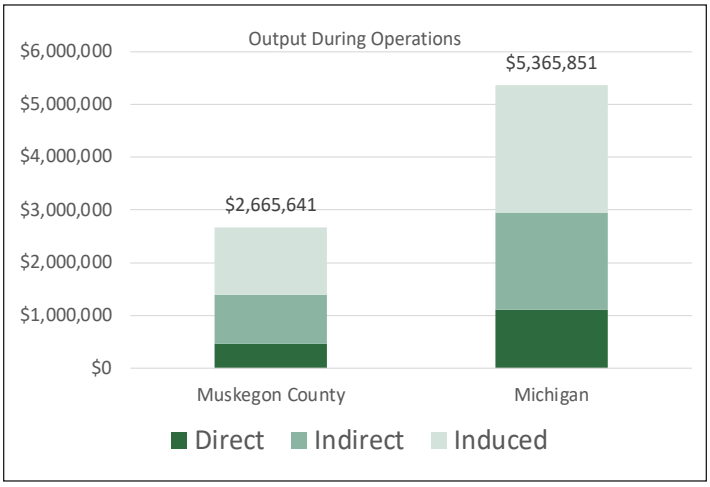
According to Table 5.3, the local output during construction totals over $40.7 million for Muskegon County and over $139 million for the State of Michigan. The local long-term output totals over $2.6 million for Muskegon County and over $5.3 million for the State of Michigan.

Table 5.3 – Total Output Impacts from the Lakeside Solar Project

	Muskegon County	State of Michigan
Construction		
Project Development and On-site Labor Impacts on Output	$19,656,437	$77,086,910
Supply Chain Impacts	$13,372,612	$35,462,933
Induced Impacts	$7,742,649	$26,828,502
Local Output during Construction	$40,771,698	$139,378,345
Operations (Annual/Ongoing)		
On-site Labor Impacts on Output	$465,853	$1,112,890
Local Revenue and Supply Chain Impacts	$925,289	$1,841,197
Induced Impacts	$1,274,499	$2,411,764
Local Long-Term Output	$2,665,641	$5,365,851

Figure 5.3 – Total Output Impacts from the Lakeside Solar Project





VI. Local Taxes

In Michigan, renewable energy projects are classified as industrial personal property. Any transmission lines associated with projects are classified as utility personal property, and any onsite buildings are classified as real property. Industrial personal property is exempt from paying school operating and state education taxes. Solar projects are eligible for a solar facilities tax that exempts projects from all industrial personal property taxes for 20 years and replaces them with a set dollar amount per megawatt of nameplate capacity.

Tables 6.1 to 6.5 detail the tax implications of the Lakeside Solar Project. There are several important assumptions built into the analysis, as follows:

- Over $362 million of the Project's costs will be classified as industrial personal property, over $8.7 million of the Project's costs will be classified as utility personal property, and over $545 thousand of the Project's costs will be classified as real property.
- The assessment ratio is 50%.
- Industrial personal property depreciates to a minimum of 12%.
- All tax (millage) rates are held constant at their 2025 (2024 Tax Year) rates. Millage rates are 6 for State Education, 5.5637 for Muskegon County Operating, 0.7257 for White River Township, 1.65 for Mont Fire District, 1.2143 for the District Library, 0.2927 for the Central Dispatch, 1.75 for the Ambulance, 0.3143 for Muskegon County Museum, 0.0732 for Veterans Affairs, 0.488 for Senior Citizens SVC, 2.3765 for Muskegon Community College, 1.4229 for Muskegon Area Intermediate School District (ISD), 2.2408 for Muskegon Area ISD Special Education, 0.9745 for Muskegon Area ISD Vocational Education, 18 for Montague Area Public School Operating, and 8.5826 for Montague Area Public School Debt.
- The Project is placed in service in advance of the lien date for tax year 2029. All tax amounts are listed next to the tax year that they are due for, payable the following year.
- The Project is decommissioned in 35 years and pays no more taxes after decommissioning.
- The 978 acres of land associated with the Project is reassessed for commercial use at $10,110 per acre, and the assessed value of the land escalates by 2.2% per year for the life of the Project.



- The Project will be exempt from industrial personal property taxes for the first 20 years of operations.
- The Project pays a Solar Facilities Tax of $7,000 per megawatt of nameplate capacity for the first 20 years of the Project's operating period.
- The Solar Facilities Tax is allocated to the taxing jurisdictions according to their relative millage rates.
- The names of the taxing bodies used in this section come from the county and state tax websites.
- The comprehensiveness and accuracy of the analysis below is dependent upon the assumptions listed above and used to calculate the local tax results. The analysis is to serve as a projection of local tax benefits to the community and is not a guarantee of local tax revenue.
- If the inputs received from Geronimo Power, the laws surrounding renewable energy taxation in Michigan, or the millage rates in Muskegon County change in a material way after the completion of this report, this analysis may no longer accurately reflect the local taxes to be paid by the Lakeside Solar Project.
- No comprehensive tax payment was calculated, and these calculations are only to be used to illustrate the economic impact of the Project.

Figure 6.1 – Percentages of Local Taxes Paid to Taxing Jurisdictions

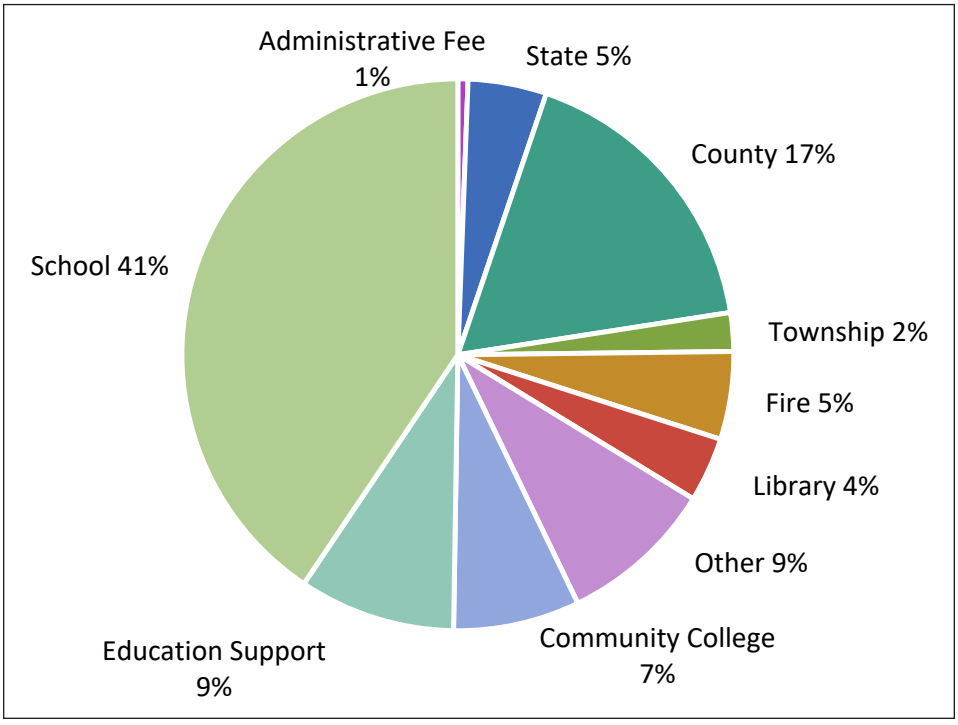


Table 6.1 – Total Local Taxes Paid by the Lakeside Solar Project

Year	Total Paid
2029	$1,420,491
2030	$1,418,927
2031	$1,417,498
2032	$1,413,910
2033	$1,410,460
2034	$1,407,153
2035	$1,403,990
2036	$1,400,973
2037	$1,400,402
2038	$1,399,983
2039	$1,399,720
2040	$1,399,616
2041	$1,399,674
2042	$1,399,897
2043	$1,402,584
2044	$1,410,032
2045	$1,417,655
2046	$1,425,457
2047	$1,433,443
2048	$1,441,615
2049	$1,129,554
2050	$1,138,110
2051	$1,146,865
2052	$1,155,822
2053	$1,164,986
2054	$1,174,361
2055	$1,183,952
2056	$1,193,762
2057	$1,203,796
2058	$1,214,060
2059	$1,224,558
2060	$1,235,295
2061	$1,246,276
2062	$1,257,506
2063	$1,268,991
TOTAL	$46,161,372
AVG ANNUAL	$1,318,896

As shown in Table 6.1, a conservative estimate of the total local taxes paid by the Project starts out at over $1.4 million and fluctuates due to escalating land costs offsetting depreciation. After the end of the Solar Facilities PILOT tax in 2048, the Project tax contribution drops but continues to increase until the Project is decommissioned. The expected total local taxes paid over the 35-year lifetime of the Project are over $46.1 million, and the average annual local taxes paid will be over $1.3 million.



According to Table 6.2, the total amounts paid over 35 years are over $2.1 million for State Education, over $8.0 million for Muskegon County Operating, over $1.0 million for White River Township, over $2.3 million for Mont Fire District, over $1.7 million for the District Library, and over $421 thousand for the Central Dispatch over the Project's lifetime.

Table 6.2 – Local Taxes from the Lakeside Solar Project for the State, County, and Other Taxing Bodies

Year	State Education	Muskegon County Operating	White River Township	Mont Fire District	District Library	Central Dispatch
2029	$56,625	$263,641	$34,388	$78,187	$57,541	$13,870
2030	$56,445	$263,474	$34,366	$78,137	$57,504	$13,861
2031	$56,281	$263,322	$34,346	$78,092	$57,471	$13,853
2032	$55,869	$262,939	$34,296	$77,979	$57,388	$13,833
2033	$55,472	$262,571	$34,248	$77,870	$57,307	$13,814
2034	$55,092	$262,219	$34,202	$77,765	$57,230	$13,795
2035	$54,728	$261,881	$34,158	$77,665	$57,157	$13,777
2036	$54,381	$261,560	$34,117	$77,570	$57,087	$13,760
2037	$54,315	$261,499	$34,109	$77,552	$57,073	$13,757
2038	$54,267	$261,454	$34,103	$77,538	$57,063	$13,755
2039	$54,237	$261,426	$34,099	$77,530	$57,057	$13,753
2040	$54,225	$261,415	$34,098	$77,527	$57,055	$13,753
2041	$54,232	$261,421	$34,098	$77,528	$57,056	$13,753
2042	$54,257	$261,445	$34,102	$77,536	$57,061	$13,754
2043	$54,566	$261,732	$34,139	$77,620	$57,124	$13,769
2044	$55,423	$262,526	$34,242	$77,856	$57,297	$13,811
2045	$56,299	$263,338	$34,348	$78,097	$57,475	$13,854
2046	$57,196	$264,170	$34,457	$78,344	$57,656	$13,898
2047	$58,114	$265,022	$34,568	$78,596	$57,842	$13,942
2048	$59,054	$265,893	$34,682	$78,855	$58,032	$13,988
2049	$60,015	$176,610	$23,036	$52,376	$38,546	$9,291
2050	$60,999	$177,522	$23,155	$52,647	$38,745	$9,339
2051	$62,006	$178,455	$23,277	$52,924	$38,949	$9,388
2052	$63,036	$179,410	$23,401	$53,207	$39,157	$9,439
2053	$64,089	$180,387	$23,529	$53,497	$39,370	$9,490
2054	$65,167	$181,387	$23,659	$53,793	$39,588	$9,543
2055	$66,270	$182,409	$23,792	$54,096	$39,812	$9,596
2056	$67,398	$183,455	$23,929	$54,406	$40,040	$9,651
2057	$68,551	$184,525	$24,068	$54,724	$40,273	$9,708
2058	$69,731	$185,619	$24,211	$55,048	$40,512	$9,765
2059	$70,938	$186,738	$24,357	$55,380	$40,756	$9,824
2060	$72,173	$187,883	$24,506	$55,720	$41,006	$9,884
2061	$73,435	$189,054	$24,659	$56,067	$41,262	$9,946
2062	$74,726	$190,251	$24,815	$56,422	$41,523	$10,009
2063	$76,047	$191,475	$24,975	$56,785	$41,790	$10,073
TOTAL	$2,125,661	$8,008,129	$1,044,539	$2,374,933	$1,747,806	$421,299
AVG ANNUAL	$60,733	$228,804	$29,844	$67,855	$49,937	$12,037

According to Table 6.3, the total amounts paid over 35 years are over $273 thousand for the Administrative Fee, over $2.5 million for the Ambulance, over $452 thousand for the County Museum, over $105 thousand for Veterans Affairs, and over $702 thousand for Senior Citizens SVC over the Project's lifetime.

Table 6.3 – Local Taxes from the Lakeside Solar Project for Other Taxing Bodies

Year	Administrative Fee	Ambulance	County Museum	Veterans Affairs	Senior Citizens SVC
2029	$4,876	$82,925	$14,893	$3,469	$23,124
2030	$4,861	$82,873	$14,884	$3,466	$23,110
2031	$4,847	$82,825	$14,875	$3,464	$23,096
2032	$4,811	$82,705	$14,854	$3,459	$23,063
2033	$4,777	$82,589	$14,833	$3,455	$23,031
2034	$4,744	$82,478	$14,813	$3,450	$23,000
2035	$4,713	$82,372	$14,794	$3,445	$22,970
2036	$4,683	$82,271	$14,776	$3,441	$22,942
2037	$4,677	$82,252	$14,772	$3,440	$22,936
2038	$4,673	$82,238	$14,770	$3,440	$22,933
2039	$4,671	$82,229	$14,768	$3,440	$22,930
2040	$4,670	$82,225	$14,768	$3,439	$22,929
2041	$4,670	$82,227	$14,768	$3,439	$22,930
2042	$4,672	$82,235	$14,769	$3,440	$22,932
2043	$4,699	$82,325	$14,786	$3,444	$22,957
2044	$4,773	$82,575	$14,830	$3,454	$23,026
2045	$4,848	$82,830	$14,876	$3,465	$23,098
2046	$4,925	$83,092	$14,923	$3,476	$23,171
2047	$5,005	$83,360	$14,971	$3,487	$23,245
2048	$5,085	$83,634	$15,021	$3,498	$23,322
2049	$11,184	$55,551	$9,977	$2,324	$15,491
2050	$11,268	$55,838	$10,028	$2,336	$15,571
2051	$11,355	$56,131	$10,081	$2,348	$15,653
2052	$11,444	$56,431	$10,135	$2,360	$15,736
2053	$11,535	$56,739	$10,190	$2,373	$15,822
2054	$11,627	$57,053	$10,247	$2,386	$15,910
2055	$11,722	$57,375	$10,305	$2,400	$15,999
2056	$11,819	$57,704	$10,364	$2,414	$16,091
2057	$11,919	$58,040	$10,424	$2,428	$16,185
2058	$12,020	$58,384	$10,486	$2,442	$16,281
2059	$12,124	$58,736	$10,549	$2,457	$16,379
2060	$12,231	$59,097	$10,614	$2,472	$16,479
2061	$12,339	$59,465	$10,680	$2,487	$16,582
2062	$12,451	$59,841	$10,748	$2,503	$16,687
2063	$12,564	$60,226	$10,817	$2,519	$16,795
TOTAL	$273,284	$2,518,868	$452,389	$105,361	$702,404
AVG ANNUAL	$7,808	$71,968	$12,925	$3,010	$20,069

According to Table 6.4, the total amounts paid over 35 years are over $3.4 million for Muskegon Community College, over $2.0 million for Muskegon Area ISD, over $1.5 million for Muskegon Area ISD Special Education, and over $663 thousand for Muskegon Area ISD Vocational Education over the Project's lifetime.

Table 6.4 – Local Taxes from the Lakeside Solar Project for Other Taxing Bodies

Year	Muskegon Community College	Muskegon Area ISD	Muskegon Area ISD Special Education	Muskegon Area ISD Vocational Education
2029	$112,613	$67,425	$21,148	$9,197
2030	$112,541	$67,383	$21,080	$9,168
2031	$112,476	$67,344	$21,019	$9,141
2032	$112,313	$67,246	$20,865	$9,074
2033	$112,156	$67,152	$20,717	$9,010
2034	$112,005	$67,062	$20,575	$8,948
2035	$111,861	$66,975	$20,439	$8,889
2036	$111,724	$66,893	$20,310	$8,832
2037	$111,698	$66,878	$20,285	$8,822
2038	$111,679	$66,866	$20,267	$8,814
2039	$111,667	$66,859	$20,256	$8,809
2040	$111,662	$66,856	$20,251	$8,807
2041	$111,665	$66,858	$20,254	$8,808
2042	$111,675	$66,864	$20,263	$8,812
2043	$111,797	$66,937	$20,379	$8,862
2044	$112,136	$67,140	$20,699	$9,002
2045	$112,483	$67,348	$21,026	$9,144
2046	$112,839	$67,561	$21,361	$9,290
2047	$113,202	$67,778	$21,704	$9,439
2048	$113,574	$68,001	$22,055	$9,591
2049	$75,438	$45,167	$71,130	$30,934
2050	$75,827	$45,401	$71,498	$31,094
2051	$76,226	$45,639	$71,873	$31,257
2052	$76,634	$45,884	$72,258	$31,424
2053	$77,051	$46,133	$72,652	$31,595
2054	$77,478	$46,389	$73,054	$31,770
2055	$77,915	$46,651	$73,466	$31,950
2056	$78,362	$46,918	$73,887	$32,133
2057	$78,819	$47,192	$74,318	$32,320
2058	$79,286	$47,472	$74,759	$32,512
2059	$79,764	$47,758	$75,210	$32,708
2060	$80,253	$48,051	$75,671	$32,908
2061	$80,753	$48,350	$76,142	$33,113
2062	$81,265	$48,656	$76,624	$33,323
2063	$81,788	$48,969	$77,117	$33,538
TOTAL	$3,420,623	$2,048,055	$1,524,610	$663,037
AVG ANNUAL	$97,732	$58,516	$43,560	$18,944

Table 6.5 – Local Taxes from the Lakeside Solar Project for the School District

Year	Montague Area Public School Operating	Montague Area Public School Debt
2029	$169,876	$406,694
2030	$169,336	$406,437
2031	$168,843	$406,202
2032	$167,606	$405,612
2033	$166,416	$405,044
2034	$165,275	$404,500
2035	$164,184	$403,980
2036	$163,144	$403,484
2037	$162,946	$403,390
2038	$162,802	$403,321
2039	$162,711	$403,278
2040	$162,675	$403,261
2041	$162,695	$403,270
2042	$162,772	$403,307
2043	$163,699	$403,749
2044	$166,268	$404,974
2045	$168,897	$406,228
2046	$171,589	$407,511
2047	$174,343	$408,824
2048	$177,162	$410,168
2049	$180,046	$272,439
2050	$182,997	$273,846
2051	$186,017	$275,286
2052	$189,107	$276,759
2053	$192,267	$278,266
2054	$195,501	$279,808
2055	$198,809	$281,385
2056	$202,193	$282,999
2057	$205,654	$284,649
2058	$209,194	$286,337
2059	$212,815	$288,064
2060	$216,518	$289,830
2061	$220,306	$291,635
2062	$224,179	$293,482
2063	$228,141	$295,371
TOTAL	$6,376,984	$12,353,392
AVG ANNUAL	$182,200	$352,954

The largest taxing jurisdictions for local taxes are local school districts. However, the tax implications for school districts are more complicated than for other taxing bodies. School districts receive state aid based on the assessed value of the taxable property within their district. As assessed value increases, the state aid to the school district is decreased.

Although the exact amount of the reduction in state aid to the school districts is uncertain, local project tax revenue is superior to relying on state aid for the following reasons: (1) the solar and storage Project can't relocate – it is a permanent structure that will be within the school district's footprint for the life of the Project; (2) the school district can raise the tax rate and increase its revenues as needed; (3) the school district does not have to deal with the year-to-year uncertainty of state aid amounts; (4) the school district does not have to wait for months (or even into the next Fiscal Year) for payment; (5) the Project does not increase the overall cost of education in the way that a new residential development would.

Table 6.5 shows the direct local tax revenue coming from the Project to Montague Area Public Schools. This tax revenue uses the assumptions outlined earlier to calculate the other tax revenue and assumes that 100% of the Project area is in Montague Area Public Schools District. Over the 35-year life of the Project, the school district is expected to receive over $18.7 million in tax revenue.



Table 7.1 – Local and Statewide Compensation by Occupation

BLS Occupation Code	Job Type	Education/ Training Required	Michigan 10th Percentile of Wages	Michigan 90th Percentile of Wages	Michigan Mean Wages	Muskegon-Norton Shores, MI Metro Area 10th Percentile of Wages	Muskegon-Norton Shores, MI Metro Area 90th Percentile of Wages	Muskegon-Norton Shores, MI Metro Area Mean Wages	U.S. Fringe Benefits Median	Total Compensation Local Mean Wages plus U.S. Fringe
	Jobs During Construction									
47-2231	Solar Photovoltaic Installers	High school diploma or equivalent	$34,210	$171,070	$64,180	#N/A	#N/A	#N/A	$27,394	#N/A
47-3013	Helpers – Electricians	High school diploma or equivalent	$29,770	$46,600	$37,660	#N/A	#N/A	#N/A	$27,394	#N/A
47-2111	Electricians	High school diploma or equivalent	$36,560	$87,690	$62,850	$36,640	$94,810	$60,490	$27,394	$87,884
47-2061	Construction Laborers	No formal educational credential	$31,540	$59,970	$46,020	$30,160	$59,400	$42,640	$27,394	$70,034
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	$40,360	$79,210	$60,340	$36,950	$79,070	$56,250	$27,394	$83,644
47-1011	First-Line Supervisors of Construction Trades	High school diploma or equivalent	$46,820	$104,510	$72,600	$48,340	$95,560	$68,370	$27,394	$95,764
13-1082	Project Management Specialists and Business Operations Specialists		$52,530	$134,910	$94,570	$46,220	$115,610	$77,570	$27,394	$104,964
49-9071	Maintenance and Repair Workers, General (Operations)	High school diploma or equivalent	$28,360	$61,860	$43,440	$27,280	$61,740	$42,320	$27,394	$69,714
13-1111	Management Analysts	Bachelor's degree	$49,700	$150,720	$102,780	$51,160	$107,400	$85,480	$27,394	$112,874
11-1021	General and Operations Managers	Bachelor's degree	$42,660	$213,620	$115,640	$37,930	$193,860	$101,760	$27,394	$129,154
17-2071	Electrical Engineers		$67,080	$132,940	$100,610	$63,590	$146,950	$98,840	$27,394	$126,234
41-3091	Sales Representatives of Services		$34,950	$133,450	$76,120	$30,790	$114,980	$62,620	$27,394	$90,014
53-7062	Laborers and Freight, Stock and Material Movers	No formal educational credential	$26,500	$51,380	$37,660	$27,000	$50,150	$35,600	$27,394	$62,994
43-3031	Bookkeeping, Accounting and Auditing	Some college, no degree	$30,450	$60,560	$45,090	$31,840	$56,460	$43,260	$27,394	$70,654
	Jobs during Operations									
51-8013	Power Plant Operators	High school diploma or equivalent	$71,150	$107,660	$91,810	#N/A	#N/A	#N/A	$27,394	#N/A
37-3011	Landscaping and Groundskeeping	No formal educational credential	$27,060	$45,890	$35,790	$22,880	$43,280	$33,190	$27,394	$60,584
51-1011	First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	$41,850	$101,210	$68,190	$41,630	$87,400	$65,150	$27,394	$92,544

Table 7.2 – Occupational Description and Future Outlook

Occupation Code	Occupation Title	Description	Work Environment	Current Employment	Job Growth, 2021-2031 (percent)
11-1021	General and Operations Managers	Plan, direct, or coordinate the operations of public or private sector organizations, overseeing multiple departments or locations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Usually manage through subordinate supervisors. Excludes First-Line Supervisors.	Top executives work in nearly every industry, for both small and large organizations. They often have irregular schedules, which may include working evenings and weekends. Travel is common, particularly for chief executives.	3,328,200	209,800 (7%)
13-1082	Project Management Specialists and Business Operations Specialists	Analyze and coordinate the schedule, timeline, procurement, staffing, and budget of a product or service on a per project basis. Lead and guide the work of technical staff. May serve as a point of contact for the client or customer. Excludes "Management Occupations" (11-0000), "Logisticians" (13-1081), "Meeting, Convention, and Event Planners" (13-1121), and "Production, Planning, and Expediting Clerks" (43-5061).	Project management specialists usually work in an office setting. Although project management specialists may collaborate on teams, some work independently. Project management specialists also may travel to their clients' places of business.	781,400	56,300 (7%)
13-1111	Management Analysts	Conduct organizational studies and evaluations, design systems and procedures, conduct work simplification and measurement studies, and prepare operations and procedures manuals to assist management in operating more efficiently and effectively. Includes program analysts and management consultants. Excludes "Computer Systems Analysts" (15-1211) and "Operations Research Analysts" (15-2031).	Management analysts may travel frequently to meet with clients. Some work more than 40 hours per week.	950,600	108,400 (11%)
17-2071	Electrical Engineers	Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Excludes "Computer Hardware Engineers" (17-2061).	Electrical and electronics engineers work in industries including research and development, engineering services, manufacturing, telecommunications, and the federal government. Electrical and electronics engineers generally work indoors in offices. However, they may have to visit sites to observe a problem or a piece of complex equipment.	303,800	9,800 (3%)
37-3011	Landscaping and Groundskeeping	Landscape or maintain grounds of property using hand or power tools or equipment. Workers typically perform a variety of tasks, which may include any combination of the following: sod laying, mowing, trimming, planting, watering, fertilizing, digging, raking, sprinkler installation, and installation of mortarless segmental concrete masonry wall units. Excludes "Farmworkers and Laborers, Crop, Nursery, and Greenhouse" (45-2092).	Most grounds maintenance work is done outdoors in all weather conditions. Some work is seasonal, available mainly in the spring, summer, and fall. The work may be repetitive and physically demanding, requiring frequent bending, kneeling, lifting, or shoveling.	1,299,000	61,300 (5%)
41-3091	Sales Representatives of Services	Sell services to individuals or businesses. May describe options or resolve client problems. Excludes "Advertising Sales Agents" (41-3011), "Insurance Sales Agents" (41-3021), "Securities, Commodities, and Financial Services Sales Agents" (41-3031), "Travel Agents" (41-3041), "Sales Representatives, Wholesale and Manufacturing" (41-4010), and "Telemarketers" (41-9041).	Wholesale and manufacturing sales representatives work under pressure because their income and job security depend on the amount of merchandise they sell. Some sales representatives travel frequently.	1,597,600	63,300 (4%)
43-3031	Bookkeeping, Accounting and Auditing	Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. Excludes "Payroll and Timekeeping Clerks" (43-3051).	Most accountants and auditors work full-time. Overtime hours are typical at certain periods of the year, such as for quarterly audits or during tax season.	1,449,800	81,800 (6%)
47-1011	First-Line Supervisors of Construction Trades	Directly supervise and coordinate activities of construction or extraction workers.	N/A	735,500	29,900 (4%)

Table 7.2 – Occupational Description and Future Outlook (Cont.)

47-2061	Construction Laborers	Perform tasks involving physical labor at construction sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris, and other waste materials. May assist other craft workers. Construction laborers who primarily assist a particular craft worker are classified under "Helpers, Construction Trades" (47-3010). Excludes "Hazardous Materials Removal Workers" (47-4041).	Most construction laborers and helpers typically work full-time and do physically demanding work. Some work at great heights or outdoors in all weather conditions. Construction laborers have one of the highest rates of injuries and illnesses of all occupations.	1,572,200	69,500 (4%)
47-2073	Operating Engineers and Other Construction Equipment Operators	Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. Excludes "Extraction Workers" (47-5000) and "Crane and Tower Operators" (53-7021).	Construction equipment operators may work even in unpleasant weather. Most operators work full-time, and some have irregular work schedules that include nights.	466,900	22,000 (5%)
47-2111	Electricians	Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Excludes "Security and Fire Alarm Systems Installers" (49-2098).	Almost all electricians work full-time. Work schedules may include evenings and weekends. Overtime is common.	711,200	50,200 (7%)
47-2231	Solar Photovoltaic Installers	Assemble, install, or maintain solar photovoltaic (PV) systems on roofs or other structures in compliance with site assessment and schematics. May include measuring, cutting, assembling, and bolting structural framing and solar modules. May perform minor electrical work such as current checks. Excludes solar PV electricians who are included in "Electricians" (47-2111) and solar thermal installers who are included in "Plumbers, Pipefitters, and Steamfitters" (47-2152).	Most solar panel installations are done outdoors, but PV installers sometimes work in attics and crawl spaces to connect panels to the electrical grid. Installers also must travel to jobsites.	17,100	4,600 (27%)
47-3013	Helpers – Electricians	Help electricians by performing duties requiring less skill. Duties include using, supplying, or holding materials or tools, and cleaning work area and equipment. Construction laborers who do not primarily assist electricians are classified under "Construction Laborers" (47-2061). Apprentice workers are classified with the appropriate skilled construction trade occupation (47-2011 through 47-2231).	Most construction laborers and helpers typically work full-time and do physically demanding work. Some work at great heights or outdoors in all weather conditions. Construction laborers have one of the highest rates of injuries and illnesses of all occupations.	1,572,200	69,500 (4%)
49-9071	Maintenance and Repair Workers, General (Operations)	Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of a building in repair. Duties may involve pipe fitting; HVAC maintenance; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. Excludes "Facilities Managers" (11-3013) and "Maintenance Workers, Machinery" (49-9043).	General maintenance and repair workers often carry out many different tasks in a single day. They could work at any number of indoor or outdoor locations. They may work inside a single building, such as a hotel or hospital, or be responsible for the maintenance of many buildings, such as those in an apartment complex or on a college campus.	1,539,100	76,300 (5%)
51-1011	First-Line Supervisors of Production and Operating Workers	Directly supervise and coordinate the activities of production and operating workers, such as inspectors, precision workers, machine setters and operators, assemblers, fabricators, and plant and system operators. Excludes team or work leaders.	N/A	646,800	12,200 (2%)
51-8013	Power Plant Operators	Control, operate, or maintain machinery to generate electric power. Includes auxiliary equipment operators. Excludes "Nuclear Power Reactor Operators" (51-8011).	Most power plant operators, distributors, and dispatchers work full-time. Many work rotating 8- or 12-hour shifts.	43,700	(6,500) (-15%)
53-7062	Laborers and Freight, Stock and Material Movers	Manually move freight, stock, luggage, or other materials, or perform other general labor. Includes all manual laborers not elsewhere classified. Excludes "Construction Laborers" (47-2061) and "Helpers, Construction Trades" (47-3011 through 47-3019). Excludes "Material Moving Workers" (53-7011 through 53-7199) who use power equipment.	Most hand laborers and material movers work full-time. Because materials are shipped around the clock, some workers, especially those in warehousing, work overnight shifts.	6,473,000	358,300 (6%)

Table 7.3 – Occupational Output from IMPLAN Construction Model, Direct Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
47-2000	Construction Trades Workers	16.88	$1,373,673.91	$236,945.95	$1,610,619.85	32,148.58
49-9000	Other Installation, Maintenance, and Repair Occupations	14.24	$1,381,779.23	$238,344.03	$1,620,123.26	29,832.90
47-1000	Supervisors of Construction and Extraction Workers	4.50	$550,621.94	$94,977.16	$645,599.10	9,587.42
49-1000	Supervisors of Installation, Maintenance, and Repair Workers	3.28	$422,571.76	$72,889.69	$495,461.46	7,117.72
13-1000	Business Operations Specialists	2.68	$329,617.13	$56,855.88	$386,473.01	5,397.14
11-9000	Other Management Occupations	2.18	$363,640.55	$62,724.61	$426,365.16	4,674.04
11-1000	Top Executives	1.70	$367,673.61	$63,420.27	$431,093.88	3,736.88
43-9000	Other Office and Administrative Support Workers	1.10	$67,744.74	$11,685.34	$79,430.08	1,764.76

Table 7.4 – Occupational Output from IMPLAN Construction Model, Indirect Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
47-2000	Construction Trades Workers	14.95	$1,011,435.27	$174,677.85	$1,186,113.13	28,340.77
47-1000	Supervisors of Construction and Extraction Workers	4.14	$377,467.03	$65,154.72	$442,621.76	8,910.38
13-1000	Business Operations Specialists	3.95	$397,254.33	$68,635.43	$465,889.76	8,009.30
11-9000	Other Management Occupations	3.30	$422,564.04	$73,016.93	$495,580.97	7,157.60
41-2000	Retail Sales Workers	2.36	$68,707.71	$14,538.30	$83,246.01	3,464.95
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	2.20	$98,951.37	$19,713.09	$118,664.47	3,957.53
53-3000	Motor Vehicle Operators	1.76	$85,994.19	$16,177.32	$102,171.51	3,415.71
11-1000	Top Executives	1.70	$256,099.69	$45,369.39	$301,469.07	3,729.37
17-2000	Engineers	1.24	$120,542.91	$20,522.23	$141,065.14	2,530.28
43-9000	Other Office and Administrative Support Workers	1.20	$51,907.75	$9,212.83	$61,120.59	1,923.81
13-2000	Financial Specialists	1.08	$77,002.02	$13,368.61	$90,370.64	2,101.27
53-7000	Material Moving Workers	1.08	$41,497.12	$7,731.06	$49,228.18	1,742.29
43-3000	Financial Clerks	1.00	$48,062.18	$8,549.90	$56,612.08	1,727.89

Table 7.5 – Occupational Output from IMPLAN Construction Model, Induced Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
35-3000	Food and Beverage Serving Workers	3.49	$75,634.47	$10,470.16	$86,104.64	3,783.92
41-2000	Retail Sales Workers	3.39	$91,476.39	$19,347.53	$110,823.92	4,573.30
29-1000	Healthcare Diagnosing or Treating Practitioners	3.27	$366,885.05	$73,382.22	$440,267.27	6,038.78
31-1100	Home Health and Personal Care Aides; and Nursing Assistants, Orderlies, and Psychiatric Aides	2.46	$77,654.97	$15,393.53	$93,048.51	3,886.71
35-2000	Cooks and Food Preparation Workers	1.65	$41,451.08	$5,903.34	$47,354.42	2,238.24
29-2000	Health Technologists and Technicians	1.37	$70,805.27	$14,348.63	$85,153.89	2,444.61
43-4000	Information and Record Clerks	1.08	$38,217.44	$7,248.32	$45,465.77	1,735.64
43-6000	Secretaries and Administrative Assistants	1.02	$38,082.82	$7,006.60	$45,089.42	1,816.17
13-1000	Business Operations Specialists	1.00	$58,924.53	$10,516.26	$69,440.79	1,913.86
53-7000	Material Moving Workers	1.00	$31,990.74	$6,411.50	$38,402.24	1,539.43

VIII. Glossary

Bb

Battery Energy Storage Systems (BESS)

An array of hundreds or thousands of small batteries that enable energy from renewables, like solar and wind, to be stored and released at a later time.

Cc

Consumer Price Index (CPI)

An index of the changes in the cost of goods and services to a typical consumer, based on the costs of the same goods and services at a base period.

Dd

Direct impacts

During the construction period: the changes that occur in the on-site construction industries in which the direct final demand change is made.

During operating years: the final demand changes that occur in the on-site spending for the solar operations and maintenance workers.

Ee

Equalized Assessed Value (EAV)

The product of the assessed value of property and the state equalization factor. This is typically used as the basis for the value of property in a property tax calculation.

Ff

Full-time equivalent (FTE)

A unit that indicates the workload of an employed person. One FTE is equivalent to one worker working 2,080 hours in a year. One half FTE is equivalent to a half-time worker or someone working 1,040 hours in a year.

Hh

HV line extension

High-voltage electric power transmission links used to connect generators to the electric transmission grid.

Ii

IMPLAN (IMpact analysis for PLANning)

A business that is the leading provider of economic impact data and analytic applications. IMPLAN data is collected at the federal, state, and local levels and used to create state-specific and county-specific industry multipliers.

Indirect impacts

Impacts that occur in industries that make up the supply chain for that industry.

During the construction period: the changes in inter-industry purchases resulting from the direct final demand changes, including construction spending on materials and equipment and other purchases of goods and off-site services.

During operating years: the changes in inter-industry purchases resulting from the direct final demand changes.

Induced impacts

The changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes.

Inflation

A persistent rise in the general level of prices related to an increase in the volume of money and resulting in the loss of value of currency. Inflation is typically measured by the CPI.

Mm

Median Household Income (MHI)

The income amount that divides a population into two equal groups; half having an income above that amount and half having an income below that amount.

Millage rate

The tax rate, as for property, assessed in mills per dollar.

Multiplier

A factor of proportionality that measures how much a variable changes in response to a change in another variable.

MW

A unit of power, equal to one million watts or one thousand kilowatts.

MWac (megawatt alternating current)

The power capacity of a utility-scale solar PV system *after* its direct current output has been fed through an inverter to create an alternating current (AC). A solar system's rated MWac will always be lower than its rated MWdc due to inverter losses. AC is the form in which electric energy is delivered to businesses and residences and that consumers typically use when plugging electric appliances into a wall socket.

MWdc (megawatt direct current)

The power capacity of a utility-scale solar PV system *before* its direct current output has been fed through an inverter to create an alternating current. A solar system's rated MWdc will always be higher than its rated MWac.

Nn

Net economic impact

Total change in economic activity in a specific region, caused by a specific economic event.

Oo

Output

Economic output measures the value of goods and services produced in a given area. Gross Domestic Product is the economic output of the United States as a whole.

Pp

PV (photovoltaic) system

Solar modules, each comprising a number of solar cells, which generate electrical power.

Rr

Real Gross Domestic Product (GDP)

A measure of the value of goods and services produced in an area and adjusted for inflation over time.

Tt

Tax rate

The percentage (or millage) of the value of a property to be paid as a tax.

Total economic output

The quantity of goods or services produced in a given time period by a firm, industry, county, or country.

Uu

Utility-scale solar

Solar-powered electric generation facilities intended for wholesale distribution typically over 5MW in capacity.

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X. Curriculum Vitae (Abbreviated)

DAVID G. LOOMIS

Strategic Economic Research, LLC

President

Education

Doctor of Philosophy (PhD), Economics, Temple University, Philadelphia, Pennsylvania, May 1995

Bachelor of Arts (BA), Mathematics and Honors Economics, Temple University, Magna Cum Laude, May 1985

Experience

2011 – present, Strategic Economic Research, LLC

- Supervises all aspects of analysis and report creation
- Performed over 500 economic impact analyses on policy initiatives and energy projects, such as wind energy, solar energy, natural gas plants, and transmission lines, at the county and state levels
- Provided expert testimony more than 100 times in formal proceedings before state legislative bodies, state public utility commissions, and county boards regarding wind, solar, and transmission projects
- Grew the company from a single employee to over 25 team members

1996 – 2023, Department of Economics at Illinois State University, Normal, IL

Professor Emeritus – (2023 - present)

Full Professor – (2010 - 2023)

Associate Professor – (2002 - 2009)

Assistant Professor – (1996 – 2002)

- Taught Regulatory Economics; Telecommunications Economics and Public Policy; Industrial Organization and Pricing; Individual and Social Choice; Economics of Energy and Public Policy; and a Graduate Seminar Course in Electricity, Natural Gas, and Telecommunications Issues
- Supervised as many as five graduate students in research projects each semester
- Served on numerous departmental committees

1997 – 2023, Institute for Regulatory Policy Studies, Normal, IL

Executive Director (2005 - 2023)

Co-Director (1997 - 2005)

- Grew contributing membership from five companies to 16 organizations
- Doubled the number of workshop/training events annually
- Supervised two directors, administrative staff, and the internship program
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries

2006 – 2018, Illinois Wind Working Group, Normal, IL

Director

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders
- Organized an annual wind energy conference with over 400 attendees
- Organized strategic conferences to address critical wind energy issues
- Initiated monthly conference calls to stakeholders
- Devised organizational structure and by-laws



2007 – 2018, Center for Renewable Energy, Normal, IL

Director

- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education
- Secured over $150,000 in funding from private companies
- Hired and supervised four professional staff members and supervised three faculty members as Associate Directors
- Reviewed renewable energy manufacturing grant applications for the Illinois Department of Commerce and Economic Opportunity for a $30 million program
- Created technical "Due Diligence" documents for the Illinois Finance Authority loan program for wind farm projects in Illinois
- Published 40 articles in leading journals, such as *AIMS Energy*, *Renewable Energy*, *National Renewable Energy Laboratory Technical Report*, *Electricity Journal*, *Energy Economics*, *Energy Policy*, and many others
- Raised over $7.7 million in grants and over $2.7 million in external funding

BRYAN A. LOOMIS
Strategic Economic Research, LLC
Vice President

Education

Master of Business Administration (MBA), Belmont University, Nashville, Tennessee, 2017

Experience

2019 – present, Strategic Economic Research, LLC

- Serves as lead analyst on economic impact reports, overseeing all aspects of analysis and report creation
- Communicates with developers about economic impact, property tax, and land use analyses
- Provides third-party expert testimony on behalf of developers for special-use permitting hearings
- Conducts non-standard analyses and memos for unique energy-related projects, such as statewide legislation, property tax impacts on school district state aid, and analyzing eligibility for energy community bonus adders to tax credits
- Oversees improvements to both reports and team processes

Expert Testimony

- Provided expert testimony in formal proceedings before county boards and boards of zoning appeals in Kansas, Illinois, Indiana, Missouri, Iowa, Kentucky, and Colorado

Property Tax Analysis and Land Use Director (2019 - 2021)

- Directed the property tax analysis by training other associates on the methodology and overseeing the process for over twenty states
- Improved the property tax analysis methodology by researching various state taxing laws and implementing depreciation, taxing jurisdiction millage rates, and other factors into the tax analysis tool
- Executed land use analyses by running Monte Carlo simulations of expected future profits from farming and comparing that to the solar lease
- Performed economic impact modeling using JEDI and IMPLAN tools
- Improved workflow processes by capturing all tasks associated with economic modeling and report-writing, and created automated templates in Asana workplace management software

2019 – 2021, Viral Healthcare Founders LLC, Nashville, TN

CEO and Founder

- Founded and directed marketing agency for healthcare startups
- Managed three employees
- Mentored and worked with over 30 startups to help them grow their businesses
- Grew an email list to more than 2,000 and a LinkedIn following to 3,500

CHRISTOPHER THANKAN

Strategic Economic Research, LLC

Director of Economic Impact Analysis

Education

Bachelor of Science in Sustainable & Renewable Energy (BS), Minor in Economics, Illinois State University, Summa Cum Laude, Normal, IL, 2021

Experience

2021 – present, Strategic Economic Research, LLC

- Creates economic impact results for hundreds of renewable energy projects
- Utilizes IMPLAN software and Excel for analyses and update models, procedures, methodologies, etc.
- Quality checks internal team members' analysis and project cost information from clients
- Addresses client questions and concerns about analysis and reports
- Developed SER's proprietary economic impact analysis model
- Improved property tax analysis methodology and conducted property tax analysis for different U.S. states
- Researched taxation in states outside research portfolio
- Researched school funding and the impact of renewable energy on state aid to school districts and completed ad hoc research requests given by the company president

Expert Testimony

- Provided expert testimony in formal proceedings before county boards and boards of zoning appeals in Kansas, Illinois, and South Dakota
- Served as an economic impact expert for open house meetings in Colorado and New Mexico
- Presented on economic impacts of renewable energy projects in Missouri for the 2024 Midwest Energy Policy Series Renewables & Efficiency Conference in Columbia, MO
- Hosted and presented on numerous SER webinars discussing economic impacts and successful permitting

DEBORAH DINGESS

Strategic Economic Research, LLC

Director of Property Tax Research

Education

Master of Science in Taxation (MST), University of Cincinnati - Carl H. Lindner College of Business, Cincinnati, OH, August 2021

Bachelor of Arts in Financial Economics and Business Management (BA), Capital University, Columbus, OH, August 2012

Experience

2025 – present, Strategic Economic Research, LLC

- Leads property tax research for utility-scale renewable energy projects across all 50 states
- Analyzes state and local property tax codes, regulations, and case law related to renewable energy projects
- Develops and refines standardized property tax research templates, process documentation, and modeling tools
- Delivers property tax guidance to clients, permitting teams, zoning boards, and local government stakeholders
- Provides third-party expert testimony on tax methodology in local permitting proceedings on behalf of developers

Expert Testimony

- Provided expert testimony in formal proceedings before county boards and boards of zoning appeals in Ohio

2024 – 2025, Lumen Technologies, Denver, CO

Senior Tax Analyst, Transaction Tax and Compliance

- Prepared U.S. and Canadian transaction tax filings (sales/gross receipts/excise; GST/HST/PST); leveraged SAP and Alteryx
- Streamlined SOPs and training; researched U.S./international tax changes; resolved jurisdictional notices and exams

2019 – 2024, IGS Energy, Dublin, OH

Senior Tax Analyst (2023 - 2024)

Tax Analyst (2019 - 2023)

- Filed multi-state sales, property, and excise taxes across entities
- Established automations and tax reporting improvements
- Partnered with Finance and cross-functional teams on tax-sensitive initiatives

2016 – 2019, OhioHealth, Columbus, OH

Tax Analyst (2018 - 2019)

Senior Accountant (2017 - 2018)

Accountant (2016 - 2017)

- Managed CAT, local, and multi-state tax filings; coordinated with external firms on tax return preparation; supported month-end close

2014 – 2015, Penn National Gaming, Columbus, OH

Accountant (2015)

Revenue Auditor (2014)

2013, American Electric Power, Columbus, OH

Cost Coordinator (2013)

SAWYER KEITHLEY

Strategic Economic Research, LLC

Manager of Research & Analysis
Front Matter Team Lead

Education

Master of Science in Applied Economics (MS), Sequence in Electricity, Natural Gas, and Telecommunications, Illinois State University, Normal, IL, 2024

Bachelor of Science in Managerial Economics (BS), Minor in Business Administration, Magna Cum Laude, Illinois State University, Normal, IL, 2022

Experience

2021 – present, Strategic Economic Research, LLC

- Uses cost inputs from customers to forecast potential new employment, output, and earnings impacts created by the proposed energy project
- Leads a team to gather data, write, and edit narratives for county-specific or state-specific tables and graphs
- Compiles project-specific information and researches property tax information for the county of interest
- Designed and implemented a standardized land use reporting framework for project analysis, successfully quantifying and highlighting the net land use impacts of solar projects across agricultural and forestry sectors (cropland, pastureland, and timberland)

Expert Testimony

- Provided expert testimony in formal proceedings before a county board and board of zoning appeals in Iroquois County, Illinois (July 2025)

June 2023 – August 2023 Nicor Gas, Rates Department

Rates Intern

- Conducted independent research to update the cost factors used by the company for feasibility studies
- Gathered historical and current information about the natural gas industry and analyzed patterns in legislation surrounding the future of natural gas
- Wrote a summary report for project findings

TIMOTHY ROBERTS

Strategic Economic Research, LLC

Manager of Data Analysis
Property Tax Team Lead

Education

Institute for Professionals in Taxation (IPT) – Property Tax School, Certificate of Completion (2025)

Experience

2022 – present, Strategic Economic Research, LLC

- Oversees the company's property tax team, manages a group of analysts, and ensures accuracy and consistency across deliverables
- Leads client communication by reviewing project inputs, addresses technical questions, and provides explanations of tax law and research
- Researches state and county property tax policies and develops state-specific valuation templates across multiple renewable energy technologies
- Designs, manages, and maintains the company's internal database, ensuring data accuracy across projects
- Develops custom programs and applications using Python and other programming tools to streamline workflows, automate repetitive tasks, and improve data quality
- Creates external-facing websites to support company projects
- Provides training, mentorship, and oversight to analysts
- Conducted and reviewed over 300 property tax analyses, as well as economic impact analyses, land use analyses, and county-level economic analyses for renewable energy projects nationwide
- Contributed to company recognition, including a prestigious award from Google for Renewable Energy Leadership



by Dr. David G. Loomis,
Bryan Loomis, and Chris Thankan

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815-905-2750

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-8.2
Payments to Owners of Participating Property

8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

TABLE OF CONTENTS

EXHIBIT A-8.2: PAYMENTS TO OWNERS OF PARTICIPATING PROPERTY..... 1

These may be filed confidentially if provided to Staff pursuant to a confidentiality agreement that will be superseded by a protective order, once one is entered. 1

LIST OF ATTACHMENTS

Attachment A-8.2 A Payments to Property Owners (Confidential)

EXHIBIT A-8.2: PAYMENTS TO OWNERS OF PARTICIPATING PROPERTY.

These may be filed confidentially if provided to Staff pursuant to a confidentiality agreement that will be superseded by a protective order, once one is entered.

Exhibit A-8.2 provides Lakeside Solar, LLC's (Lakeside) payments to owners of participating properties for the Lakeside Solar and battery energy storage system (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 Planned Facilities and Exhibit A-1.2 Area Land Use Information provide an overview of the Project facilities. Lakeside prepared Exhibit A-8.2 in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist.

This Exhibit was filed confidentially with the Michigan Public Service Commission. A redacted version of Exhibit A-8.2 with payments made to owners of participating properties is provided in Attachment A-8.2 A.

ATTACHMENT A-8.2 A

This attachment has been filed confidentially with the Michigan Public Service Commission

PROJECT NAME	AGREEMENT TYPE	LANDOWNER	DEV PERIOD	EFF. DATE	EXP. DATE	# OF PARCELS	DIAGRAM ACREAGE	PREMISES 1.1 a	RIGHT TO REDUCE 1.1 e (YES, BUT MINIMUM PAYMENT BASED ON % SURVEYED ACREAGE	IF MINIMUM ACREAGES USED FOR OPERATING TERM PAYMENTS	DEV RENT (PER ACRE)	CONSTRUCTION PERIOD	EXTENDED TERM (OPERATION TERM)	RENEWAL TERMS	RES LEASE TERMINATION LANGUAGE? (1st pg of agreement)	CONSTRUCTION NOTICE 2.1 b	ADVANCE PAYMENT 3.2	COD NOTICE 2.1 c	TERMINATION FEE 2.2 d	ANNUAL PAYMENT INCREASES & ESCALATOR 3.2 -2nd paragraph & Exhibit B	TAXES 3.3 b	DECOMMISSIONING 4.3 d	COOPERATION 5.2	ROFR FOR AGRICULTURAL USE 9.15 a	ROFO FOR GRAZING 9.15 b	ANNUAL ESCALATOR A. of Exhibit B under table 2	RENEWAL TERM 2.1	RENEWAL TRUE-UP Exhibit B
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]																	
						[REDACTED]	[REDACTED]			[REDACTED]																	

PROJECT NAME	AGREEMENT TYPE	LANDOWNER	TERM	EFF. DATE	EXP. DATE	# OF PARCELS	DIAGRAM ACREAGE	PAYMENT TERMS
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
						[REDACTED]	[REDACTED]	
					GRAND TOTAL	[REDACTED]	[REDACTED]	
							[REDACTED]	

PROJECT NAME	AGREEMENT TYPE	LANDOWNER	DIAGRAM ACREAGE	DEVELOPMENT RENT	CONSTRUCTION TERM RENT	EXTENDED TERM (OPERATIONS) RENT @ 1% ESCALATOR	EXTENDED TERM (OPERATIONS) RENT @ 4% ESCALATOR	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT LOW END	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT HIGH END	IF MINIMUM ACREAGES USED FOR OPERATING TERM PAYMENTS	DEVELOPMENT RENT	CONSTRUCTION TERM RENT	EXTENDED TERM (OPERATIONS) RENT @ 1% ESCALATOR	EXTENDED TERM (OPERATIONS) RENT @ 4% ESCALATOR	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT LOW END	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT HIGH END
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Lakeside Solar, LLC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
								[REDACTED]	[REDACTED]						[REDACTED]	[REDACTED]

*** Development rent includes all rent paid from the start of the original agreements in 2019 through **2028** when construction is anticipated to start.*

***Landowner revenue data reflects firm benefits under the existing easements. Additional payments are contingent and therefore not included. Contingent payment types may include: (1) Renewal term signing bonus (2) Renewal term annual rent (3) Subleasing opportunities (4) Grazing agreement opportunities*

MAXIMUM POTENTIAL EARNINGS	
TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT LOW END	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT HIGH END
[REDACTED]	[REDACTED]

MINIMUM POTENTIAL EARNINGS	
TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT LOW END	TOTAL ESTIMATED REVENUE DURING LIFE OF PROJECT HIGH END
[REDACTED]	[REDACTED]

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-8.3
Host Community Agreement

8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-8.3: HOST COMMUNITY AGREEMENTS 1

Provide signed copies of host community agreements (which includes a payment provision of $2,000 per MW megawatt of nameplate capacity to the ALU upon commencement of operation) and/or community benefits agreements (which includes payment provisions as outlined in 6.2.10(a)(3)(ii) of this guidance). 1

LIST OF APPENDICES

Attachment A-8.3 A White River Township Draft Host Community Agreement Submitted December 29, 2025
Attachment A-8.3 B White River Township Draft Host Community Agreement Redlines Received January 20, 2026
Attachment A-8.3 C White River Township Draft Host Community Agreement Submitted June 12, 2026
Attachment A-8.3 D White River Township Draft Host Community Agreement Received June 17, 2026
Attachment A-8.3 E Muskegon County Draft Host Community Agreement Submitted June 15, 2026

EXHIBIT A-8.3: HOST COMMUNITY AGREEMENTS

Exhibit A-8.3 provides Lakeside Solar, LLC's (Lakeside) draft host community agreements for the Lakeside Solar and battery energy storage system (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 Planned Facilities and Exhibit A-1.2 Area Land Use Information provide an overview of the Project facilities. Exhibit A-8.3 was prepared in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist.

Provide signed copies of host community agreements (which includes a payment provision of $2,000 per MW megawatt of nameplate capacity to the ALU upon commencement of operation) and/or community benefits agreements (which includes payment provisions as outlined in 6.2.10(a)(3)(ii) of this guidance).

i. Host community agreements or community benefits agreements are required for each ALU, according to the nameplate capacity located within the ALU.

If host community agreements are not signed after good-faith negotiations with an ALU, community benefit agreements may be entered into with one or more community-based organizations providing benefits within or serving the residents of each ALU without a signed host community agreement.

In the event that agreements were proposed and were not signed, those may be provided in lieu of signed agreements with an explanation of why the proposed agreements have not yet been executed.

ii. Community benefits agreements with community-based organizations within, or that serve residents of, the ALU, must include provisions for payments that are equal to, or greater than, what would have paid pursuant to a host community agreement. The topics and specific terms of the agreements may vary and may include, but are not limited to, any of the following:

- ***Workforce development, job quality, and job access provisions that include, but are not limited to, any of the following:***
  - ***Terms of employment, such as wages and benefits, employment status, workplace health and safety, scheduling, and career advancement opportunities.***
  - ***Worker recruitment, screening, and hiring strategies and practices, targeted hiring planning and execution, investment in workforce training and education, and worker input and representation in decision making affecting employment and training.***
- ***Funding for or providing specific environmental benefits.***

- ***Funding for or providing specific community improvements or amenities, such as park and playground equipment, urban greening, enhanced safety crossings, paving roads, and bike paths.***

- ***Annual contributions to a nonprofit or community-based organization that awards grants.***

Signed copies of the host community agreement are not available at the time of this filing. Lakeside provided a draft host community agreement to White River Township on December 29, 2025. On January 20, 2026, White River Township responded with revisions to the draft host community agreement. Lakeside sent a revised draft host community agreement to White River Township. Lakeside via email on June 12, 2026 and sent revised hard copies to White River Township. On June 12, 2026, Lakeside also sente Muskegon County Board of Commissioners a draft host community agreement to the extent they may be considered an ALU. These were received by the respective jurisdictions on June 15, 2026 via certified mail. Negotiations between White River Township and Lakeside are ongoing and the draft host community agreements and proposed changes are included in Attachments A-8.3 A through E. Negotiations are also ongoing between Muskegon County and Lakeside. The draft host community agreements include the commitment to pay $2,000 per megawatt alternating current of nameplate capacity to the ALU(s) upon commencement of operation. If White River Township or Muskegon County (to the extent they are an ALU) decline the host community agreements, Lakeside will enter into community benefit agreements with community-based organizations serving residents of the ALUs. The community benefit agreements would ensure payment provisions equal to or greater than those of a host community agreements and may cover workforce development, environmental benefits, community improvements, and annual contributions to nonprofit organizations for grants.

Attachment A-8.3 A

White River Township Draft Host Community Agreement Submitted December 29, 2025

HOST COMMUNITY AGREEMENT

THIS HOST COMMUNITY AGREEMENT (this "Agreement") is dated as of _____, 202__, and entered into by and between LAKESIDE SOLAR, LLC, a Delaware limited liability company, of 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437 (the "Solar Operator") and WHITE RIVER TOWNSHIP, a Michigan general law township, of 7386 Post Road Montague, Michigan 49437 (the "Township"). Solar Operator and Township are hereinafter referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Solar Operator intends to construct and operate a solar energy and battery storage project, commonly known as the Lakeside Solar Project, consisting of a solar energy conversion facility with an estimated 150-megawatt ("MW") alternating current Nameplate Capacity (defined below) and an associated 150 MW/600-megawatt-hour Nameplate Capacity battery energy storage system and ancillary support infrastructure, to be located in White River Township in Muskegon County, Michigan (collectively, the "Solar Project").

B. Public Act 233 of the Public Acts of Michigan of 2023 ("PA 233") requires that a utility-scale solar and battery storage energy facility applying for a Certificate of Siting Approval from the Michigan Public Service Commission (the "MPSC") shall enter a host community agreement with each affected local unit, and the Parties intend that this Agreement satisfy Solar Operator's obligations under PA 233 in this regard.

C. Solar Operator, as a new member of the local community, wishes to demonstrate good citizenship by making a commitment to assist the community in improving and maintaining a physical, business and social environment benefiting all members of the community by making contributions to the Township, subject to the conditions set forth herein, and Township is willing to accept such contributions subject to the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises hereinafter set forth, the Parties agree as follows:

AGREEMENT

1. **Megawatt Payment**. Within thirty (30) days after the Solar Project's Commercial Operation Date the Solar Operator shall submit a written certification to the Township certifying the actual installed alternating current Nameplate Capacity of the Solar Project in the Township and make a one-time payment to the Township in an amount equal to Two Thousand Dollars ($2,000.00) per megawatt of actual installed generating Nameplate Capacity located within the Township ("MW Payment"). As used in this Agreement, "Commercial Operation Date" means the date on which the Solar Project commences the production of electricity for sale, following receipt of a Certificate of Siting Approval for the Solar Project from the MPSC under PA 233. As used in this Agreement, "Nameplate Capacity" means the designed full-load sustained generating output of the Solar Project.

2. **Installed Capacity Subject to Change**. The Parties acknowledge and agree that the anticipated total generating capacity of the Solar Project as described in the recitals are estimates only and are subject to change based on permitting, engineering, regulatory, or commercial considerations. The MW Payment set forth in Section 1 shall be based solely on the actual installed Nameplate Capacity of solar panels and battery storage located within the Township that are constructed and placed into commercial operation as part of the Solar Project as referenced in the written certification to the Township to be provided pursuant to Section 1. Solar Operator shall have no obligation to make any payment based on anticipated or projected capacity that is not actually installed and operating. Notwithstanding anything in this Agreement to the contrary, if the Solar Project is not constructed or does not achieve commercial operation such that the Commercial Operation Date does not occur, Solar Operator shall have no obligation to make the MW Payment.

3. **Use of MW Payment**. The MW Payment shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as mutually agreed by the Parties in writing.

4. **MW Payment Failure and Cure**. If Solar Operator fails to make the MW Payment as required under this Agreement (a "MW Payment Failure"), the Township shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any MW Payment Failure that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the Township in writing within fifteen (15) days of receiving the Township's notice, identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.

5. **Acknowledgement of Compliance**. The Parties acknowledge that this Agreement satisfies the Solar Operator's obligation to enter into a host community agreement under Section 227(1) of PA 233.

6. **Notices** All notices, demands, requests, or other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been duly given: (a) when delivered personally; (b) one (1) business day after being sent by a nationally recognized overnight courier service; or (c) three (3) business days after being mailed by certified mail, return receipt requested, postage prepaid. All notices shall be delivered to the Parties at the addresses set forth in the preamble of this Agreement. Notices to Solar Operator shall be directed to the attention of [_____], and notices to the Township shall be directed to the attention of the Township Clerk.

7. **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties' respective successors and assigns.

8. **Integration**. This Agreement is entered into by each of the Parties without reliance upon any statement, representation, promise, inducement, or agreement not expressly contained herein. This Agreement constitutes the entire agreement between the Parties concerning the subject matter of this Agreement.

9. **Severability**. If any portions of this Agreement are held invalid and unenforceable, all remaining portions shall nevertheless remain valid and enforceable, to the extent they can be given effect without the invalid portions.

10. **Representation**. Each Party agrees that the Parties had the opportunity to be represented by counsel (whether or not such representation is actually sought or obtained), has been apprised of its rights regarding this Agreement, and enters into this Agreement freely and voluntarily.

11. **Modification**. No modification of this Agreement will be enforceable unless it is in writing, signed by all Parties.

12. **Counterparts; Electronic Signature**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. Execution and delivery of this Agreement by electronic means (including electronic signatures, PDF copies, or photocopies of manually signed pages) shall be valid and binding and shall have the same force and effect as original signatures.

13. **Representation of Authority**. Each individual executing this Agreement on behalf of a Party represents and warrants that they are duly authorized to sign this Agreement and to bind the entity on whose behalf they are signing.

14. **Governing Law**. This Agreement shall be governed, construed, enforced, and interpreted in accordance with the laws of the State of Michigan without regard for its choice of law principles. Each party consents to the exclusive jurisdiction of the courts of the State of Michigan and corresponding Federal Courts in the event of any dispute arising out of or otherwise relating to the terms of this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective as of the date first set forth above.

White River Township,
a Michigan general law township

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

Attachment A-8.3 B

White River Township Draft Host Community Agreement Redlines Received January 20, 2026

HOST COMMUNITY AGREEMENT

THIS HOST COMMUNITY AGREEMENT (this "Agreement") is dated as of _____, 202__, and entered into by and between LAKESIDE SOLAR, LLC, a Delaware limited liability company, of 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437 (the "Solar Operator") and WHITE RIVER TOWNSHIP, a Michigan general law township, of 7386 Post Road Montague, Michigan 49437 (the "Township"). Solar Operator and Township are hereinafter referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Solar Operator intends to construct and operate a solar energy and battery storage project, commonly known as the Lakeside Solar Project, consisting of a solar energy conversion facility with an estimated 150-megawatt ("MW") alternating current Nameplate Capacity (defined below) and an associated 150 MW/600-megawatt-hour Nameplate Capacity battery energy storage system and ancillary support infrastructure, to be located in White River Township in Muskegon County, Michigan (collectively, the "Solar Project").

B. Public Act 233 of the Public Acts of Michigan of 2023 ("PA 233") requires that a utility-scale solar and battery storage energy facility applying for a Certificate of Siting Approval from the Michigan Public Service Commission (the "MPSC") shall enter into a host community agreement with each affected local unit~~, and the Parties intend that this Agreement satisfy Solar Operator's obligations under PA 233 in this regard~~.

~~C. Solar Operator, as a new member of the local community, wishes to demonstrate good citizenship by making a commitment to assist the community in improving and maintaining a physical, business and social environment benefiting all members of the community by making contributions to the Township, subject to the conditions set forth herein, and Township is willing to accept such contributions subject to the terms of this Agreement~~.

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NOW, THEREFORE, in consideration of the foregoing and the mutual promises hereinafter set forth, the Parties agree as follows:

AGREEMENT

1. **Impact Fee.** Before or upon commencement of operation of the Project, Solar Operator shall pay to the Township an Impact Fee of $2,000 per megawatt of nameplate capacity located within the Township.

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~~1.~~2. **Eligible Expenditures.** The Impact Fee shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as determined by the Township, so long as such project(s) are legal and permissible under all applicable laws, ordinances, and regulations.~~**Megawatt Payment**. Within thirty (30) days after the Solar Project's Commercial Operation Date the Solar Operator shall submit a written certification to the Township certifying the actual installed alternating current Nameplate Capacity of the Solar Project in the Township and make a one-time payment to the Township in an amount equal to Two Thousand Dollars ($2,000.00) per megawatt of actual installed generating Nameplate Capacity located within the~~

~~Township ("MW Payment"). As used in this Agreement, "Commercial Operation Date" means the date on which the Solar Project commences the production of electricity for sale, following receipt of a Certificate of Siting Approval for the Solar Project from the MPSC under PA 233. As used in this Agreement, "Nameplate Capacity" means the designed full-load sustained generating output of the Solar Project.~~

~~2.~~3. **Installed Capacity Subject to Change**. The Parties acknowledge and agree that the anticipated total generating capacity of the Solar Project as described in the recitals are estimates only and are subject to change based on permitting, engineering, regulatory, or commercial considerations. The ~~MW Payment~~Impact Fee set forth in Section 1 shall be based solely on the actual installed Nameplate Capacity of solar panels and battery storage located within the Township that are constructed and placed into commercial operation as part of the Solar Project as referenced in the written certification to the Township to be provided pursuant to Section 1. Solar Operator shall have no obligation to make any payment based on anticipated or projected capacity that is not actually installed and operating. Notwithstanding anything in this Agreement to the contrary, if the Solar Project is not constructed or does not achieve commercial operation such that the Commercial Operation Date does not occur, Solar Operator shall have no obligation to make the MW Payment.

~~3. **Use of MW Payment**. The MW Payment shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as mutually agreed by the Parties in writing.~~

4. ~~**MW Payment**~~ **Payment Disputes.** If Solar Operator fails to pay the Impact Fee as required under this Agreement and PA 233, the Township shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any deficiency that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the Township in writing within fifteen (15) days of receiving the Township's notice identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.~~**Failure and Cure**. If Solar Operator fails to make the MW Payment as required under this Agreement (a "MW Payment Failure"), the Township shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any MW Payment Failure that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the Township in writing within fifteen (15) days of receiving the Township's notice, identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.~~

5. **Acknowledgement of Compliance**. The Parties acknowledge that this Agreement satisfies the Solar Operator's obligation to enter into a host community agreement under Section 227(1) of PA 233.

~~6.~~ **Notices** All notices, demands, requests, or other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been duly given:

6. (a) when delivered personally; (b) one (1) business day after being sent by a nationally recognized overnight courier service; or (c) three (3) business days after being mailed by certified mail, return receipt requested, postage prepaid. All notices shall be delivered to the Parties at the addresses set forth in the preamble of this Agreement. Notices to Solar Operator shall be directed to the attention of [_____], and notices to the Township shall be directed to the attention of the Township Clerk.

7. **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties' respective successors and assigns.

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8. **Integration**. This Agreement is entered into by each of the Parties without reliance upon any statement, representation, promise, inducement, or agreement not expressly contained herein. This Agreement constitutes the entire agreement between the Parties concerning the subject matter of this Agreement.

9. **Severability**. If any portions of this Agreement are held invalid and unenforceable, all remaining portions shall nevertheless remain valid and enforceable, to the extent they can be given effect without the invalid portions.

10. **Representation**. Each Party agrees that the Parties had the opportunity to be represented by counsel (whether or not such representation is actually sought or obtained), has been apprised of its rights regarding this Agreement, and enters into this Agreement freely and voluntarily.

11. **Modification**. No modification of this Agreement will be enforceable unless it is in writing, signed by all Parties.

12. **Counterparts; Electronic Signature**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. Execution and delivery of this Agreement by electronic means (including electronic signatures, PDF copies, or photocopies of manually signed pages) shall be valid and binding and shall have the same force and effect as original signatures.

13. **Representation of Authority**. Each individual executing this Agreement on behalf of a Party represents and warrants that they are duly authorized to sign this Agreement and to bind the entity on whose behalf they are signing.

14. **Governing Law**. This Agreement shall be governed, construed, enforced, and interpreted in accordance with the laws of the State of Michigan without regard for its choice of law principles. Each party consents to the exclusive jurisdiction of the courts of the State of Michigan and corresponding Federal Courts in the event of any dispute arising out of or otherwise relating to the terms of this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective as of the date first set forth above.

White River Township,
a Michigan general law township

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

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Attachment A-8.3 C

White River Township Draft Host Community Agreement Submitted June 12, 2026

HOST COMMUNITY AGREEMENT

THIS HOST COMMUNITY AGREEMENT (this "Agreement") is dated as of _____, 202__, and entered into by and between LAKESIDE SOLAR, LLC, a Delaware limited liability company, of 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437 (the "Solar Operator") and WHITE RIVER TOWNSHIP, a Michigan general law township, of 7386 Post Road Montague, Michigan 49437 (the "Township"). Solar Operator and Township are hereinafter referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Solar Operator intends to construct and operate a solar energy and battery storage project, commonly known as the Lakeside Solar Project, consisting of a solar energy conversion facility and battery energy storage facility with up to 200-megawatt ("MW") alternating current Nameplate Capacity (defined below), to be located in White River Township, within Muskegon County, Michigan (collectively, the "Project").

B. Public Act 233 of the Public Acts of Michigan of 2023 ("PA 233") requires that a utility-scale solar and battery storage energy facility applying for a Certificate of Siting Approval from the Michigan Public Service Commission (the "MPSC") shall enter into a host community agreement with each affected local unit, in satisfaction of Solar Operator's obligations under PA 233 in this regard.

C. Solar Operator, as a new member of the local community, wishes to demonstrate good citizenship by making a commitment to assist the community in improving and maintaining a physical, business and social environment benefiting all members of the community by making contributions to the Township, subject to the conditions set forth herein, and Township is willing to accept such contributions subject to the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises hereinafter set forth, the Parties agree as follows:

AGREEMENT

1. **Impact Fee.** As required by PA 233, upon commencement of the production of electricity for sale ("Commercial Operation Date") the Solar Operator shall pay a one-time payment to the Township in an amount equal to Two Thousand Dollars ($2,000.00) per megawatt of actual installed generating Nameplate Capacity located within the Township ("Impact Fee"). As used in this Agreement, "Nameplate Capacity" means the designed full-load sustained generating output of the Project.

2. **Eligible Expenditures**. The Impact Fee shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as determined by the Township, so long as such project(s) are legal and permissible under all applicable laws, ordinances, and regulations.

3. **Installed Capacity Subject to Change**. The Parties acknowledge and agree that the anticipated total generating capacity of the Project as described in the recitals are estimates only and are subject to change based on permitting, engineering, regulatory, or commercial considerations. The Impact Fee set forth in Section 1 shall be based solely on the actual installed Nameplate Capacity of solar panels and battery storage located within the Township that are constructed and placed into commercial operation as part of the Project as referenced in the written certification to the Township to be provided pursuant to Section 1. Solar Operator shall have no obligation to make any payment based on anticipated or projected capacity that is not actually installed and operating. Notwithstanding anything in this Agreement to the contrary, if the Project is not constructed or does not achieve commercial operation such that the Commercial Operation Date does not occur, Solar Operator shall have no obligation to make the MW Payment.

4. **MW Payment Failure and Cure**. If Solar Operator fails to make the Impact Fee payment as required under this Agreement and PA 233 (an "Impact Fee Payment Failure"), the Township shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any Impact Fee Payment Failure that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the Township in writing within fifteen (15) days of receiving the Township's notice, identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.

5. **Acknowledgement of Compliance**. The Parties acknowledge that this Agreement satisfies the Solar Operator's obligation to enter into a host community agreement under Section 227(1) of PA 233.

6. **Notices.** All notices, demands, requests, or other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been duly given:

(a) when delivered personally;

(b) one (1) business day after being sent by a nationally recognized overnight courier service; or

(c) three (3) business days after being mailed by certified mail, return receipt requested, postage prepaid.

All notices shall be delivered to the Parties at the addresses set forth in the preamble of this Agreement. Notices to Solar Operator shall be directed to the attention of Michael J. Young, Executive General Counsel, and notices to the Township shall be directed to the attention of the Township Clerk.

7. **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties' respective successors and assigns.

8. **Integration**. This Agreement is entered into by each of the Parties without reliance upon any statement, representation, promise, inducement, or agreement not expressly contained herein. This Agreement constitutes the entire agreement between the Parties concerning the subject matter of this Agreement.

9. **Severability**. If any portions of this Agreement are held invalid and unenforceable, all remaining portions shall nevertheless remain valid and enforceable, to the extent they can be given effect without the invalid portions.

10. **Representation**. Each Party agrees that the Parties had the opportunity to be represented by counsel (whether or not such representation is actually sought or obtained), has been apprised of its rights regarding this Agreement, and enters into this Agreement freely and voluntarily.

11. **Modification**. No modification of this Agreement will be enforceable unless it is in writing, signed by all Parties.

12. **Counterparts; Electronic Signature**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. Execution and delivery of this Agreement by electronic means (including electronic signatures, PDF copies, or photocopies of manually signed pages) shall be valid and binding and shall have the same force and effect as original signatures.

13. **Representation of Authority**. Each individual executing this Agreement on behalf of a Party represents and warrants that they are duly authorized to sign this Agreement and to bind the entity on whose behalf they are signing.

14. **Governing Law**. This Agreement shall be governed, construed, enforced, and interpreted in accordance with the laws of the State of Michigan without regard for its choice of law principles. Each Party consents to the exclusive jurisdiction of the courts of the State of Michigan and corresponding Federal Courts in the event of any dispute arising out of or otherwise relating to the terms of this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective as of the date first set forth above.

White River Township,
a Michigan general law township

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

Attachment A-8.3 D

White River Township Draft Host Community Agreement Proposed Changes Received June 17, 2026

HOST COMMUNITY AGREEMENT

THIS HOST COMMUNITY AGREEMENT (this "Agreement") is dated as of _____, 202__, and entered into by and between LAKESIDE SOLAR, LLC, a Delaware limited liability company, of 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437 (the "Solar Operator") and WHITE RIVER TOWNSHIP, a Michigan general law township, of 7386 Post Road Montague, Michigan 49437 (the "Township"). Solar Operator and Township are hereinafter referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Solar Operator intends to construct and operate a solar energy and battery storage project, commonly known as the Lakeside Solar Project, consisting of a solar energy conversion facility and battery energy storage facility with up to 200-megawatt ("MW") alternating current Nameplate Capacity (defined below), to be located in White River Township, within Muskegon County, Michigan (collectively, the "Project").

B. Public Act 233 of the Public Acts of Michigan of 2023 ("PA 233") requires that a utility-scale solar and battery storage energy facility applying for a Certificate of Siting Approval from the Michigan Public Service Commission (the "MPSC") shall enter into a host community agreement with each affected local unit, in satisfaction of Solar Operator's obligations under PA 233 in this regard.

C. Solar Operator, as a new member of the local community, wishes to demonstrate good citizenship by making a commitment to assist the community in improving and maintaining a physical, business and social environment benefiting all members of the community by making contributions to the Township, subject to the conditions set forth herein, and Township is willing to accept such contributions subject to the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises hereinafter set forth, the Parties agree as follows:

AGREEMENT

1. **Impact Fee.** As required by PA 233, upon commencementof any operation ("Commercial Operation Date") the Solar Operator shall pay a one-time payment to the Township in an amount equal to Two Thousand Dollars ($2,000.00) per megawatt of actual installed generating Nameplate Capacity located within the Township ("Impact Fee"). As used in this Agreement, "Nameplate Capacity" means the designed full-load sustained generating output of the Project.

2. **Eligible Expenditures**. The Impact Fee shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as determined by the Township, so long as such project(s) are legal and permissible under all applicable laws, ordinances, and regulations.

3. **Installed Capacity Subject to Change**. The Parties acknowledge and agree that the anticipated total generating capacity of the Project as described in the recitals are estimates only and are subject to change based on permitting, engineering, regulatory, or commercial considerations. The Impact Fee set forth in Section 1 shall be based solely on the actual installed Nameplate Capacity of solar panels and battery storage located within the Township that are constructed and placed into commercial operation as part of the Project as referenced in the written certification to the Township to be provided pursuant to Section 1. Solar Operator shall have no obligation to make any payment based on anticipated or projected capacity that is not actually installed and operating. Notwithstanding anything in this Agreement to the contrary, if the Project is not constructed or does not achieve commercial operation such that the Commercial Operation Date does not occur, Solar Operator shall have no obligation to make the MW Payment.

4. **MW Payment Failure and Cure**. If Solar Operator fails to make the Impact Fee payment as required under this Agreement and PA 233 (an "Impact Fee Payment Failure"), the Township shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any Impact Fee Payment Failure that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the Township in writing within fifteen (15) days of receiving the Township's notice, identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.

5. **Acknowledgement of Compliance**. The Parties acknowledge that this Agreement satisfies the Solar Operator's obligation to enter into a host community agreement under Section 227(1) of PA 233.

6. **Notices.** All notices, demands, requests, or other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been duly given:

(a) when delivered personally;

(b) one (1) business day after being sent by a nationally recognized overnight courier service; or

(c) three (3) business days after being mailed by certified mail, return receipt requested, postage prepaid.

All notices shall be delivered to the Parties at the addresses set forth in the preamble of this Agreement. Notices to Solar Operator shall be directed to the attention of Michael J. Young, Executive General Counsel, and notices to the Township shall be directed to the attention of the Township Clerk.

7. **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties' respective successors and assigns.

8. **Integration**. This Agreement is entered into by each of the Parties without reliance upon any statement, representation, promise, inducement, or agreement not expressly contained herein. This Agreement constitutes the entire agreement between the Parties concerning the subject matter of this Agreement.

9. **Severability**. If any portions of this Agreement are held invalid and unenforceable, all remaining portions shall nevertheless remain valid and enforceable, to the extent they can be given effect without the invalid portions.

10. **Representation**. Each Party agrees that the Parties had the opportunity to be represented by counsel (whether or not such representation is actually sought or obtained), has been apprised of its rights regarding this Agreement, and enters into this Agreement freely and voluntarily.

11. **Modification**. No modification of this Agreement will be enforceable unless it is in writing, signed by all Parties.

12. **Counterparts; Electronic Signature**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. Execution and delivery of this Agreement by electronic means (including electronic signatures, PDF copies, or photocopies of manually signed pages) shall be valid and binding and shall have the same force and effect as original signatures.

13. **Representation of Authority**. Each individual executing this Agreement on behalf of a Party represents and warrants that they are duly authorized to sign this Agreement and to bind the entity on whose behalf they are signing.

14. **Governing Law**. This Agreement shall be governed, construed, enforced, and interpreted in accordance with the laws of the State of Michigan without regard for its choice of law principles. Each Party consents to the exclusive jurisdiction of the courts of the State of Michigan and corresponding Federal Courts in the event of any dispute arising out of or otherwise relating to the terms of this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective as of the date first set forth above.

White River Township,
a Michigan general law township

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

89418:00002:202803951-1

Attachment A-8.3 E

Muskegon County Draft Host Community Agreement Submitted June 15, 2026

HOST COMMUNITY AGREEMENT

THIS HOST COMMUNITY AGREEMENT (this "Agreement") is dated as of _____, 202__, and entered into by and between LAKESIDE SOLAR, LLC, a Delaware limited liability company, of 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437 (the "Solar Operator") and COUNTY OF MUSKEGON, a Michigan county, of 1903 Marquette Avenue, Muskegon, MI 49442 (the "Affected Local Unit" or "ALU"). Solar Operator and ALU are hereinafter referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Solar Operator intends to construct and operate a solar energy and battery storage project, commonly known as the Lakeside Solar Project, consisting of a solar energy conversion facility and battery energy storage facility with up to 200-megawatt ("MW") alternating current Nameplate Capacity (defined below), to be located in White River Township, within Muskegon County, Michigan (collectively, the "Project").

B. Public Act 233 of the Public Acts of Michigan of 2023 ("PA 233") requires that a utility-scale solar and battery storage energy facility applying for a Certificate of Siting Approval from the Michigan Public Service Commission (the "MPSC") shall enter a host community agreement with each affected local unit, and the Parties intend that this Agreement satisfy Solar Operator's obligations under PA 233 in this regard.

C. Solar Operator, as a new member of the local community, wishes to demonstrate good citizenship by making a commitment to assist the community in improving and maintaining a physical, business and social environment benefiting all members of the community by making contributions to the ALU, subject to the conditions set forth herein, and ALU is willing to accept such contributions subject to the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises hereinafter set forth, the Parties agree as follows:

AGREEMENT

1. **Megawatt Payment**. Within thirty (30) days after the Project's Commercial Operation Date the Solar Operator shall submit a written certification to the ALU certifying the actual installed alternating current Nameplate Capacity of the Project in the ALU and make a one-time payment to the ALU in an amount equal to Two Thousand Dollars ($2,000.00) per megawatt of actual installed generating Nameplate Capacity located within the ALU ("MW Payment"). As used in this Agreement, "Commercial Operation Date" means the date on which the Project commences the production of electricity for sale, following receipt of a Certificate of Siting Approval for the Project from the MPSC under PA 233. As used in this Agreement, "Nameplate Capacity" means the designed full-load sustained generating output of the Project.

2. **Installed Capacity Subject to Change**. The Parties acknowledge and agree that the anticipated total generating capacity of the Project as described in the recitals is an estimate only and is subject to change based on permitting, engineering, regulatory, or commercial

considerations. The MW Payment set forth in Section 1 shall be based solely on the actual installed Nameplate Capacity of solar panels and battery storage located within the ALU that are constructed and placed into commercial operation as part of the Project as referenced in the written certification to the ALU to be provided pursuant to Section 1. Solar Operator shall have no obligation to make any payment based on anticipated or projected capacity that is not actually installed and operating. Notwithstanding anything in this Agreement to the contrary, if the Project is not constructed or does not achieve commercial operation such that the Commercial Operation Date does not occur, Solar Operator shall have no obligation to make the MW Payment.

3. **Use of MW Payment**. The MW Payment shall be used as determined by the ALU for police, fire, public safety, or other infrastructure, or for other projects as mutually agreed by the Parties in writing.

4. **MW Payment Failure and Cure**. If Solar Operator fails to make the MW Payment as required under this Agreement (a "MW Payment Failure"), the ALU shall provide written notice to Solar Operator specifying the nature of the alleged failure and the amount claimed to be due. Solar Operator shall have forty-five (45) days following receipt of such notice to cure any MW Payment Failure that is not subject to a good faith dispute. If Solar Operator disputes the amount or obligation in good faith, it shall notify the ALU in writing within fifteen (15) days of receiving the ALU's notice, identifying the basis of the dispute. The Parties shall promptly confer in good faith to resolve the dispute.

5. **Acknowledgement of Compliance**. The Parties acknowledge that this Agreement satisfies the Solar Operator's obligation to enter into a host community agreement under Section 227(1) of PA 233.

6. **Notices**. All notices, demands, requests, or other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been duly given: (a) when delivered personally; (b) one (1) business day after being sent by a nationally recognized overnight courier service; or (c) three (3) business days after being mailed by certified mail, return receipt requested, postage prepaid. All notices shall be delivered to the Parties at the addresses set forth in the preamble of this Agreement. Notices to Solar Operator shall be directed to the attention of Michael J. Young, Executive General Counsel, and notices to the ALU shall be directed to the attention of the ALU Clerk.

7. **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties' respective successors and assigns.

8. **Integration**. This Agreement is entered into by each of the Parties without reliance upon any statement, representation, promise, inducement, or agreement not expressly contained herein. This Agreement constitutes the entire agreement between the Parties concerning the subject matter of this Agreement.

9. **Severability**. If any portions of this Agreement are held invalid and unenforceable, all remaining portions shall nevertheless remain valid and enforceable, to the extent they can be given effect without the invalid portions.

10. **Representation**. Each Party agrees that the Parties had the opportunity to be represented by counsel (whether or not such representation is actually sought or obtained), has been apprised of its rights regarding this Agreement, and enters into this Agreement freely and voluntarily.

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14. **Governing Law**. This Agreement shall be governed, construed, enforced, and interpreted in accordance with the laws of the State of Michigan without regard for its choice of law principles. Each Party consents to the exclusive jurisdiction of the courts of the State of Michigan and corresponding Federal Courts in the event of any dispute arising out of or otherwise relating to the terms of this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective as of the date first set forth above.

County of Muskegon,
a Michigan county

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-8.4
Local Job Creation



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-8.4: LOCAL JOB CREATION..... 1

Provide a project labor agreement or collective bargaining agreement if applicable..... 1

LIST OF ATTACHMENTS

Attachment A-8.4 A Lakeside Labor Agreement
Attachment A-8.4 B NMAPC Agreement

EXHIBIT A-8.4: LOCAL JOB CREATION

Exhibit A-8.4 provides a summary of Lakeside Solar, LLC's (Lakeside) local job creation for the Lakeside Solar and Battery Energy Storage System (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 and Exhibit A-1.2 provide an overview of the Project facilities. Exhibit A-8.4 was prepared in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist.

Provide a project labor agreement or collective bargaining agreement if applicable.

Lakeside will issue a Request for Proposals (RFP) to find contractors to construct the Solar Facility and BESS. In the RFP, Lakeside will include a preference for contractor bids that propose to use local personnel to the greatest extent feasible while also aligning with the Project's budget, Project timeline, industry standards, and corporate safety policies. The contractor selected for the Project will be required to work with appropriate entities (e.g., labor unions, local subcontractors, and other vendors) to develop and implement a construction staffing model that maximizes local hiring and the local economic benefits for the Project, while ensuring the Project is safely built on time and on budget.

The Project will also create local job opportunities for various trade professionals that live and work in the area, and it is typical to advertise locally to fill required construction positions. Opportunity exists for sub-contracting to local contractors for gravel, fill, and civil work.

General skilled labor is expected to be available in Muskegon County or Western Michigan to serve the Project's basic infrastructure and site development needs. Specialized labor will be required for certain aspects of the Project. It may be necessary to import specialized labor from other areas of Michigan or neighboring states because the relatively short construction duration often precludes specialized training of local or regional labor. Much of the workforce needed to construct a solar facility and BESS must be comprised of Michigan-licensed electricians because most of the assembly and wiring work for solar installations is considered electrical work under the Michigan State Electrical Code.

Geronimo Power, LLC, Lakeside's parent company, has a strong track record of using local labor for construction. In a recent example, for construction of the Louise Solar Project in Mower County, Minnesota (MPUC Docket No. IP-7039/GS-20-647), 90 percent of the total labor hours (106,261 of 117,800) were performed by Minnesota residents (as defined in Minn. Stat. 290.01, Subd. 7).

PA 233 requires commitments regarding labor and employment during construction, including:

- The installation, construction, or construction maintenance of the energy facility will use apprenticeship programs registered and in good standing with the United States Department of Labor under the national apprenticeship act, 29 USC 50 to 50c.
- The workers employed for the construction or construction maintenance of the energy facility will be paid a minimum wage standard not less than the wage and fringe benefit rates prevailing in the locality in which the work is to be performed as determined under

2023 PA 10, MCL 408.1101 to 408.1126, or 40 USC 3141 to 3148, whichever provides the higher wage and fringe benefit rates.

- To the extent permitted by law, the entities performing the construction or construction maintenance work will enter into a project labor agreement or operate under a collective bargaining agreement for the work to be performed.

Lakeside has provided a letter committing to the above requirements in Attachment A-8.4 A. Lakeside also intends to utilize the National Maintenance Agreement provided in Attachment A-8.4 B for the Project.

Attachment A-8.4 A

Lakeside Labor Agreement

LAKESIDE SOLAR

Michigan Public Service Commission
7109 W. Saginaw Highway
Lansing, MI 48971

RE: Lakeside Solar Construction Workforce Commitments

Dear Commissioners,

I am reaching out on behalf of Lakeside Solar, LLC ("Lakeside Solar") with the authority to make commitments regarding construction labor and employment for its proposed Lakeside Solar Project an estimated 150 MW solar plus storage facility, to be located on privately owned land within White River Township, Muskegon County, Michigan (the "Project"). In accordance with Public Act 233 of 2023, Lakeside Solar is pleased to affirm the following commitments for the Project:

- The installation, construction, and construction maintenance of the Project will utilize apprenticeship programs that are registered and in good standing with the United States Department of Labor under the National Apprenticeship Act, 29 USC 50 to 50c.
- All workers engaged in the construction or construction maintenance of the Project will be paid a minimum wage standard not less than the wage and fringe benefit rates prevailing in the locality in which the work is performed, as determined under 2023 PA 10, MCL 408.1101 to 408.1126, or 40 USC 3141 to 3148, whichever provides the higher wage and fringe benefit rates.
- To the extent permitted by law, Lakeside Solar will require its contractors performing construction, or construction maintenance, for the facility to enter into a project labor agreement or operate under a collective bargaining agreement for the work involved.

Lakeside Solar is committed to fostering fair labor practices, supporting local workforce development, and ensuring efficient project delivery with minimal disruptions. These commitments also help attract skilled labor, promote local hiring, and strengthen partnerships within the community.

If you have any questions or would like additional information, please feel free to contact me. I would be happy to assist.

Sincerely,

Brad Morrison
Vice President, Construction & Procurement

Attachment A-8.4 B

NMAPC Agreement

NMAPC

NATIONAL MAINTENANCE AGREEMENTS POLICY COMMITTEE, INC.

National Maintenance Agreement

Building a Partnership of Safety, Productivity, Quality, and Strength

Effective January 1, 2012

MISSION STATEMENT
NATIONAL MAINTENANCE AGREEMENTS

BUILDING A PARTNERSHIP
OF
SAFETY, PRODUCTIVITY, QUALITY AND STRENGTH

Since its inception in 1971, the National Maintenance Agreements Policy Committee, Inc. Program (NMAPC Program) has been administered under a system of tripartite governance and cooperation, with Owners, Contractors and building trades Craft Workers sharing equally in the responsibilities and rewards generated by the NMAPC Program.

Understanding that the NMAPC Program's viability is equal only to the sum of its parts, careful consideration has been given over the years to ensure that proper balance is maintained among the three participants in the NMAPC Program. Such balance is necessary if the NMAPC Program is to maintain its stated goal of "Building a Partnership of Safety, Productivity, Quality and Strength."

In achieving that goal, the National Maintenance Agreements Policy Committee, Inc. (NMAPC) recognizes and addresses the following common concerns of the partners:

- ✦ Safety in all phases of work
- ✦ No disruptions of Owner's work
- ✦ Performance on schedule
- ✦ Cost-effective and quality craftsmanship
- ✦ Productivity flexibility
- ✦ A trained, available workforce
- ✦ Attainable work opportunities
- ✦ Resolution process for job site issues
- ✦ Consistent terms and conditions

By recognizing, addressing, and delivering on these concerns, the NMAPC Program reflects a true partnership dedicated to providing the most effective tool for the performance of work in industrial construction maintenance.

The NMAPC Program is administered and guided by the NMAPC. The NMAPC is a joint committee of labor and management representatives committed to achieving the NMAPC Program's stated goals and satisfying the individual and collective concerns of the participants.

Thus, the NMAPC provides a guarantee to Owners, Contractors and Craft Workers that the NMAPC Program will continue to deliver dynamic leadership in addressing the realities of industrial construction, maintenance, repair, replacement, renovation, and modernization, and that it will continue to provide a state of the art delivery system for the performance of such work. The NMAPC is truly designed to deliver partnerships of "Safety, Productivity, Quality and Strength."

NMAPC Tripartite Principles of Conduct: Contractors and Subcontractors

Since its inception in 1971, the National Maintenance Agreements Policy Committee, Inc. (NMAPC) Program has been administered under a system of tripartite governance and cooperation, with Owners, Contractors and building trades Craft Workers sharing equally in the responsibilities and rewards generated by the NMAPC Program. It is under this philosophy of tripartite cooperation and mutually beneficial relationships that the NMAPC has developed three (3) Tripartite Principles of Conduct, to ensure that the Program's stated goal of "Building a Partnership of Safety, Productivity, Quality and Strength" is adhered to in all phases of work.

NMAPC Contractors and Subcontractors shall:

1. Maintain a Zero Injury, drug-free and productive work place;

2. Be signatory to each Participating Union's National Maintenance Agreement (NMA) that you will be employing for the work in question;

3. Have filed and received approval of Site Extension Requests (SERs) of the NMAs at any and all affected facilities/locations prior to commencing with work;

4. Ensure that all subcontractors under your company's direction are performing work under the terms and conditions of the NMAs as outlined in 1) & 2);

5. Conduct mandatory Pre-job Conferences, as well as initiate addressing any potential concerns at such time as outlined in Article I of the NMA;

6. Adhere to and enforce the respective International Unions' Codes/Standards of Excellence;

7. Report your work hours performed under the NMAs on a quarterly basis via **www.nmapc.org**;

8. Maintain channels of communication with your Union(s), the local building trades council, and the Owner/Client, as well as participate in local tripartite meetings as necessary;

9. Familiarize and utilize existing resolution processes for addressing any disputes that may arise while working under the NMA Program;

10. Consistently adhere to, and enforce ALL of the terms and conditions of the NMAs, recognizing that it is every Signatory Contractor's and Subcontractor's responsibility to manage all aspects of their work performed under the Agreements.

NMAPC Tripartite Principles of Conduct: Unions

Since its inception in 1971, the National Maintenance Agreements Policy Committee, Inc. (NMAPC) Program has been administered under a system of tripartite governance and cooperation, with Owners, Contractors and building trades Craft Workers sharing equally in the responsibilities and rewards generated by the NMAPC Program. It is under this philosophy of tripartite cooperation and mutually beneficial relationships that the NMAPC has developed three (3) Tripartite Principles of Conduct, to ensure that the Program's stated goal of "Building a Partnership of Safety, Productivity, Quality and Strength" is adhered to in all phases of work.

NMAPC Participating International & Local Unions shall:

1. Maintain a Zero Injury, drug-free and productive work place;

2. Take appropriate and timely action regarding requests to become signatory to the National Maintenance Agreement (NMA), and Site Extension Requests (SERs);

3. Participate in all mandatory Pre-job Conferences and initiate addressing any potential concerns at such time as outlined in Article I of the NMA;

4. Ensure there are NO disruptions of any and all work performed under the NMAPC Program;

5. Adhere to and enforce the respective International Unions' Codes/Standards of Excellence;

6. Fulfill the promise of providing a highly skilled, trained, and professional workforce;

7. Maintain channels of communication with your NMAPC Contractors, the local building trades council, and the Owner/Client, as well as participate in local tripartite meetings as necessary;

8. Familiarize and utilize existing resolution processes for addressing any disputes that may arise while working under the NMA Program;

9. Always respect the Owner/Client's and the Contractor's property, equipment and tools;

10. Consistently adhere to ALL of the terms and conditions of the NMAs;

11. Remember that the work you perform and the way you perform it each day on the job could ultimately impact the opportunity for your fellow union members and your Contractors to work for this Owner/Client in the future.

NMAPC Tripartite Principles of Conduct: Owners

Since its inception in 1971, the National Maintenance Agreements Policy Committee, Inc. (NMAPC) Program has been administered under a system of tripartite governance and cooperation, with Owners, Contractors and building trades Craft Workers sharing equally in the responsibilities and rewards generated by the NMAPC Program. It is under this philosophy of tripartite cooperation and mutually beneficial relationships that the NMAPC has developed three (3) Tripartite Principles of Conduct, to ensure that the Program's stated goal of "Building a Partnership of Safety, Productivity, Quality and Strength" is adhered to in all phases of work.

Owner/Clients shall:

1. Embrace and promote the Zero Injury philosophy on all projects performed under the NMAPC Program;

2. Provide work opportunities to NMAPC Contractors and NMAPC Participating Unions;

3. Establish local tripartite committee(s) in order to maintain channels of communication with NMAPC Contractors, Participating Unions, the local building trades councils, and the NMAPC Administrative Office as well as participate in pre-job conferences;

4. Ensure Contractors are in possession of approved Site Extension Requests (SERs) at your facility(s) prior to commencing with work by utilizing the Owner/Client portal on **www.nmapc.org**;

5. Ensure Contractors are reporting work hours performed under the National Maintenance Agreements (NMAs) at your facility(s) on a quarterly basis via www.nmapc.org;

6. Make all Owner/Client rules and regulations known in advance to all parties;

7. Consider designating your projects or sites under the NMAPC "Yellow Card" in order to achieve the maximum benefits of the spirit and intent of the NMAPC Program;

8. Provide reasonable access to Union representatives to NMA jobs operated within your plant location(s).

NATIONAL MAINTENANCE AGREEMENTS
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NATIONAL MAINTENANCE AGREEMENT

This Agreement is entered into this _____day of _____ 20___, by and between _____SAMPLE_____
(Employer)
of_____, (hereinafter referred to as the Employer)
(City) (State)
and the CRAFT NAME (hereinafter referred to as the Union), for the purpose of industrial construction, maintenance, repair, replacement, renovation, and modernization work performed by the Employer in various plants.

ARTICLE I – RECOGNITION

1. The bargaining unit under this Agreement shall comprise the Union on behalf of (*CRAFT NAME*) employees of the Employer, now employed and employed in the future for industrial construction, maintenance, repair, replacement, renovation, and modernization in various plants within the geographical jurisdiction of the (*CRAFT NAME*). This Agreement does not apply to general superintendents, superintendents, assistant superintendents, office and clerical employees, watchmen or other professional or supervisory employees as defined in the National Labor Relations Act, as amended.

2. It is agreed between the Union and the Employer that this Agreement is applicable to industrial construction, maintenance, repair, replacement, renovation, and modernization work that is primarily within the recognized and traditional jurisdiction of the Union and shall be performed in accordance with the terms of this Agreement. It is further agreed that should the plant owner also award work to the Employer that is within the recognized and traditional jurisdiction of another Union with which the Employer has a similar agreement for the performance of that work, then work assignments shall be made in accordance with Agreements and Decisions of Record, attested Agreements, established trade practice, or prevailing area practice.

3. The Employer is required to conduct a pre-job conference, including craft work assignments, for each project performed under the National Maintenance Agreements (NMA). Written craft work assignments will be distributed to the appropriate Unions, not to exceed ten (10) working days after the pre-job conference. Pre-job conferences may be performed via teleconference. It is the responsibility of the Employer to notify the appropriate Building Trades Council having jurisdiction, as well as all International Unions, of the time and place of the pre-job conference. A pre-job conference outline can be obtained from the NMAPC office and/or any participating International Union. Failure to comply with this Section is a violation of this Agreement. All signatory Unions and signatory Contractors stipulate that failure to hold a pre-job conference is a grievable offense and shall result in a $500 penalty, payable to a designated NMAPC Fund.

4. For short term (less than 5 working days) or weekend projects, the Employer may contact the appropriate crafts via telephone, FAX or e-mail regarding work assignments. For projects of longer duration, the Employer shall convene a pre-job conference, upon sufficient notice so that all appropriate crafts have an opportunity to participate.

5. During the existence of the Agreement, there shall be no strikes, lockouts, work stoppages, or picketing arising out of any jurisdictional dispute. Work will continue as originally assigned, pending resolution of the dispute.

6. Since presently established jurisdictional dispute settlement procedures are not applicable to work covered by the Agreement, all signatory Unions and all Employers, signatory to this or any other NMA, stipulate that they will abide by the following procedures for the resolution of jurisdictional disputes. A party challenging an assignment shall notify all affected parties, i.e. Unions and Employer, by mail, FAX, or e-mail. All disputes involving craft work assignments shall be referred to the International Unions, with which the Local Unions are affiliated, providing the International Union and the Employer an opportunity to resolve the dispute.

7. If the International Unions and the Employer fail to resolve the dispute after five (5) working days from the date they were notified of the dispute any International Union or Employer directly involved in the dispute may refer the matter to arbitration via letter, FAX, or e-mail to the NMAPC Impartial Secretary for resolution under this procedure. Any party referring the matter to the Permanent Umpire must include written evidence that the affected International Unions attempted to resolve said dispute.

8. The Umpire will schedule and hold a hearing within seven (7) working days of the referral of the dispute. The Umpire shall notify the Employer and the appropriate International Unions by FAX and/or e-mail of the place and time chosen for the hearing. The Employer and International Unions party to a dispute will be allowed to have only one (1) representative from each party personally appear at any hearing scheduled by the Umpire. Participation in a hearing through either a personal appearance by outside legal counsel on behalf of a party or telephonically by any party will not be allowed. A party's failure to attend the hearing, without good cause, as determined by the Umpire, shall not delay the hearing of evidence or issuance of a decision by the Umpire. The time period set forth herein can be extended by mutual written agreement of the parties.

9. The Umpire shall issue a decision within three (3) working days after the case has been closed. The decision of the Umpire shall be final and binding on all parties to the dispute and shall be predicated upon the particular facts and evidence presented regarding this dispute and shall be effective only on the particular job in question.

10. In rendering a decision, the Umpire shall determine:

> a. First, whether a previous agreement of record or applicable agreement, including a disclaimer agreement, between the National and International Unions to the dispute governs;

b. Only if the Umpire finds that the dispute is not covered by an appropriate or applicable agreement of record or agreement between the crafts to the dispute, shall consideration be given to the established trade practice in the industry and prevailing practice in the locality. Where there is a previous decision of record governing the case, the Umpire shall give equal weight to such decision of record, unless the prevailing practice in the locality in the past ten (10) years favors one craft. In that case, the Umpire shall base any decision on the prevailing practice in the locality. Except that if the Umpire finds that a craft has improperly obtained the prevailing practice in the locality through raiding, the undercutting of wages or by the use of vertical agreements, the Umpire shall rely on the decision of record and established trade practice in the industry rather than the prevailing practice in the locality;

c. Only if none of the above criteria is found to exist, the Umpire shall then consider that because efficiency, cost or continuity and good management are essential to the well being of the industry, the interests of the consumer or the past practices of the employer shall not be ignored;

d. The Umpire shall set forth the basis for their decision and shall explain their findings regarding the applicability of the above criteria. If lower-ranked criteria are relied upon, the Umpire shall explain why the higher-ranked criteria were not deemed applicable.

11. The Umpire is not authorized to award back pay or any damages for a misassignment of work, nor may any party to this procedure bring an independent action for back pay or any other damages, based upon a decision of the Umpire.

12. The fees and expenses of the Umpire shall be the responsibility of the non-prevailing party or parties to the arbitration.

13. The Employer shall not be subject to disputes regarding work assignments made by its subcontractors. However, the Employer must ensure that its subcontractors are signatory to the NMA(s) and are performing work under the terms and conditions of the NMA(s), and are following the procedures of this Article.

14. The Employer recognizes the Union herein as duly constituted for the purpose of bargaining collectively and administering this Agreement for the members affiliated with (CRAFT NAME).

ARTICLE II – UNION SECURITY

1. All employees covered by this Agreement and members of the Union now in the employ of the Employer shall remain members in good standing in the Union during the term of this Agreement.

2. All employees hired by the Employer shall, as a condition of employment, become and remain members in good standing of the Union within eight (8) days following the date of their employment.

3. Any employee, who is a member in good standing of any signatory International Union, shall be considered in compliance with the Union Security Article in this contract, so long as the employee maintains good standing in the Union.

4. In nuclear facilities it is agreed that applicants referred to the project under this Article shall be considered probationary employees until such time as they meet the owners' security requirements not inconsistent with State and Federal laws.

5. This provision shall not preclude such probationary employees' rights under Article VI relative to any grievance arising under any other section of this Agreement.

ARTICLE III – NONDISCRIMINATION

1. The Union and the Employer agree to comply with all applicable Federal and State equal employment opportunity and nondiscrimination in employment laws.

ARTICLE IV – SCOPE OF WORK

1. This Agreement covers all work assigned by the Owner to the Employer and performed by the employees of the Employer covered by this Agreement.

2. This Agreement does not cover work performed by the Employer of a new construction nature, in which event said work shall be done in accordance with existing building construction agreements.

3. The Union and the Employer understand that the Owner may choose to perform, directly subcontract, or purchase any part or parts of the work necessary on the project with due consideration given to achieving the highest standards and harmonious working conditions herein.

4. It is the intent of the parties that in-plant employees of the Owner will not be assigned to work directly with building and construction trades employees of the signatory Employer on the portion of the work assigned to the signatory Employer by the Owner. However, Paragraph 4 does not preclude in-plant employees of the Owner from performing work that has not been assigned to the signatory Employer while the building and construction trades employees of the Employer are present and working.

5. This Agreement shall have application only to the work location agreed upon between the Employer and the Union.

ARTICLE V – SUBCONTRACTING

1. All subcontracting of work at any tier covered by this Agreement shall be performed under this Agreement, other NMA(s), or any agreement approved as compatible by the NMAPC.

2. By becoming signatory to this Agreement the Employer acknowledges and agrees that any Union signatory to an NMA may bring a grievance under Article VI to enforce this subcontracting provision, and that monetary damages for lost wages and fringe benefits may be awarded for failure to subcontract work to Employers signatory to this Agreement, other NMA(s), or any agreement approved as compatible by the NMAPC.

ARTICLE VI – GRIEVANCES

1. Except for jurisdictional disputes and those involving general wage rates, all disputes and grievances arising out of work performed under this Agreement involving the meaning or interpretation of any provision in this Agreement, or involving the meaning or interpretation of any provision in any other agreement incorporated by reference in this Agreement shall be resolved in the following manner:

> a. All grievances shall be filed within ten (10) calendar days after the complained of event arose. Grievances shall be appealed to steps two (2) and three (3) within ten (10) calendar days after the meeting in the lower step. Settlement of grievances may be made at any step of the grievance procedure and shall be final and binding on the Union and Employer.

Step 1. Between the Employer's Supervisor and the Local Union Steward at the job site.

Step 2. Between the Business Representative and the Employer's Supervisor at the job site.

Step 3. Between the International Union Representative and the Supervisor or Labor Relations Manager.

Step 4. If the parties are unable to settle or resolve any grievance or controversy, the matter shall be submitted to the NMAPC for a decision to become effective immediately (parties should refer to NMAPC Grievance Procedures as amended June 17, 2011 at this step).

Step 5. Failure of the NMAPC to reach a decision shall constitute a basis for a submittal of the question by the affected parties to the American Arbitration Association for a binding decision. In such instances, the affected parties to the dispute shall appoint an arbitrator to review the matter and render a binding decision. If the parties are unable to agree upon an arbitrator, the American Arbitration Association shall appoint one. The affected parties to the arbitration shall equally share in the costs, including printing and publication of any record of such arbitration.

> b. The Arbitrator shall only have jurisdiction and authority to interpret, apply or determine compliance with the provisions of this Agreement. Any award of the Arbitrator shall be final and binding upon the Employer and the Union. The Arbitrator shall submit a copy of the award to the NMAPC after the award is rendered.

ARTICLE VII – UNION REPRESENTATIVE

1. A Steward shall be a qualified craftsperson appointed by the Business Agent and confirmed in writing to the Employer. The Steward shall be the last employee to be laid off, provided the Steward is qualified to perform the remaining work to be done at the job. The Steward shall not be terminated or laid off, except as the last employee, without prior notice to the Union.

2. Union representatives shall have reasonable access to jobs operated within the plant locations subject to Employer and Owner regulations.

ARTICLE VIII – WAGES

1. Wage rates shall be those as set forth in the current Labor Agreement of the affiliated Local Union where such work is to be performed and shall be paid to all employees under the terms of this Agreement. Unless otherwise modified by the NMAPC, wages shall be paid weekly by check or other legal tender.

2. When zone type wage structures are provided for in local agreements and are otherwise applicable in the area of the project, the project for the purposes of this Agreement will be considered as if it was within the area of the base zone rate.

ARTICLE IX – BENEFITS AND OTHER MONETARY FUNDS

1. Welfare Funds, Pension Funds, Apprentice Training Funds and other monetary funds required by the Local Union or District Council Labor Agreement shall be paid in accordance with the Local Labor Agreement, except that no funds shall be paid that exceed the straight time and overtime provisions of this Agreement.

2. The Employer agrees to be bound by and will sign all legally constituted trusts which have been established between Local Unions of the (CRAFT NAME) and recognized bargaining agencies of contractors in the area.

3. Industry Advancement or Promotion Funds required by the Local Labor Agreement may be paid at the discretion of the Employer. However, if approved by the NMAPC, these funds must be paid in accordance with the Local Labor Agreement.

4. Once an Employer is legally notified that it is delinquent in its contributions to the fringe benefit funds, apprenticeship fund, dues check off or any other contractually required contribution, and does not respond positively by forwarding said contributions to the appropriate place of receipt within three (3) business days, the provisions of Article XXII shall not apply and the Union may legally withhold services. However, it is understood that such action, consistent with Article XXII, does not allow said craft to establish any picket line.

5. An Employer who has been properly notified of delinquent benefit funds will not be allowed to submit any NMA site extension requests until all obligations are current.

ARTICLE X – COMPENSATION INSURANCE

1. For all employees covered by this Agreement, the Employer shall provide Workers' Compensation Insurance, Social Security and other protective insurance as may be required by law, and also furnish satisfactory proof of such to the Union.

2. In an effort to enhance the competitive position of the Employer and to provide greater work opportunities for members of the Union, the Employer and Local Unions are encouraged to negotiate and implement alternative dispute resolution procedures to resolve workers' compensation claims disputes when and where permissible and/or legal. Such alternative dispute resolution procedures when implemented will be final and binding on the parties and shall be made a part of the Agreement to the extent permitted by law.

ARTICLE XI – HOLIDAYS

1. For purposes of uniformity, the following Holidays shall be observed and, if worked, shall be paid at the rate applicable in the appropriate local agreement not to exceed double time:

New Year's Day
Presidents' Day (Federal)*
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

2. If any of these listed Holidays fall on Sunday, the following Monday shall be observed as the Holiday. If any of the listed Holidays fall on Saturday, the preceding Friday shall be observed as the Holiday.

3. *Presidents' Day (Federal) may be considered a floating Holiday and may be celebrated on an alternate day. Should the Building Trades Council that encompasses the geographical jurisdiction of where work is being performed under this Agreement, desire to celebrate Presidents' Day on an alternate work day, authorization must be obtained in writing from the NMAPC office.

ARTICLE XII – MINIMUM PAY / REPORTING TIME AND CALL-INS

1. An employee who reports for work at the regular starting time and for whom no work is provided shall receive pay equivalent to two (2) hours at the applicable hourly rate, provided the employee at the Employer's discretion remains available for work. Any employee who reports for work and for whom work is provided shall be paid for actual time worked but not less than two (2) hours. If the Employer considers it necessary to shut down work to avoid endangering the life or the safety of its employees the Employer will not be

in violation of this Agreement. In such cases, employees will be compensated only for the actual time worked. In the case of a situation described above where the Employer requests employees to remain available for work, the employees will be compensated for such time. If a project is shutdown because of weather, employees who reported to work shall be paid actual time worked but not less than two (2) hours. Procedures for prior notification of work cancellation shall be determined at the pre-job conference. The provisions of this Section are not applicable where the employee voluntarily quits, or is laid off, or is out by reason of a strike.

2. A call-in, which is defined as the notification to an employee to report for work by whatever means for work outside of his/her regular shift or on his/her regularly scheduled day(s) off or Holiday, shall be paid in accordance with one of the following methods:

a. A call-in prior to and continuous with an employee's normally scheduled shift shall be paid for on the basis of hours actually worked prior to the scheduled shift, at the applicable overtime rate;

b. When an employee is called in to work at or after the established starting time on Saturday, Sunday, scheduled day off or Holiday, the employee shall be paid not less than four (4) hours at the applicable overtime rate for that day, except when his/her call-in is prior to and continuous with the normal work hours.

c. Any call-in not continuous with the employee's regular work shift, will be paid a minimum of four (4) hours at the applicable overtime rate.

ARTICLE XIII – SUPERVISION

1. The designation, appointment and determination of the number of foremen and/or general foremen is the sole responsibility of the Employer. There is a requirement for initial supervision. However, the Employer shall not be unreasonably burdened with additional demands for supervision.

2. When established for a craft, one (1) top hourly craft-supervisor (foreman and/or general foreman) shall be guaranteed forty (40) straight-time hours per week. The forty (40) straight-time hour guarantee applies to straight-time hours, and the accumulation of overtime hours may not be considered for the purpose of applying those overtime hours to the "guaranteed forty (40) hours" provision. The forty (40) straight-time hour guarantee provision shall apply on a per Employer, per craft, per shift basis. It is understood that the individuals receiving such guarantee may, at the discretion of the Employer, be required to remain on the job.

3. Such guarantee shall not apply when the first or commencing week of a job is less than forty (40) hours, or when the top hourly craft supervisor is terminated due to reduction in force or job completion.

ARTICLE XIV – TRAVEL AND SUBSISTENCE

1. No subsistence, travel allowance, mileage or pay for travel time is required to be paid to any employee covered by the terms of this Agreement.

ARTICLE XV – WORK HOURS PER DAY

1. Eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday to Friday, inclusive, shall constitute a week's work. The regular starting time shall be eight (8:00) A.M., and the regular quitting time shall be four-thirty (4:30) P.M.; lunch time shall be twelve (12:00) noon to twelve-thirty (12:30) P.M.

2. When shifts are required, the first (1st) shift shall work eight (8) hours at the regular straight-time rate. The second (2nd) shift shall work eight (8) hours at the regular straight-time rate, plus a $2.00 per hour shift additive. The third shift shall work eight (8) hours at the regular straight-time rate, plus a $2.25 per hour shift additive. A thirty (30) minute lunch period shall be mutually agreed upon by the Job Superintendent and the Union Representative and shall not be considered as time worked.

3. All time worked before and after the established work day of eight (8) hours, Monday through Friday, shall be paid at the appropriate overtime rate. All work commencing with the beginning of the established work day on Saturday shall be paid at the rate of time and one-half (1 ½). All work commencing with the beginning of the established work day on Sundays and/or Holidays shall be paid at the rate applicable in the appropriate local agreement, not to exceed double-time.

4. By mutual consent of the Employer and the Union, the starting and quitting times of any shift, including day work, may be changed for all or any portion of a particular job. For the purpose of this Article, the standard work day of eight (8) hours for the job or portion thereof to which any such change of starting time applies shall begin with such agreed starting time.

5. Employees shall be at their posts prepared to start work at the regular starting time.

6. Local labor agreement provisions regarding minimum number of days to establish shifts or shift starts are waived for work performed under this Agreement.

7a. The Employer may establish a four (4) day, ten (10) hour shift exclusive of the thirty (30) minute unpaid lunch period at the straight-time rate. The starting time shall be between 7:00 A.M. and 8:00 A.M. Forty (40) hours per week shall constitute a week's work Monday through Thursday. In the event a job is down due to weather conditions, Holiday or other conditions beyond the control of the Employer, then Friday may, at the option of the Employer, be worked as a makeup day at the straight-time rate. If Friday is scheduled as a makeup day a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day or forty (40) hours per week. Starting time will be designated by the Employer; the Union will be advised of the starting time.

7b. The Employer may establish two (2) - four (4) day, ten (10) hour shifts at the straight-time rate Monday through Thursday. These shifts are exclusive of the thirty (30) minute unpaid lunch period. The day shift shall work four (4) days at ten (10) hours per day at the regular straight-time rate. The second shift shall work four (4) days at ten (10) hours per day at the regular straight-time rate, plus a $2.00 per hour shift additive. In the event the job is down due to weather conditions, or a Holiday or other conditions beyond the control of the Employer, then Friday may, at the option of the Employer, be worked as a makeup day at the straight-time rate. Straight-time is not to exceed ten (10) hours a day or forty (40) hours per week.

7c. Employees who inform their Employer on Thursday that they do not wish to work Friday as a make-up day will not be penalized.

7d. An employee who is referred for employment and is scheduled for less than forty (40) hours of work (from the date of hire to date of termination), shall receive overtime pay for all hours worked in excess of eight (8) hours per day.

8. Since it is recognized that the standard work week may not be appropriate or cost effective for some projects, other arrangements for hours of work can be considered. The Employer may establish flexible work schedules such as a staggered work week and the like, by submitting its request to the NMAPC for approval as stipulated in Article XVIII. Prior to reaching a decision, the NMAPC shall take into consideration the project schedule, the manpower requirements, the geographic location of the project, the Owner's work schedule and other appropriate factors. Such approval will be incorporated as an addendum to this Agreement for that specific site.

ARTICLE XVI – TRANSPORTATION

1. At plant locations where private transportation is not permitted, the Employer shall furnish transportation that provides shelter from inclement weather from the gate to the job site and back to the gate when said distance is one-half (½) mile or more one way. When transportation is required, the Employer shall transport the employees, no later than 10 minutes after the end of the shift, to the point where such employees were picked up. When employees are transported to the pickup point later than 10 minutes after the shift, then overtime pay shall apply as provided under Article XV.

ARTICLE XVII – SAFETY

1. The employees covered by the terms of this Agreement shall at all times while in the employ of the Employer be bound by the safety rules and regulations as established by the Owner, the Employer, this Agreement, or applicable Safety Laws.

2. The parties to this Agreement do hereby recognize the need to provide a drug-free and alcohol-free workplace. The parties to the Agreement agree to comply with any mandated substance abuse program. In order to produce as safe a workplace as possible, it is un-

derstood and agreed that the Employer and the employees shall abide by the rules and provisions of the implemented substance abuse program, which may include the following types of testing: pre-employment, reasonable suspicion, post-incident, and random where allowed by law. Any discriminatory practice under this Article shall be subject to the NMAPC Grievance Procedure. All substance abuse programs shall be submitted to the NMAPC for distribution prior to implementation.

ARTICLE XVIII – APPRENTICES

1. The Union acknowledges that different apprentice ratios than those established may be needed to cover plant maintenance. Therefore, the Employer and the Union agree that existing ratios will be utilized but that higher ratios may be negotiated when warranted by conditions. Further, an Employer may employ pre-apprentice classifications for work customarily performed by the craft, provided pre-apprentice classifications are recognized in the Local Labor Agreement.

ARTICLE XIX – HIRING AND TRANSFER OF CRAFT WORKERS

1. The Employer agrees to hire Craft Workers in the area where work is being performed or is to be performed in accordance with the hiring procedure existing in the area; however, in the event the Local Union is unable to fill the request of the Employer for employees within a forty-eight (48) hour period after such request for employees (Saturdays, Sundays and Holidays excepted), the Employer may employ workers from any source. The Employer shall have the right to move qualified employees from one job assignment to another within the plant location where they are working.

2. The Employer shall determine the competency of all employees. The Employer shall determine the number of employees required on the project and shall select any employee or employees working under the terms of this Agreement to be laid off regardless of membership or non-membership in the Union.

ARTICLE XX – GENERAL SAVINGS CLAUSE

1. Any provisions in this Agreement which are in contravention of any Federal, State, Local or County regulations or laws affecting all or part of the limits covered by this Agreement shall be suspended in operation within the limits to which such laws or regulations are in effect. Such suspension shall not affect the operation of any such provisions covered by this Agreement to which the law or regulation is not applicable, nor shall it affect the operations of the remainder of the provisions of the Agreement within the limits to which such law or regulation is applicable.

ARTICLE XXI – CREW SIZE

1. The crew size shall be any number of craftspersons and supervision required to safely perform the work and shall be increased or decreased at the discretion of the Employer.

ARTICLE XXII – LOCKOUT AND WORK STOPPAGE

1. During the term of this Agreement, there shall be no lockouts by the Employer and no strikes, picketing, work stoppages, slow downs or other disruptive activity for any reason by the Union or by any employee. Failure of the Union, its Local Union or employee to cross any picket line at the Employer's project site is a violation of this Article.

2. In the event that a local or area collective bargaining agreement expires and a subsequent work stoppage ensues, the Employer and its employees will continue to work since the intent of this provision is to allow maintenance work to continue as a benefit to the client. The wages and fringe benefits in the expired local collective bargaining agreement or as approved by the NMAPC will remain in effect for all work covered under the terms of this Agreement until wages and fringe benefits are agreed upon and become effective for the recognized bargaining agency of the local contractors and the affected Union.

3. Sections 1 and 2 of this Article shall not apply if the Employer signatory to this Agreement is a member of the current local negotiating committee or if said signatory Employer actively participates in local negotiations. In such cases, when a local collective bargaining agreement expires, the affected Union may withhold services from said Employer, but shall not interrupt the work of other crafts. Moreover, said Employer shall have the right to request in writing to the appropriate International Union that Section 3 of this Article be waived in order to allow the Employer to participate in local negotiations. The International Union has the sole discretion to grant such waiver and will communicate its decision in writing both to the Employer and affected Owner(s).

4. The International Union and its applicable Local Union shall not sanction, aid or abet, encourage or continue any work stoppage, strike, picketing or other disruptive activity which violates this Article and shall undertake all reasonable means to prevent or to terminate any such activity. No employee shall engage in activity which violates this Article. Any employee who participates in or encourages any activity which violates this Article shall be subject to disciplinary action, including discharge, and if justifiably discharged for the above reasons, shall not be eligible for rehire on the same project for a period of not less than ninety (90) days. Further, if the Union(s) are unable to provide qualified replacements for those employees who are in violation of this Article by the beginning of the next shift, the Employer is free to hire from any source.

5. Neither the International Union nor its Local Union shall be liable for acts of employees for which it has no responsibility. The International Union will immediately instruct, order and use its best efforts to cause its Local Union to cease any violation of this Article. If it complies with this obligation, the International Union shall not be liable for unauthorized acts of its Local Union. The principal officers of the Local Union will immediately instruct, order and use their best efforts to cause the employees of the Local Union they represent to cease any violation of this Article. If it complies with this obligation, the Local Union shall not be responsible for unauthorized acts of employees it represents.

6. In the event of any work stoppage, strike, picketing or other disruptive activity in violation of this Article, the Employer, at its discretion and without penalty, may suspend all or any portion of the project work affected by such activity.

7. Any signatory International Union or affiliated Local Union which initiates, participates in, or supports a work stoppage, strike, picketing or other disruptive activity in violation of this Article agrees to pay liquidated damages as a remedy for said violation, in accordance with Section 8h. of this Article.

8. After all parties and the NMAPC have been notified of an alleged violation, a party or the NMAPC may institute the following procedure, in lieu of, or in addition to, any other action at law or equity.

8a. To invoke the procedure, a party or the NMAPC shall notify the permanent Arbitrator under this procedure through the NMAPC Impartial Secretary/CEO. Notice to the Arbitrator, through the NMAPC Impartial Secretary/CEO, shall be by mail, FAX, and/or e-mail with copies of the notice to be sent to the other parties.

8b. Upon receipt of said notice the Arbitrator shall schedule and hold a hearing within twenty-four (24) hours, provided the invoking party contends that the violation still exists.

8c. The Arbitrator shall notify the parties by mail, FAX, and/or e-mail of the hearing's location. The hearing shall be completed in one session. A failure of any party to attend the hearing shall not delay the admittance of evidence or issuance of an award by the Arbitrator.

8d. The sole issue at the hearing shall be whether or not a violation of this Article has in fact occurred. The Arbitrator's award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without an opinion. If any party desires an opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with, or enforcement of, the award. The Arbitrator may order cessation of the violation of this Article, and such award shall be served on all parties by hand delivery, mail, FAX, and/or e-mail.

8e. The Arbitrator's award may be enforced in the following manner by any court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to hereinabove. Mailed, FAXED, and/or e-mailed notice of the filing of such enforcement proceedings shall be given to all parties. In a proceeding to obtain a temporary order enforcing the award, all parties agree to waive the right to a hearing and agree that such proceedings may be exparte. Such agreement, however, does not waive any party's right to participate in a hearing for a final order of enforcement. The court's order enforcing the award shall be served on all parties by hand, by delivery to their last known addresses or by registered mail.

8f. Any rights created by statute or law governing arbitration proceedings that are inconsistent with the above procedure or that interfere with compliance herewith are waived.

8g. The fees and expenses of the Arbitrator shall be paid by the party or parties found in violation of this Article. In the event no violation of this Article is found, such fees and expenses shall be paid by the invoking party.

8h. If the Arbitrator determines in accordance with Section 8d. above that the International Union and/or its local union has violated this Article, the International Union and/or its local union shall direct all of the employees they represent at the project to immediately return to work within eight (8) hours of receipt of the award. If the employees do not return to work by the beginning of the next regularly scheduled shift following receipt of the Arbitrator's award, and the International Union and/or its Local Union have not complied with Section 5 above, the Union and/or the Local Union shall pay the sum of ten thousand dollars ($10,000.00) as liquidated damages to the affected owner, and shall pay an additional ten thousand dollars ($10,000.00) per shift for each shift thereafter on which the employees have not returned to work. The Arbitrator shall retain jurisdiction to determine compliance with this section and Section 5.

8i. If the Arbitrator determines in accordance with Section 8d. above that the Employer has engaged in an illegal lockout in violation of this Article, the Employer shall notify the International Union that the illegal lockout has ended within eight (8) hours of receipt of the award. If the illegal lockout is not ended by the beginning of the next regularly scheduled shift following receipt of the Arbitrator's award, then the Employer shall pay the sum of ten thousand dollars ($10,000.00) as liquidated damages to the International Union, and shall pay an additional ten thousand dollars ($10,000.00) per shift for each shift thereafter on which the Employer continues to illegally lockout its employees covered by this Agreement. The Arbitrator shall retain jurisdiction to determine compliance with this section.

9. The procedures contained in Section 8 through 8i shall be applicable to alleged violations of this Article. Disputes alleging violation of any other provision of the Agreement, including any underlying dispute alleged to be in justification, explanation or mitigation of any violation of this Article, shall be resolved under the grievance adjudication procedures of Article VI.

ARTICLE XXIII – MANAGEMENT CLAUSE

1. In the exercise of its functions of management, the Employer shall have the right to plan, direct and control the operation of all its work; hire employees and supervision; direct the working forces; assign employees and supervision to their jobs; refuse any applicant; discharge, suspend or discipline for proper cause; transfer, promote or demote employees and supervision; lay off employees and supervision because of lack of work or for other legitimate reasons; require employees and supervision to observe the Employer's rules and regulations not inconsistent with this Agreement; regulate the use of all equipment and other property of the Employer; decide the amount of equipment to be used; the number of employees needed; and contract work anywhere and decide the methods of work and the source from which material and equipment is obtained. The Employer shall not use these rights for the purpose of discrimination against any employee. These provisions do not prohibit the Union's right to the peaceful exercise of Article VI above if in its judgment the spirit and intent of this Agreement has been violated.

ARTICLE XXIV – PARTNERING

1. As manifested in the Mission Statement, the NMAPC Program is based on its continual commitment to improve the partnering and communication between Owners, union Contractors, and building trades Craft Workers. To further the goal of better dialogue and expedited problem solving, the NMAPC Program encourages the development of local tripartite committees for a specific project or area, that are empowered to establish lines of communication, seek solutions to unique job site needs, and suggest methods and ways to continuously improve safety, productivity, and quality.

2. The initial establishment of a local committee may be implemented through the NMAPC office. The NMAPC office will provide the framework and oversight for effective partnering to enhance safety, productivity and quality.

ARTICLE XXV – WELDING CERTIFICATION

1. The Union and the Employer agree to arrange the pretesting of welders at a mutually agreeable time and place. Such testing will be done without compensation, except that welders passing a certification test will be compensated for actual time required to take such test, not to exceed four (4) hours pay upon the employee's first employment with that Contractor. However, in order to receive said compensation, the employee must remain at work on the job at least five (5) working days, or in the case of jobs of less than five (5) working days, for the duration thereof.

2. In instances where a participating International Union is party to a program to provide welder certification and/or maintenance of welder certification records with objectives equal to this Article, then such program will be applicable under this Agreement.

ARTICLE XXVI – REPORTING REQUIREMENTS ADMINISTRATIVE FEES

1. All Employers signatory to this Agreement shall report all work hours performed under this Agreement on a quarterly basis or at such times as deemed necessary by the NMAPC. The report shall include the sum total of work hours performed by each craft at each location for each quarterly reporting period. Each location shall be reported separately on the NMAPC website at www.nmapc.org. Hard copies of the forms will be furnished by the NMAPC only upon request.

2. The Employer shall remit an annual administrative fee in such an amount deemed necessary by the NMAPC to defray the costs of administering and operating the NMAPC Program. Administrative fees shall be payable in accordance with the terms stipulated on the NMAPC Administrative Fee Invoice. Administrative fees may be remitted via the NMAPC website at www.nmapc.org.

3. As a party to this Agreement and participant in the NMAPC Program, the Employer acknowledges its obligation to remit the annual administrative fee to the NMAPC. Administrative Fees that remain outstanding will continue to accrue a late fee on each late notice.

In the event the Employer fails to remit such fees after demand for timely payment, the Employer consents to the jurisdiction of the courts of the Commonwealth of Virginia in any action brought by the NMAPC to collect the fee. The Employer further agrees that it will be liable and responsible for any costs of collection, including reasonable attorney fees and court costs, incurred in such action by the NMAPC.

ARTICLE XXVII – ADMINISTRATIVE PROCEDURE

1. Extensions of this Agreement shall be on a location by location basis and shall be sought for each location. Employers awarding work to a subcontractor must ensure that the subcontractor has applied for the NMA(s) and is in possession of them with permission to use them at the time of award, through the inspection of a valid site extension approval(s). Prejob conferences shall be required for all work performed under this Agreement as stipulated in Article I.

2. The Employer must file site extension requests via the NMAPC website at www.nmapc.org for the location(s) where the work will be performed. The Employer must be current in the remittance of all administrative fees and fringe benefit contributions in order to obtain or utilize a valid site extension.

3. This Agreement is between the Employer and the International Union only and is binding upon its affiliated local unions and district councils. The International Union is responsible for acting on all site extension requests in a timely manner. The NMAPC is the only intermediary or administrative body for this Agreement and the policy decisions contained in the NMAPC Book of Decisions, which are part of this Agreement. Revisions to this Agreement shall be made only by majority vote of the NMAPC.

4. This Agreement is a stand alone agreement and none of the provisions in any local, regional, area or national collective bargaining agreement shall apply, unless specifically incorporated in this Agreement. Furthermore, this Agreement is the exclusive collective bargaining agreement for any work to which it is extended, and for such work it supersedes and overrides the terms and conditions of any and all other national, area, or local collective bargaining agreements to which the parties hereto, or either of them may be signatory.

ARTICLE XXVIII – ADDENDA TO NATIONAL MAINTENANCE AGREEMENT

1. Addenda to this Agreement which are required to place the Employer in a more competitive position or address the Owner's requirements may be established by majority agreement of the signatory International Unions comprising the NMAPC. Such addenda shall be reduced to writing and shall be attached hereto and made part of this Agreement for that project.

2. The Employer or Owner shall submit its request in writing to the NMAPC outlining the various site requirements that necessitate such approval.

ARTICLE XXIX – DURATION OF AGREEMENT

SAMPLE

1. This Agreement becomes effective _____, 20_____, and shall continue in effect unless terminated by no less than ninety (90) days' notice to the other party, in writing or on the NMAPC website at www.nmapc.org. Changes may be made at any time by mutual consent.

2. The parties agree to revisions to this Agreement which are formally approved by the National Maintenance Agreements Policy Committee, Inc., and of which they are notified in writing by the Committee.

FOR THE *CRAFT NAME*:

SAMPLE

_____
General President

FOR THE EMPLOYER:

SAMPLE

_____
Company Name

_____
Street Address

_____
City State Zip

_____
Phone Number

_____
FAX Number

_____
Name and Title (Printed)

_____
Name and Title

NMAPC
NATIONAL MAINTENANCE AGREEMENTS POLICY COMMITTEE, INC.

1501 LEE HIGHWAY, SUITE 202 • ARLINGTON, VA 22209-1145
TELEPHONE: (703) 841-9707 • FAX: (703) 524-3364
www.nmapc.org

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-8.5
Energy Needs Contributions



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-8.5: ENERGY NEEDS CONTRIBUTIONS 1

When applicable, contributions to meeting Michigan's identified energy, capacity, reliability, or resource adequacy needs such as approved Integrated Resource Plans and Renewable Energy Plans. 1

LIST OF ATTACHMENTS

Attachment A-8.5 A MI Healthy Climate Plan

EXHIBIT A-8.5: ENERGY NEEDS CONTRIBUTIONS

Exhibit A-8.5 provides an energy needs contributions analysis by Lakeside Solar, LLC (Lakeside) for the Lakeside Solar and Battery Energy Storage System (BESS) Project (Project) located in White River Township, Muskegon County, Michigan. The maps provided in Exhibit A-1.1 Planned Facilities and Exhibit A-1.2 Area Land Use Information provide an overview of the Project facilities. Exhibit A-8.5 was prepared in accordance with the PA 233 Renewable Energy or Storage Siting Certificate Application Checklist. Additional contributions of the Project to Michigan's reliability and resource adequacy needs are addressed in the Direct Testimony of Rafik H. Halim.

When applicable, contributions to meeting Michigan's identified energy, capacity, reliability, or resource adequacy needs such as approved Integrated Resource Plans and Renewable Energy Plans.

Michigan's Renewable Portfolio Standard, established under Public Act 295 of 2008 and modified in both Public Act 342 of 2016 and Public Act 235 of 2023 ("PA 235"), mandates that the state's utilities achieve a renewable energy credit portfolio of 60% by the year 2035. It sets interim targets of 15% through 2029 and 50% from 2030 through 2035. Michigan's Clean Energy Standard, established under PA 235 of 2023, mandates that the state achieve 100 percent clean energy by 2040. The legislation defines clean energy as electricity generated from resources that do not emit greenhouse gases, which include both renewable resources like wind, solar, and hydropower, and nuclear power, and from fossil fuels if used with carbon capture and storage technology that captures and permanently stores at least 90 percent of carbon dioxide emissions. Public Act 235 sets an interim target of 80 percent clean energy by 2035. To support these goals, PA 235 requires utilities to implement enhanced energy efficiency programs and mandates the state's utilities to petition for approvals to collectively develop 2,500 megawatts (MW) of energy storage by the end of 2029. Additionally, the cap on distributed generation, such as rooftop solar installations, has increased from 1 percent to 10 percent of peak electricity load. These measures aim to reduce greenhouse gas emissions, promote environmental justice, and stimulate economic growth through the creation of clean energy jobs.

Prior to PA 235, Michigan Governor Gretchen Whitmer issued Executive Directive 2020-10 requiring the Department of Environment, Great Lakes, and Energy to develop the MI Healthy Climate Plan to guide Michigan's efforts to reduce greenhouse gas emissions and achieve carbon neutrality. Attachment A-8.5 A contains the MI Healthy Climate Plan.

Prior to and since the adoption of PA 235, Michigan's two primary utilities, Consumers Energy Company ("Consumers Energy") and DTE Electric Company ("DTE Electric"), have planned to acquire large quantities of solar and storage capacity. Consistent with the statutory goals of PA 235, the Michigan Public Service Commission has approved significant renewable development by these utilities, including Consumers Energy's plan to acquire approximately 8,000 MW of new solar resources consistent with the settlement agreement in its 2021 IRP, Case No. U-21090 (see also the September 11, 2025 Order in Case No. U-21816), and DTE Electric's plan to develop approximately 3,800 MW of wind and solar resources between 2024 and 2030 consistent with the settlement agreement approved its 2022 IRP, Case No. U-21193 (see also the May 15, 2025 Order in Case No. U-21662). DTE's 2022 IRP settlement agreement also included plans to acquire 780

MW of both utility- and third-party-owned battery energy storage through 2030. Although the Project has not yet entered into an offtake agreement with either of these utilities, the Applicant anticipates that the Project will represent a competitive option for renewable energy that both utilities—and potentially other electricity suppliers or users, including cooperatives and municipal utilities—would be interested in, provided the Project can achieve siting approval here.

The Project will provide cost-effective solar energy generation and storage. The Solar Facility and BESS operate in a complementary manner. The Project includes a co-located BESS configured for Midcontinent Independent System Operator surplus interconnection service. The BESS is dispatched independently of instantaneous solar output but is controlled by the Project's energy management system so that combined exports from the Solar Facility and the BESS at the point of interconnection (POI) never exceed the Generator Interconnection Agreement's limits of 200 MW.

In routine operation, the BESS charges from the grid when market prices are low or negative (e.g., midday or due to POI constraints) and later discharges through the same POI during evening or peak-demand periods when solar is not generating. This configuration maximizes the interconnection headroom, reduces congestion, and does not increase the Project's maximum export capability.

Lakeside is working to secure a Power Purchase Agreement, Build Transfer Agreement, Development Transfer Agreement, or other enforceable offtake agreement to sell the electricity, Renewable Energy Certificates, and capacity generated or stored by the Project. The power generated or stored by the Project will be offered to wholesale customers, including to Michigan investor-owned utilities and cooperatives that have identified a need for additional low-cost renewable energy and capacity, and to corporate and industrial customers that have set clean energy goals.

The Project will directly support Michigan's goal of achieving a 60 percent renewable portfolio standard by 2035 and 100 percent clean energy standard by 2040, contributing specifically to the state's interim renewable energy target of 50 percent by 2030 and interim clean energy target of 80 percent by 2035. The BESS will also contribute towards the 2,500 MW of energy storage mandated by PA 235. The Project will meet growing consumer demand for renewable energy through utility-sponsored programs and serve utilities, independent power purchasers, and corporations seeking renewable energy to facilitate business growth, while significantly reducing greenhouse gas emissions. The Solar Facility will provide up to 200 MW alternating current nameplate capacity of renewable power. The Project is estimated to avoid approximately 190,200 metric tons of carbon dioxide emissions annually during operation, which is the equivalent of taking an estimated 44,300 cars off the road for a year or providing the equivalent electrical usage of an estimated 39,600 homes each year. The Project has been developed, designed, and permitted to meet or exceed applicable state and local requirements.

Attachment A-8.5 A

MI Healthy Climate Plan

MI HEALTHY CLIMATE PLAN



EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

APRIL 2022



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

This report is available digitally at *Michigan.gov/EGLE*

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To request this material in an alternative format, contact EGLE-Accessiblity@Michigan.gov or call 800-662-9278.

LETTER FROM EGLE DIRECTOR



Dear fellow Michigan residents:

I am proud to present the MI Healthy Climate Plan, with thanks to Governor Gretchen Whitmer for trusting the Michigan Department of Environment, Great Lakes, and Energy to lead this work and deep appreciation for the hundreds of Michiganders who contributed to it over the past year through thousands of hours of research, reflection, and conversation.

This plan lays out a broad vision for fulfilling the governor's fall 2020 commitment for Michigan to achieve 100% economy-wide carbon neutrality by midcentury – the global science-based benchmark for reducing greenhouse gas emissions to avoid the most devastating and costly impacts of climate change.

As its name suggests, this is a uniquely Michigan plan. It was shaped by a multitude of Michiganders with varied perspectives on climate change. We heard from environmental justice, public transit, local food, and climate action advocates; an array of business and labor leaders; academic experts and local government officials; and concerned residents of all political persuasions and walks of life. I firmly believe conversation leads to better outcomes. In this case, it has produced a bold plan that a broad cross-section of Michiganders can rally around.

This Plan is also rooted in what makes our state special. No state is better positioned than Michigan to advance equity, create good-paying jobs, increase economic competitiveness, and improve quality of life in pursuing carbon neutrality – thanks to our unmatched freshwater resources and heritage as a global manufacturing innovator, diverse agricultural producer, world-class outdoor recreation hub, and home to talented people and vibrant communities.

Finally, the responsibility for implementing this Plan and refining it over time is ours. All 10 million of us have big parts to play in decarbonizing our economy – from the governor and state lawmakers who will make the necessary state policy changes and budgetary decisions to the workers, business leaders, and entrepreneurs who will turn cutting edge climate solutions into high-quality jobs and economic prosperity; the community leaders and advocates who will ensure this work reaches every corner of the state and benefits every Michigan family; and each of us as individuals and consumers who will take myriad actions in our daily lives.

It is essential that we act now to greatly accelerate the decarbonization of Michigan's economy, building on the recent progress Michigan has made thanks to our public and private sector leaders. While some solutions to achieve a 100% decarbonized economy that delivers good jobs and justice are still on the drawing board, most are well known to us and awaiting our commitment to getting the job done and equitably sharing the burdens and benefits.

Fortunately, we have the resources to demonstrate that commitment and kickstart progress. Governor Whitmer's 2023 state budget recommendation includes over $500,000,000 for climate, clean energy, and mobility initiatives. And the state is committed to fully leveraging the current dramatic influx of federal dollars to move Michigan closer to our decarbonization goals.

In other words, we have a commitment, a plan, and a financial platform. We have what we need, so let's get to work.

Liesl Eichler Clark, Director
Michigan Department of Environment, Great Lakes, and Energy

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EXECUTIVE SUMMARY

The real and costly impacts of the climate crisis are irrefutable and that was especially obvious on the ground in Michigan during 2021. Severe, climate-induced weather events over the summer caused more than one million Michiganders to lose power, some for a week or more. Southeast Michigan was hit by intense rain, causing widespread floods and sewer backups. All this came on the backend of a decade in which our state has experienced massive flooding and dam failures, high water levels and erosion that destroyed public and private property, major crop failures from erratic spring temperatures, and three polar vortexes that challenged Michigan families to keep the heat on.

Sadly, Michigan is not alone. We all remember Texas freezing over after unprecedented cold and ice storms in February 2021, taking lives, freezing pipes, and causing historic damage.

Meanwhile, California was ablaze, hit by twice as many wildfires as the previous record year. A “heat dome” that settled over the Pacific Northwest in late June broke the previous record temperature by more than 10 degrees.

Globally, the seven warmest years in recorded history have occurred since 2015, a trend the United Nations’ Intergovernmental Panel on Climate Change has called “a code red for humanity.”

If we do not act aggressively to reduce greenhouse gas (GHG) emissions, these changes will only intensify, and the impacts will become more challenging, dangerous, and expensive for Michigan residents. It is imperative that we reduce emissions as quickly as possible and simultaneously prepare for the changes we cannot prevent.





The good news is we have made progress in recent years in reducing our GHG emissions. In the process, we have learned that aggressive action on climate change presents a variety of significant opportunities to better the lives of all Michiganders, including offering immediate opportunities to **reduce costs** and create **good-paying jobs for working families**.

Governor Whitmer has taken bold action to dramatically accelerate Michigan's progress down that promising path, including committing Michigan to economy-wide carbon neutrality no later than 2050 with aggressive interim targets on the way to midcentury and net negative GHG emissions thereafter. To achieve these ambitious goals, she charged the Michigan Department of Environment, Great Lakes, and Energy's (EGLE) Office of Climate and Energy with developing the *MI Healthy Climate Plan* (Plan). (See *Introduction*)

MICHIGAN - one of only 14 states with bold economy-wide goals

- ✓ Reduce GHG emissions 28% below 2005 levels by 2025 and 52% by 2030
- ✓ Achieve economy-wide carbon neutrality by 2050
- ✓ Maintain net negative GHG emissions thereafter

OBJECTIVES



OBJECTIVES OF THE MI HEALTHY CLIMATE PLAN



The Plan strongly emphasizes environmental justice to ensure Michigan's climate strategies uplift every portion of the state, including individuals and communities that have borne the brunt of climate impacts and are at the greatest risk of being left behind in the transition ahead. It also spotlights decarbonization strategies that will yield significant health, economic, and other benefits. (See *Why Climate Action Matters for Michigan*).

The Plan is meant to identify what needs to happen for Michigan to reach carbon neutrality by 2050 with a prioritization on actions from now until 2030. It focuses most heavily on the areas where the biggest, most rapid gains in GHG reductions can be made – energy, transportation, and buildings. The Plan's full complement of recommendations are detailed in the *Roadmap to 2030* section . The following briefly summarizes the highlights across the six categories the Plan uses to group the climate actions needed to achieve our goals.

Commit to Environmental Justice and Pursue a Just Transition: Ensure that at least 40 percent of state funding for climate-related and water infrastructure initiatives benefit Michigan's disadvantaged communities (in line with the federal government's Justice40 guidelines for federal funding); that Justice40 is developed in partnership with leaders in disadvantaged communities; and that Michigan emphasizes a just transition for all workers through proactive engagement, job training, and workforce development.

Clean the Electric Grid: Generate 60 percent of the state's electricity from renewable resources and phase out remaining coal-fired power plants by 2030. Limit energy burden from powering and heating homes to not more than 6 percent of annual income for low-income households.

Electrify Vehicles and Increase Public Transit: Build the infrastructure necessary to support 2 million electric vehicles on Michigan roads by 2030. Increase access to clean transportation options – including public transit – by 15 percent each year.

Repair and Decarbonize Homes and Businesses: Reduce emissions related to heating Michigan homes and businesses by 17 percent by 2030. Increase investments in repairing and improving buildings to reduce costs for working families and small businesses.

Drive Clean Innovation in Industry: Encourage clean innovation hubs where private enterprises strategically co-locate and collaborate to develop and deploy new, cleaner manufacturing technologies and conduct research and development to reduce emissions from hard to decarbonize industries. Triple Michigan's recycling rate to 45 percent and cut food waste in half by 2030.

Protect Michigan's Land and Water: Protect 30 percent of Michigan's land and water by 2030 to naturally capture GHG emissions, maintain and improve access to recreational opportunities for all Michiganders, and protect biodiversity. Leverage innovative strategies to support climate-smart agriculture.

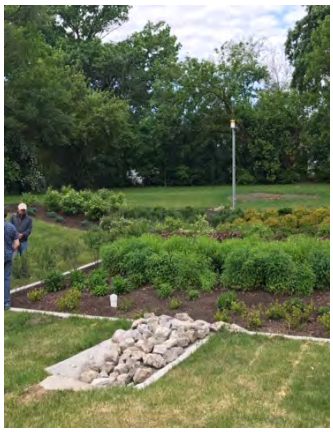
The Plan's comprehensive set of policy recommendations in these areas will help reduce GHG emissions at the scale and pace necessary to reach our interim goal of reducing GHG emissions 52% by 2030. However, they do not go far enough on their own. Additional policy changes and actions in every sector will be necessary to get all the way to that target. That is why we must continue to evaluate and update strategies (and this Plan) and seek new emissions-reduction pathways that will spur a self-reinforcing cycle and more fully unleash Michigan ingenuity.

Beyond 2030, the steps necessary to make Michigan's economy carbon neutral by 2050 are no less urgent. In many cases, the actions necessary to fully achieve this goal over the next 28 years will require substantial efforts in the sectors of our economy that are hardest to decarbonize, including industry, buildings and housing, and agriculture. The Plan takes a balanced approach to these issues, identifying the actions we can take today to make real progress between now and 2030, while also immediately digging into the hard work of identifying strategies to get us the rest of the way to carbon neutrality by 2050. To achieve our goals, we must also avoid actions between now and 2030 that make it more difficult to reach carbon neutrality.

It is also important to note that this Plan is a climate mitigation and greenhouse gas reduction plan, not a comprehensive plan to adapt and become resilient to the effects of climate change. That said, as we work toward our 2030 and 2050 goals, the State will support residents and communities in adapting to the climate impacts we are already facing, especially those in historically disadvantaged and underserved communities. Additionally, mitigation and adaptation are not mutually exclusive – their actions often overlap and benefit each other. Still, while there are climate adaptation considerations in this document, they do not constitute a holistic climate adaptation strategy for Michigan.

Concerted action by all Michiganders will be required to achieve the steep reductions in GHG emissions our state needs to achieve its goals. Fortunately, our communities, businesses, and institutions have already stepped up and created strong momentum for us to build upon. As described further below, the State of Michigan is also leading by example with Governor Whitmer directing state departments to use all the tools at their disposal to reduce GHG emissions in their operations and otherwise act on climate. (See Leading by Example in State Government)

While the objectives detailed in the rest of this Plan are ambitious—and in some cases daunting—it is important to recognize that our journey to carbon neutrality has already begun thanks to the leadership, creativity, and ingenuity of Michiganders across our state.






INTRODUCTION

GOVERNOR WHITMER'S COMMITMENTS



Recognizing the urgency of the crisis and the opportunities to build a better future for Michigan as we reduce our GHG emissions (see *Why Climate Action Matters for Michigan*), Governor Gretchen Whitmer has taken bold and sustained action on climate change since taking office.

In September 2020, she signed Executive Directive 2020-10, which committed Michigan to a goal of achieving economy-wide carbon neutrality no later than 2050 and maintaining net negative greenhouse gas emissions (GHG) thereafter. Carbon neutrality means that any carbon dioxide released into the atmosphere is balanced by an equivalent amount being removed. She also reaffirmed the goals in Executive Directive 2019-12, which committed Michigan to pursue at least a 26-28 percent reduction below 2005 levels in GHG emissions by 2025. In addition to the goals set by these directives, Michigan joined 24 other states and Puerto Rico – under the umbrella of the U.S. Climate Alliance – in committing to an interim goal of a 52 percent GHG reduction by 2030.

Executive Directive 2020-10 charged EGLE, through its Office of Climate and Energy (OCE), with developing the *MI Healthy Climate Plan* to serve as this state's action plan to reduce GHG emissions and transition toward economy-wide carbon neutrality with a focus on solutions that support communities disproportionately impacted by the changing climate.

Michigan's Commitment

In addition to leadership from state government, this progress has been driven – and will continue to be driven – by the actions and commitments of Michigan's communities, businesses, and institutions, including, but not limited to, the examples below.

Leading communities: At least 16 Michigan communities, ranging from the City of Ann Arbor to Shelby Township, have set goals to be carbon neutral or to reach 100 percent renewable energy by 2050.

Tribal leadership: The Sault Ste. Marie Tribe of Chippewa Indians has a net-zero energy goal and aims to reduce greenhouse gas emissions by four percent per year.

Our largest universities: The University of Michigan committed to eliminate both direct emissions and emissions from purchased energy between 2025 and 2040. Michigan State University committed to carbon neutrality by 2050 with interim reduction goals.

Homegrown businesses: Steelcase has achieved carbon neutrality and has set a target to become carbon negative by 2030. Whirlpool set a net-zero emissions target in its plants and operations by 2030. Dow set a target of being carbon neutral by 2050. General Motors (GM) set a goal of carbon neutrality in its global products and operations by 2040. Ford Motor Company set a goal of carbon neutrality by 2050 and committed to powering its manufacturing plants with 100 percent locally sourced renewable energy by 2035. And many more Michigan businesses – large and small – are stepping up.

Our largest utilities: Consumers Energy set a goal of net-zero carbon emissions by 2040. DTE Energy set a goal to achieve net-zero carbon emissions by 2050 with interim reductions targets.

A Climate Plan Shaped by Michigan Residents

The Plan was developed by EGLE with input from hundreds of Michigan residents. To serve as the primary venue for gathering and channeling that input, Governor Whitmer created the Council on Climate Solutions through Executive Order 2020-182.

The Council consists of 14 Michigan residents appointed by the governor to represent a range of sectors, experiences, and expertise relevant to climate issues. Additionally, the Council includes the directors (or their designees) of EGLE and the Michigan Departments of Agriculture and Rural Development (MDARD), Labor and Economic Opportunity (LEO), Michigan Economic Development Corporation (MEDC), Natural Resources (DNR), Transportation (MDOT), and Health and Human Services (DHHS), as well as the State Treasurer and the Chair of the Michigan Public Service Commission (MPSC).

The Council met 14 times in 2021 to develop a common knowledge base on the climate challenge and discuss the content and recommendations laid out in this Plan and its appendices. To dig deeper and tap broader expertise across Michigan in key areas, five topical workgroups were formed to support the Council:



- Energy Production, Transmission, Distribution, and Storage
- Transportation and Mobility
- Buildings and Housing
- Natural and Working Lands and Forest Products
- Energy Intensive Industries

In addition to the above workgroups, an internal group led by EGLE staff provided recommendations on decarbonization related to materials management.

Hundreds of Michiganders participated in these come-one-come-all workgroups, the membership of which was open to the public. Each was co-chaired by a State of Michigan official and a private-sector resident with subject-matter expertise in the relevant field. These workgroups met periodically through much of 2021 and presented their recommendations to the full Council in the closing months of the year. Listening sessions were then conducted to receive public input on those recommendations (a complete set of which is provided in the appendices).

In 2022, EGLE released a draft of this Plan for public feedback, welcoming written comments and creating forums for the public to engage and comment on the plan. After overwhelming interest, EGLE extended the timeline for input. In addition to public forums, EGLE facilitated consultation with tribal governments and hosted meetings with Council and workgroup members, key stakeholders, and the Michigan Advisory Council on Environmental Justice (MAC-EJ).

17
Council on Climate Solutions meetings held to date (open to public)

2
Consultations with Tribal government

10+
Presentations from experts at Council meetings

6 TOPICAL WORKGROUPS

- Energy production, Transmission, Distribution, and Storage
- Transportation and Mobility
- Energy Intensive Industries
- Buildings and Housing
- Natural and Working Lands and Forest Products
- Materials Decarbonization (ad hoc)

1929 PUBLIC COMMENTS RECEIVED ON DRAFT PLAN

243
Original emails

1,570
Form message emails

2
Regular mail

114
Via 3 listening sessions

7 LISTENING SESSIONS 2021-2022

April 22, 2021 • May 5, 2021 • December 1, 2021 • December 2, 2021
January 26, 2022 • February 8, 2022 • February 14, 2022

WHY CLIMATE ACTION MATTERS FOR MICHIGAN

MICHIGAN IS FEELING THE IMPACTS OF CLIMATE CHANGE

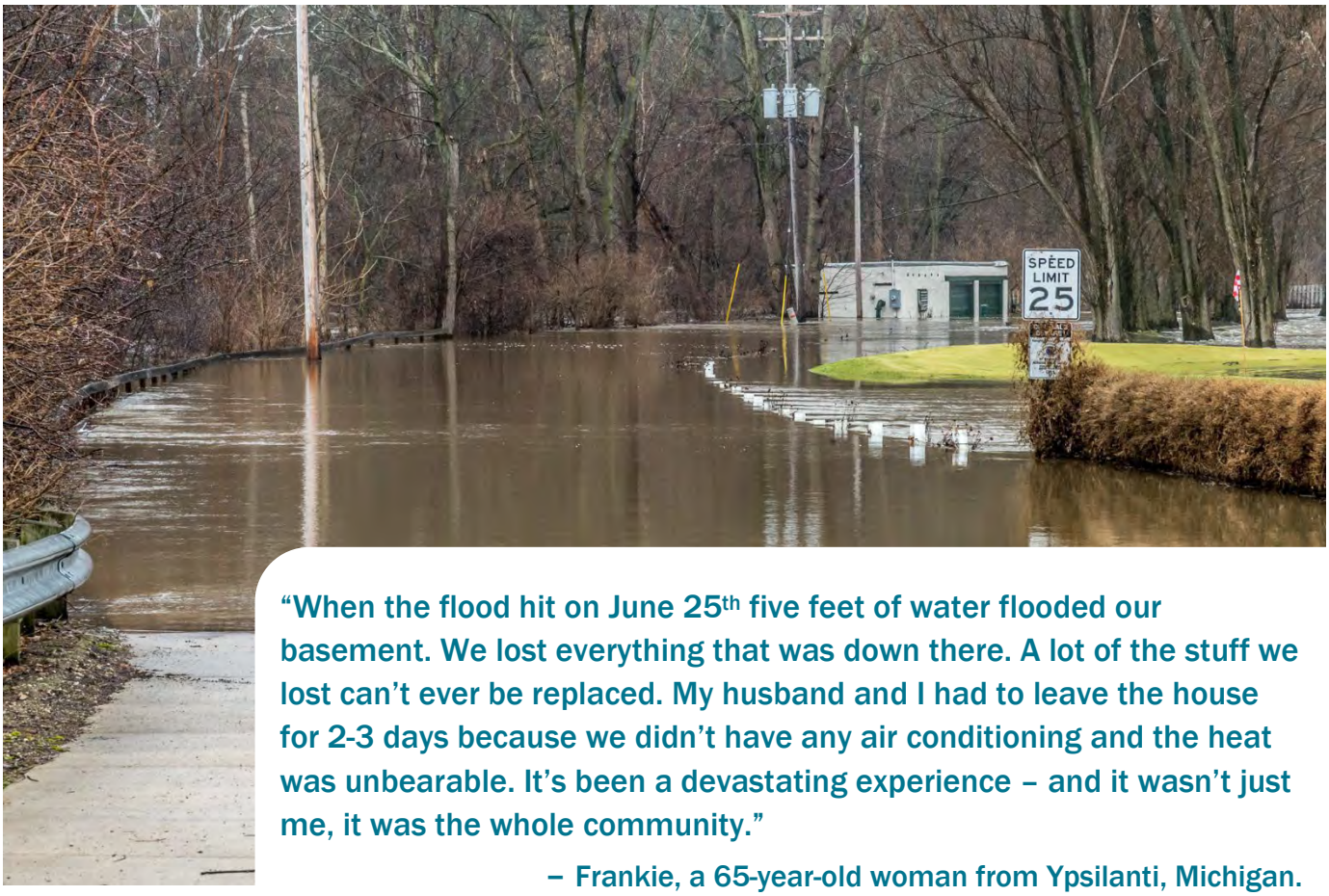
Immediate, aggressive action on climate change ensures that Michiganders – present and future – can thrive in Michigan.

In just the last three years, Michigan has felt the real impacts of climate change. The state has faced a polar vortex that forced residents to come together to keep the heat on, high lake levels that crumbled personal property and public infrastructure, record flooding that caused sewers to back up into homes, increased instances of disease-carrying insects, toxic algal blooms that put our waters in danger, the temporary closure of businesses that rely on seasonal consistency, the breaking of dams that led to the evacuation of a community, and week-long power outages.

Historically stable patterns are changing rapidly in unpredictable ways. Compared to 1900, Michigan is almost 3 degrees warmer and gets around five more inches of rain per year.

Frequent and intense storms

Michigan is experiencing historic levels of rain and intense storms. A continuation of extreme rain will lead to more property loss and infrastructure failures, an increase in the likelihood of contamination, bacteria, algal blooms in water supplies, and the risk of contracting waterborne diseases like Legionnaire's. The state has also seen extreme changes in Great Lakes water levels.



"When the flood hit on June 25th five feet of water flooded our basement. We lost everything that was down there. A lot of the stuff we lost can't ever be replaced. My husband and I had to leave the house for 2-3 days because we didn't have any air conditioning and the heat was unbearable. It's been a devastating experience – and it wasn't just me, it was the whole community."

– Frankie, a 65-year-old woman from Ypsilanti, Michigan.

Rapid temperature changes

Michigan summers are becoming hotter and drier. The latest science suggests that summers in Detroit in 2100 will feel like summers in Dallas do now. Extreme heat will lead to increased hospitalizations due to heat exhaustion and heatstroke, wildlife loss from habitat changes, and increased levels of mosquito and tick populations that carry diseases like West Nile Virus and Lyme Disease. As with intense rains, high heat can damage infrastructure and personal property. Michigan is already seeing roads and sidewalks buckle and break from rising temperatures. On the other side of the calendar, Michigan winters are becoming more unpredictable. In the last 10 years, the state has experienced three polar vortexes leading to irregular cold blasts.

Along with more severe extremes, uncertainty in temperatures has also presented newfound challenges, especially for seasonal activities and industries like farming, hiking, camping, boating, skiing, snowmobiling, and ice fishing. This uncertainty was especially prominent in March 2012 when the state experienced a record-breaking crop loss event when temperatures hit over 80 degrees causing Michigan cherry trees to bloom, only for the crop to be almost entirely lost when temperatures dipped back below freezing in April.



"In 2012, Michigan lost over 90% of its tart cherry crop because of erratically warm weather that fooled our cherry trees into blossoming while in frost season. Michigan's agriculture relies on relatively predictable, stable weather conditions. As the climate changes, we have to operate with increasing uncertainty. Some farmers have been forced to import cherries to make up for the losses, make expensive updates, or just leave the industry. Our industry has a rich, proud history in Michigan rooted in its soil, built by its waters, but now those same natural forces are having devastating impacts on our bottom line."

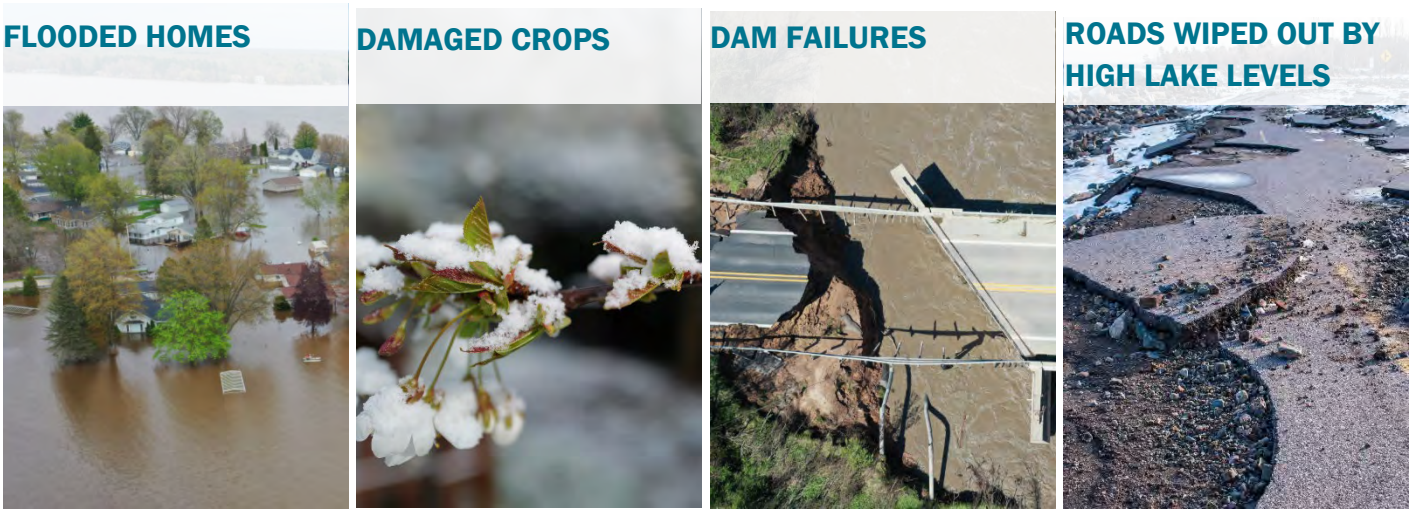
– Bob Sutherland, President of Cherry Republic

If we don't act aggressively to reduce GHGs, these impacts will only intensify and become more challenging and expensive for Michigan residents. It is imperative that we reduce emissions as quickly as possible and simultaneously prepare for the changes we cannot prevent.

Importance of adaptation

The MI Healthy Climate Plan is a climate mitigation and greenhouse gas reduction plan, not a comprehensive plan to adapt and become resilient to the effects of climate change. That being said, Michigan families are already feeling the impacts of climate change – with the most vulnerable being hit hardest. Governor Whitmer and the State of Michigan are committed to continuing to support communities as they prepare for and adapt to climate change. This will be done through regular engagement and communication, the sharing of tools and best practices, and a commitment to robust emergency response protocols in the event of a disaster.

The State is also working to make state-owned infrastructure more resilient and is providing funding and guidance to communities to help them do the same. Mitigation and adaptation are not mutually exclusive. In fact, combining the two is essential. According to the IPCC's most recent report on impacts, adaptation, and vulnerability, adaptation measures become less effective the more the planet warms, and mitigation efforts that do not anticipate future conditions are less effective. We must adapt to the existing impacts of climate change as we work to decarbonize our economy.



Action is an Opportunity to Improve Health Outcomes

Protecting our public health, air, and water by reducing our reliance on fossil fuel technologies like coal-fired power plants.

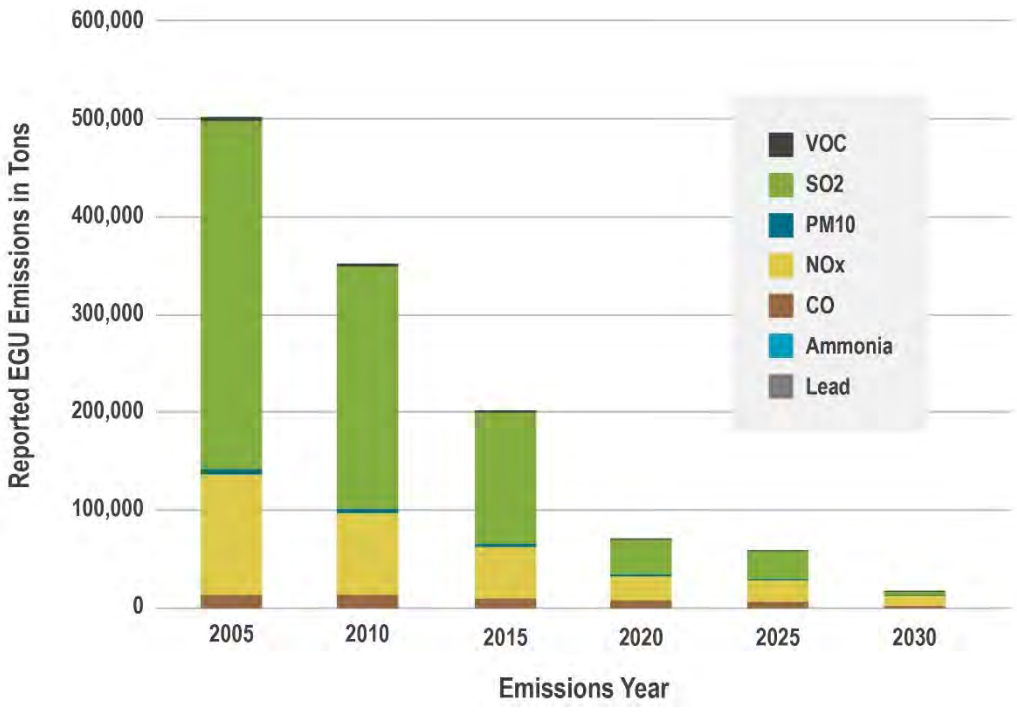
As Michigan implements the strategies in the Plan to reduce GHG emissions, levels of other harmful pollutants in our environment will continue to drop in tandem. That's why determined action to achieve carbon neutrality is an opportunity to dramatically improve public health outcomes, reduce health costs, and avoid lost wages from trips to the doctor, emergency room, or worse. This is especially true for families and communities historically impacted by pollution.

Easier to breathe

To take the example of one air pollutant, studies have found that breathing in particle pollution—of which coal-fired power plants are a major source – leads to decreased lung function, increased levels of asthma, exacerbated respiratory symptoms such as coughing or difficulty breathing, and even premature death in people with heart or lung disease. According to state and national data, Michigan's particulate matter pollution from power plants has dropped 73 percent since 2005 as the state has transitioned away from coal-fired power to cleaner energy sources.

As Graph A shows, closing coal-fired power plants and transitioning to cleaner energy sources has spurred similar emissions reductions in Michigan across the five common air pollutants for which the U.S. Environmental Protection Agency sets National Ambient Air Quality Standards (because of their respiratory, cardiovascular, and other harms). Emissions of those pollutants from energy generation in Michigan has dropped 85 percent since 2005. With the closure of our state's remaining coal-fired power plants by 2030, that figure is expected to rise to 96.4 percent. In addition, estimated PM2.5 emissions from electric generating utilities declined from 2,302 tons in 2005 to 1,349 tons in 2020.

Criteria Pollutants from EGUs



All data is in estimated tons of emission in 2017

Sources: Michigan Air Emissions Reporting System (MAERS) and the EPA's triennial National Emissions Inventory (NEI)

Demonstrating how this Plan's primary focus on decarbonizing Michigan's energy production, transportation, and buildings will drive public health benefits, Table A shows the extent to which each of those sectors contribute to emissions of those five common air pollutants.

The transportation sector is currently the largest source of those pollutants in Michigan (Table A). Federal auto emission standards have and will continue to reduce pollution from internal combustion engines. In fact, total emissions dropped around 20 percent between 2014 and 2017. However, we can accelerate those reductions by electrifying our transportation sector. As Michigan residents transition to electric vehicles, we can expect greater improvements in air quality and a decline in related health problems. Better public transit and an increased availability of walking and biking opportunities will also reduce harmful emissions and give residents better opportunities for exercise and enjoyment of Michigan's recreational amenities.

This is particularly important in areas disproportionately impacted by pollution from the concentration of major transportation corridors there. As Michigan works to decarbonize our transportation sector according to this Plan, state and local transportation planning processes should more fully account for health impacts and emphasize solutions that will accelerate the reduction in transportation-related air pollution.

Emissions by Pollutant

Pollutant	Electricity Generating Units	Residential Heating	Transportation		
			Heavy Duty	Light Duty	Refueling
Ammonia	98	3,592	220	2,830	
Carbon Monoxide	10,287	82,401	38,133	641,545	
Nitrogen Oxides	38,704	18,053	39,332	66,297	
PM10 Primary	1,134	10,560	4,095	4,919	
Sulfur Dioxide	66,296	485	106	533	
Volatile Organic Compounds	971	11,310	4,342	52,992	4,456

All data is in estimated tons of emission in 2017.

Sources: Michigan Air Emissions Reporting System (MAERS) and the EPA's triennial National Emissions Inventory (NEI)

While improved air quality is the most direct and widely recognized link between reduced GHG emissions and improved public health, Michigan's pursuit of carbon neutrality can also benefit our land and water. To take one example, Michigan's more than two dozen coal ash landfills are another legacy of our state's historic coal-fired power production. Located close to current and former plants—and in some cases residential areas—these landfills have a history of leaking into underlying aquifers that residents rely on for drinking water. Our transition away from reliance on coal-fired power production will help avoid this contamination in the future.

Finally, we must recognize that climate change is already—and will continue to—have significant public health consequences. Power outages, extreme heat events, exposure to bacteria during sewer backups, and other such climate-related impacts harm Michigan families. Avoiding the most severe such consequences by reducing our GHG emissions as rapidly as possible will help Michigan avoid costly and devastating health outcomes to the greatest extent possible.

In short, decarbonizing Michigan's economy is a powerful strategy for improving the health and well-being of our 10 million current residents and the generations to come.



"The [Midland] flood in 2020 had great impact on those with diabetes in this area. We had patients that lost homes or were living outside of their home for a long time after the flood. This led to issues with refrigeration for their insulin and obtaining supplies for their insulin pump because they had no address for their durable medical equipment company to ship their diabetes supplies to."

– Erin, RN, CDCES, Diabetes Center Manager, MyMichigan Medical Center, Midland

Action is an Opportunity to Right Environmental Injustices

Addressing historical harms, prioritizing environmental justice, and creating equitable opportunities for all Michigan residents.

The State of Michigan should be a place where everyone, no matter their zip code or what is in their wallet, should have the opportunity to thrive – to meet their basic needs, enjoy the dignity of good work, and live in a healthy community with access to affordable housing, water, heat, power, and transportation. Unfortunately, this has not always been the case, particularly for Black, brown, indigenous, rural, and low-income people.

Environmental justice communities are most often communities of color and/or low-income communities. In addition to facing disproportionate impacts from environmental harms, they generally have been excluded from the opportunities enjoyed by most of society and left behind during major historic economic shifts like our current transition to carbon neutrality.

> *The State of Michigan defines environmental justice as the equitable treatment and meaningful involvement of all people, regardless of race, color, national origin, ability, or income in the development and application of laws, regulations, and policies that affect the environment, as well as the places people live, work, play, worship, and learn.*



Environmental injustices are part of a long history of race-based discrimination rooted in the sustained actions, behaviors, and attitudes of institutions and individuals and encoded in our laws at every level. As a result of this structural racial discrimination, environmental justice communities disproportionately neighbor highways, power plants, factories, and other facilities that release pollution into the air and water. Exposure to this pollution over time leads to health issues and lower quality of life. These communities also tend to enjoy fewer trees and lack access to green spaces and other quality outdoor recreation amenities.

Environmental justice considerations are a key component of equitable climate action and will continue to be a priority for the state as it works to eliminate racial disparities impacting the health and well-being of Michiganders. Recognizing that bringing communities of color off the frontlines of the climate crisis and ensuring that they will be full beneficiaries of a carbon neutral economy, Governor Whitmer called on those developing the MI Healthy Climate Plan to design and recommend decarbonization strategies that will prioritize and advance equity and environmental justice. The transition to a carbon neutral economy has the potential to help alleviate existing environmental injustices, address historical harms, and create new opportunities for Michiganders.

Disproportionate impacts

While Michiganders have relied for generations on the burning of fossil fuels for everything from driving to work to cooking dinner and turning on the lights, many of Michigan's most disadvantaged communities and communities of color have faced the brunt of the environmental and other impacts of an economy based on fossil fuels.

In the electricity sector, high-emitting power generation facilities and related fossil-fuel infrastructure are often located in low-income communities and communities of color. Meanwhile, in Michigan, households with an income below the Federal Poverty Line spend 18 percent of their income on energy, compared to an average of 3 percent for the overall population.

In the transportation sector, high-emitting transportation corridors often run right through low-income communities and communities of color, splitting historic neighborhoods in two, burdening them with higher pollution, and otherwise undermining their quality of life.

In homes and businesses, many disadvantaged communities live and work in subpar buildings, face higher energy burden, and are subject to health-related impacts from natural gas appliances, all while lacking access to the investments in energy efficiency and onsite renewable energy seen in other communities.



In the industrial sector, low-income communities and communities of color often endure the environmental and other harms of life on the fence lines of heavy industrial facilities.

Michigan recognizes that tribal nations have also faced disproportionate burdens in our fossil fuel economy and are especially vulnerable to the impacts of climate change because of their deep ties to the land and reliance on hunting, fishing, and gathering. Oil spills and other such contamination have impacted resources like wild rice. The changing climate threatens the sustainability of the Great Lakes fishery which tribal fishers rely upon to earn a living and feed their families. Many cultural practices and traditions require access to species, like the maple tree, that are put at risk by climate change. Michigan's climate strategies and actions must honor, embrace, benefit, and not interfere with the cultural heritage and treaty rights of federally recognized tribal nations in Michigan and preserve the fragile balance of the Great Lakes ecosystem at the heart of that heritage and those rights.



Just transition

As Michigan transitions away from fossil fuels and traditional carbon heavy industries, it is critical to prepare our workforce for the new opportunities of a carbon neutral economy and ensure all Michigan families have access to those opportunities, particularly those who have not enjoyed equitable access in the past. To ensure our transition to carbon neutrality is just—and avoid responding to climate change in a way that reinforces challenges that historically disadvantaged communities have faced—we need to proactively and intentionally plan for equity and environmental justice. During the transition to a carbon neutral economy, Michigan's most vulnerable communities must be prioritized. The transition to a carbon neutral Michigan needs to happen as fast as possible without leaving anyone behind.

In response to a 100-year rain event, the Macomb County Health Department surveyed homes.

"The responses to our post-flood survey allowed us to see the impact socioeconomic factors have on our population's health. We found it concerning that low-income households (37%) were more than twice as likely to report a decline in their health status than high income households (16%). This has provided an opportunity to focus our messaging and community engagement activities going forward to help us better prepare for future emergencies."

Tom, Environmental Health Services Division Director, Macomb County Health Department

Action is an Economic Opportunity for Michigan

Creating good paying jobs for Michigan families, increasing our state's economic competitiveness, and lowering costs as we pursue carbon neutrality.

Climate change is already resulting in economic costs to families and businesses across the state, but strategic and aggressive climate action also presents immediate and long-term opportunities to create economic growth, support good-paying union jobs, and lower costs for working families. Immediate and sustained action on climate is also necessary for Michigan to remain globally competitive in the decades ahead. The transition to a carbon neutral Michigan needs to happen as fast as possible without leaving anyone behind.



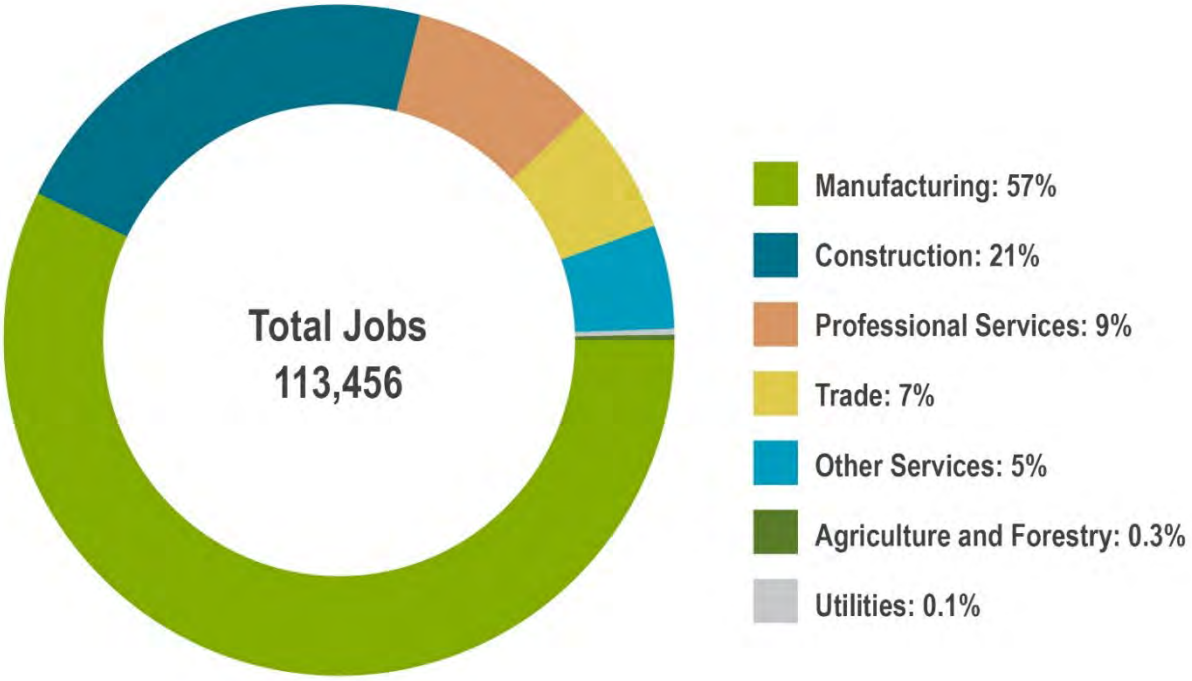
Economic opportunities

Businesses are increasingly focused on climate and are looking to invest and locate in states that embrace clean energy, advanced manufacturing, and the next generation of transportation. If the State acts aggressively on climate and builds on Michigan's strengths in manufacturing and the automotive sector, we can ensure that homegrown companies stay in Michigan and that the state is more attractive to new economic development opportunities.

In 2021, Michigan was ranked as a top 3 state for sustainable development. Over the past three years, according to the Michigan Economic Development Corporation, Michigan has received more than $16 billion in private investment from mobility and automotive companies. In early 2022, GM announced the company's largest ever investment—a total of $7 billion to develop a new battery factory in the Lansing area and convert an existing factory in Orion Township to electric pickups. This major stake in making Michigan an electrified transportation leader will create 4,000 new jobs and retain another 1,000 existing ones in our state. Michigan has also seen significant investments in clean energy projects with more than $5 billion worth of renewable energy projects coming online since the passage of the state's clean energy law in 2008.

Good-paying jobs

Michigan is home to over 113,000 clean energy jobs in every region of Michigan with the majority in manufacturing (57 percent) and construction (21.7 percent). Showing its resilience and staying power, Michigan's clean energy industry rebounded faster than the state's overall economy following the initial onset of the COVID-19 pandemic.



The largest number of clean energy jobs in Michigan are in energy efficiency, ranging from HVAC installation to advanced materials manufacturing. The fastest-growing industry is advanced transportation, which employs more than 24,000 Michiganders. Over two-thirds of Michigan's clean energy jobs are with small businesses employing less than 20 workers. Clean energy jobs pay up to 25 percent more than the national median wage and are more likely to be unionized and come with health care and retirement benefits than the rest of the private sector. Many of these jobs do not require college degrees. Growing our clean energy workforce, connecting opportunities to the Michiganders who need them most, and providing workers the training and skills that they need to succeed will take sustained, deliberate action from the State and the business community.

"The transition to electric vehicles is a big deal for union workers, union electrical contractors, businesses, and working families. As a union journeyman, I've worked to provide safe, reliable electrical systems for communities and homeowners, but I am so excited about the new opportunity to install and provide service for electric vehicle charging stations and be a part of this transition. This transition is critical to secure Michigan's spot as the home to the future of electric vehicles."

- Karen from Detroit

Reduced costs for working families

Climate action will also lower costs for working families and small businesses. To achieve our GHG reduction goals, Michigan must make transformative investments in weatherizing and reducing energy waste in our homes and places of business. Combined with the increased use of renewable energy, this will lower the monthly utility bills for Michigan families and businesses. At the same time, the transition to electric vehicles will reduce costs related to fueling and maintaining our cars, while improved public transit will help Michiganders cut the share of our incomes spent on transportation and provide the 8% of Michigan households without personal vehicles greater access to jobs and other opportunities.

Examples of the powerful math behind these benefits include the following:



- For every $1 invested in reducing energy waste in our homes – through more efficient windows, lighting, and other energy-saving technologies – homeowners save more than $3.20 in reduced future energy bills. Energy efficiency also reduces energy burden by as much as 25 percent, translating into more than $400 in annual savings for households.
- The levelized cost of electricity for new onshore wind and solar resources that are coming online in 2023 was $25.55/MWh and $25.89/MWh respectively, compared with $34.78/MWh for new combined-cycle natural gas units. Adding new wind and solar resources is comparable – and in many cases cheaper – to the cost of running existing power plants.
- Michigan sends billions of dollars out-of-state annually to purchase fossil fuels. If we produce more of our energy right here in Michigan from clean, renewable resources, we will be more energy independent and lower costs for working families.
- Owners of electric vehicles are expected to save between $6,000 to $10,000 over the life of the vehicle, compared to a gas-powered vehicle, because charging is half as expensive as the equivalent amount of gas and electric vehicles require half as many repairs and cost half as much to maintain.

> **"We recently bought an electric vehicle, installed solar panels on our roof, and switched to a geothermal HVAC. We're saving money on utility bills and gasoline without compromising any of our needs. When I tell people about this, they wonder how I could afford it. There are a lot of generous financing options and federal tax credits for these investments. Depending on the project, the payments might be around the same as the energy savings and the project will pay for itself right away! You can make modest investments, lower your bills, and be a part of the climate solution right now."**
>
> **– John, Farmington Hills resident**

High cost of inaction

While the opportunities to create good jobs, cut costs, and grow our economy should be more than enough to inspire ambitious action to decarbonize our economy, it is also important to remember that climate *inaction* will come at a high price for Michiganders. Climate change increases the likelihood of natural disasters, damaging infrastructure that is costly to repair and disrupts business. More erratic and unpredictable temperatures lead to uncertainty and losses for our farmers and other sectors that rely on seasonal consistency. And extreme weather worsens health outcomes leading to lost productivity and wages.



Michigan currently spends millions of dollars annually responding to climate-related emergencies and other impacts. Early intervention is a much sounder strategy with a much better return on investment. According to a recent study, the state will avoid **$4 to $11 worth of future damages for every $1 it commits to climate adaptation**.

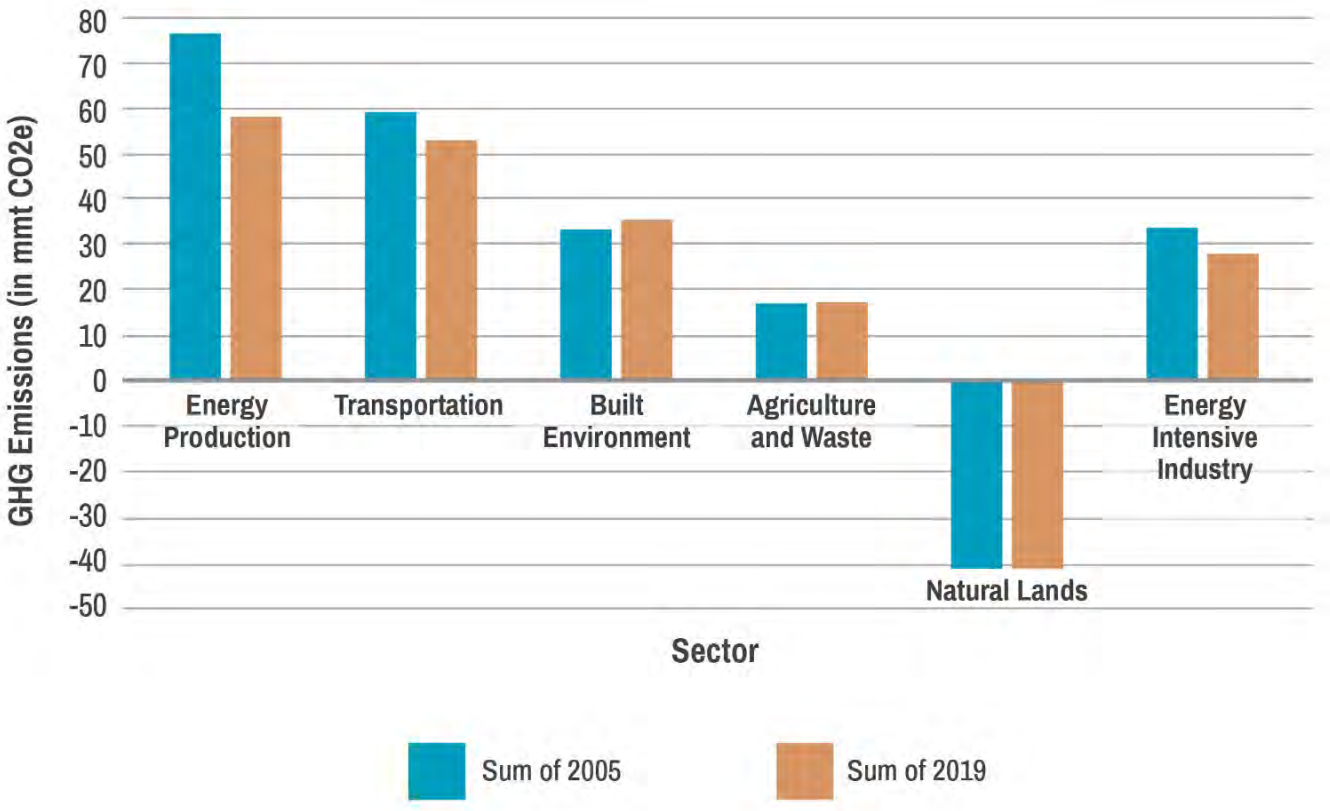
Climate action will spur innovation, increase the state's economic competitiveness, create good-paying jobs for Michigan workers, and cut costs for working families. This Plan sets the state on track to a more prosperous and sustainable Michigan.

MICHIGAN'S GREENHOUSE GAS EMISSIONS

Governor Whitmer's emissions reduction goals use a 2005 baseline for Michigan's GHG emissions, which can be categorized into five key sectors: energy production, transportation, the built environment, natural and working lands, and energy-intensive industries. The following uses Rhodium Group's 2021 emissions outlook data to summarize the share of Michigan's GHG emissions that come from each sector and provide a basic sense of the task ahead and the areas of our economy with the furthest to go in our quest for carbon neutrality.

The electric power sector and the transportation sector are the state's two leading sources of GHG emissions with the transportation sector set to eclipse the electric power sector imminently. Emissions from heating Michigan's buildings and running fossil-fuel-burning appliances account for the third largest contribution. Energy-intensive industries contribute a similar level of emissions to buildings—from onsite fuel usage and emissions inherent in certain industrial processes like cement manufacturing. Natural and working lands – which include emissions from agriculture and land-use changes (i.e., developing green spaces or impacting wetlands) – contribute the smallest percentage of overall emissions. However, because natural and working lands also present an opportunity to capture GHG emissions—an important piece of the carbon neutrality puzzle—they should not be undervalued or overlooked.

Greenhouse Gas Emissions by Source



Energy production

In 2005, the power sector in Michigan emitted 76.55 million metric tons (mmt) of carbon dioxide equivalent emissions (CO_2e). Those emissions came primarily from coal-fired power plants, followed by natural gas power plants. Michigan also benefits from a diverse power sector that includes nuclear power plants and the pumped hydro facility at Ludington. Through the closure of coal plants and the expansion of renewable energy resources, power sector emissions in Michigan fell to 58.2 mmt CO_2e in 2019 – a 24 percent decrease over that decade and a half period.

Transportation

In 2005, the transportation sector in Michigan emitted 59.26 mmt CO_2e. Most of those emissions came from light-duty passenger vehicles and heavy-duty freight trucks (our state of 10 million people has nearly 7 million vehicles!). As electric vehicles became more available and modern internal combustion engine (ICE) vehicles became more fuel efficient, transportation emissions dropped slightly to 53.04 mmt CO_2e in 2019 – a 10 percent reduction since 2005.

Built environment

In 2005, homes and businesses emitted 33.39 mmt CO_2e, mostly from the use of sources like natural gas, fuel oil, or propane for heating and appliances. Driven by increased emissions from commercial buildings, this sector saw a slight uptick to sector-wide emissions of 35.61 mmt CO_2e in 2019.

Energy-intensive industry

In 2005, Michigan's oil, gas, and industrial sectors emitted 33.78 mmt CO_2e. Michigan has a rich history of manufacturing, and most of these emissions came from the process of producing new goods, like iron, steel, cement, and chemicals. Industry is always innovating and improving efficiency, leading to reduced emissions of 28.05 mmt CO_2e in 2019 – a 17 percent change in the right direction.

Natural and working lands

Michigan has a unique diversity of land uses and ecosystems. Agricultural soil management is a major source of emissions from this sector, primarily from the large-scale farm operations in the southern portion of the state, while the forests in the north are the state's major carbon sink. This sector's net GHG emissions have remained almost unchanged over the past decade and a half. Agriculture and waste sources emitted 17.12 mmt CO_2e in 2005 and 17.37 mmt CO_2e in 2019. Natural lands sequestered 41.35 mmt CO_2e in 2005 and 41.41 mmt CO_2e in 2019.

While our emissions are projected to stay on a downward trend, we need to accelerate reductions across all sectors to meet our decarbonization goals on our established timelines. Reducing our emissions at the scale necessary will take concerted action at the international, federal, state, local, and individual levels. To track progress of the MI Healthy Climate Plan and help identify the areas for greatest GHG reduction potential, Michigan will develop a GHG inventory working with public and private partners and stakeholders.

A CARBON NEUTRAL MICHIGAN

While we are immediately focused on the short-term—and the objectives in the *Roadmap to 2030* section below—our long-term goal to achieve economy-wide carbon neutrality by 2050 is no less urgent. Economy-wide carbon neutrality means that every sector of Michigan's economy – energy production, transportation, built environment, natural and workings lands, and energy-intensive industry – will work together to meet our decarbonization goals. Reaching our mid-century milestone will require particularly substantial effort and innovation in the sectors of our economy that are hardest to decarbonize, including industry, buildings and housing, and agriculture. Since these sectors will take strategies and approaches that are not yet fully developed, we must start now. Also, we cannot take steps between now and 2030 that will jeopardize our ability to meet our 2050 goal.

But what does a carbon neutral Michigan look like? If we take a creative, strategic, and aggressive approach to reducing our GHG emissions, Michigan will be a state where residents enjoy better health outcomes and an improved quality of life; working families have more opportunities, high-paying jobs, and a lower cost of living; equity is centered in every decision; our global leadership in clean innovation and related economic development drives sustained prosperity; and everyone has greater access and a deeper connection to our state's natural beauty.



In Michigan in 2050…

As we implement the strategies in this Plan and transition Michigan to a thriving carbon neutral economy—while mitigating and adapting to the negative impacts of climate change—Michigan can take transformative steps toward a future in which:

Every individual has clean air to breath and clean water to drink.

Every business and household has access to affordable energy sourced from reliable, clean energy.

Every worker has a good-paying, sustainable job to support their family.

Every resident has access to clean, affordable transportation.

Every family lives in a healthy, sustainable, efficient home.

Every individual has easy access to healthy, affordable, local food.

Every resident has safe, natural spaces to enjoy.

Every community has the resources to be resilient to the impacts of climate change.

Michigan has addressed racial disparities in health outcomes.

Michigan is globally known for its leadership in clean innovation and industry.

Michigan's land and resources are abundant and healthy.

Michigan has mitigated the worst impacts of climate change and worked to adapt and become resilient to existing impacts of climate change.

As we look to this bright future, we know the best solutions to achieve these goals will emerge and evolve through innovations in technology, strategy, and policy, as well as individual and community level problem-solving. This work must start now and continue through 2050 and beyond.



A ROADMAP TO 2030



The State of Michigan has committed to carbon neutrality by 2050 with 52 percent GHG emissions reductions by 2030 as an interim target. Achieving our 2030 goal will require Michigan to reduce annual GHG emissions by approximately 92.95 million metric tons of CO2 equivalent based on today's emissions levels.

Sustained, aggressive action across Michigan's economy is necessary to reach these targets. A variety of factors will determine the extent to which various sectors and subsectors reduce emissions during this time, including technological breakthroughs and constraints, economic opportunities and costs, and public support/consumer demand for change.

The MI Healthy Climate Plan intends to spur the changes that are imperative—that must happen, and happen now, to meet our goals. It also seeks to shape *how* Michigan achieves carbon neutrality by recommending strategies that will maximize the benefits for Michigan families from decarbonization. To that end, the Plan focuses most heavily on the three sectors with the greatest opportunity for rapid and substantial gains in GHG reductions—energy production, transportation, and the built environment. It also prioritizes environmental justice across all actions and spotlights pathways to carbon neutrality that will lead Michigan to better health outcomes, good jobs, and economic prosperity for all Michiganders.

This 'Roadmap' provides recommendations but should not limit additional actions. State government, local governments, tribal governments, and private institutions should strive to move beyond these recommendations and seek innovation and new approaches to reduce GHG emissions. Across all sectors, Michigan should use every tool and chase every dollar available, including Infrastructure Investment and Jobs Act funds, to help meet our climate goals.

NOTE: This section borrows liberally from the concepts and language that the five topical workgroups submitted to the Council on Climate Solutions along with their recommendations. The workgroups included: Energy Production, Transmission, Distribution, and Storage; Transportation and Mobility; Buildings and Housing; Energy Intensive Industries; and Natural and Working Lands and Forest Products. In addition to the above-listed workgroups, an internal group led by EGLE staff provided recommendations on decarbonization related to materials management. This section intentionally includes environmental justice recommendations in every sector, not just the environmental justice section.

Key Recommendations

In the pages that follow, this Roadmap offers several recommendations in each of the areas below with a brief background discussion of each. A brief summary of key recommendations is provided here.

Commit to Environmental Justice and Pursue a Just Transition: Ensure that at least 40 percent of state funding for climate-related and water infrastructure initiatives benefit Michigan's disadvantaged communities (in line with the federal government's Justice40 guidelines for federal funding); that Justice40 is developed in partnership with leaders in disadvantaged communities; and that Michigan emphasizes a just transition for all workers through proactive engagement, job training, and workforce development.

Clean the Electric Grid: Generate 60 percent of the state's electricity from renewable resources and phase out remaining coal-fired power plants by 2030. Limit energy burden from powering and heating homes to not more than 6 percent of annual income for low-income households.

Electrify Vehicles and Increase Public Transit: Build the infrastructure necessary to support 2 million electric vehicles on Michigan roads by 2030. Increase access to clean transportation options – including public transit – by 15 percent each year.

Repair and Decarbonize Homes and Businesses: Reduce emissions related to heating Michigan homes and businesses by 17 percent by 2030. Increase investments in repairing and improving buildings to reduce costs for working families and small businesses.

Drive Clean Innovation in Industry: Encourage clean innovation hubs where private enterprises strategically co-locate and collaborate to develop and deploy new, cleaner manufacturing technologies and conduct research and development to reduce emissions from hard to decarbonize industries. Triple Michigan's recycling rate to 45 percent and cut food waste in half by 2030.

Protect Michigan's Land and Water: Protect 30 percent of Michigan's land and water by 2030 to naturally capture GHG emissions, maintain and improve access to recreational opportunities for all Michiganders, and protect biodiversity. Leverage innovative strategies to support climate-smart agriculture.

Commit to Environmental Justice and Pursue a Just Transition

We are committed to addressing past, present, and future environmental injustices and providing equitable access to the jobs and other benefits of Michigan's carbon neutral future. This section of the Plan focuses on policies and programs that will ensure the equitable treatment and meaningful participation of all Michiganders in that future.

Key Strategies

- **Justice40** – Ensure that at least 40 percent of state funding for climate-related and water infrastructure initiatives benefit Michigan's disadvantaged communities, in line with the federal government's Justice40 guidelines for federal funding. Develop Justice40 in close partnership with leaders in disadvantaged communities.
- **Environmental justice analysis** – Engage all state agencies in determining how environmental justice screening tools can assist them in designing better information gathering, outreach, engagement, and decision-making processes to reduce existing and future impacts to residents (this includes permitting decisions). Expand on the efforts of the Michigan Public Service Commission to conduct an environmental justice and health impact analysis as part of Integrated Resource Planning (IRP) so the potential community impacts of utility investment decisions are more fully considered.
- **Workforce development and job training** – Strengthen and create workforce development, job training, pre-apprenticeship/apprenticeship, joint labor management training, and other such programs for in-demand clean energy jobs – from pre-weatherization services to grid maintenance, electric vehicles, and renewables. Ensure these programs are federally certified by the Department of Labor where applicable. Incentivize workforce development and training for workers experiencing energy-related employment transitions and those in underrepresented or disproportionately impacted communities.
- **Just transition** – Expand transparency around the Energy Transition Impact Project's work and provide financial support and best practices to communities addressing economic transitions from closures of fossil fuel facilities and other large industrial operations. Work with employers and other partners to develop sector-specific retraining solutions.
- **Development, retention, and attraction of clean energy businesses** – Expand efforts to support business development, retention, and attraction around clean energy businesses. Conduct trainings to support minority-owned, veteran-owned, women-owned, tribal-owned clean energy businesses and help them compete in utility and state procurement programs. Identify tools and best practices to expand opportunities for these firms in Michigan.

Beyond committing to the actions above, this Roadmap includes recommendations infused with environmental justice considerations in each of the major GHG-emitting sectors. For example, this Plan also includes commitments to reduce energy burden for disadvantaged communities, strengthen ratepayer input at the Michigan Public Service Commission (MPSC), and spur more equitable investments in energy saving home repairs, public transportation, and clean energy solutions for schools.

Background

The State of Michigan should be a place where everyone has the opportunity to thrive, no matter their zip code or the contents of their wallet. This includes the opportunity to enjoy the dignity of good work and live in a healthy community with access to affordable housing, water, and utilities. Unfortunately, this has not always been the case, particularly for Black, brown, indigenous, and low-income people.

The United for ALICE project documents the struggle experienced by the Asset Limited, Income Constrained, Employed segment of our population. It shows that even with unemployment at record low levels, much of our population struggles to make ends meet. In Michigan as a whole, 38 percent of the population falls into this category with 13 percent below the poverty line and 25 percent above it but still not making ends meet. More than half of Michiganders across much of the Upper Peninsula and the central portion of the Northern Lower Peninsula fall into this category. In Detroit, the figure is approximately 70 percent.

These Michigan families face daily "choices" between paying rent, staying current on utility bills, and buying food for their children. With limited resources, they are also particularly vulnerable to the extreme weather, economic transitions, and other impacts of climate change. If Michigan does not proactively intervene, climate change will only deepen these existing harms and inequities. We must seize our transition to carbon neutrality as an opportunity to chart a new path.

Guarding against future challenges

Many of the strategies laid out in this plan will help right environmental justice wrongs from the past. Renewable energy and electric vehicles will help clean the air, and green infrastructure will help keep our cities cooler and utility bills lower.

However, if we are not deliberate in moving toward an environmentally just future, we run the risk of creating new inequities as we transform the way we create and consume energy. For example, electric vehicles are not yet affordable or accessible for all Michiganders, so the Plan includes a broad transportation decarbonization strategy to make walking, biking, and public transit more accessible to Michigan families and electric vehicles cheaper and easier to charge.

In the electric sector, there is no automatic guarantee that retiring coal facilities and increasing use of other electric generation assets – current or future – will benefit Michigan communities. That is why the Plan calls for holistic energy planning and increased consideration of environmental justice in decision making. Additionally, while more renewable energy will help all Michiganders, access to the benefits of renewable energy may not be equitable. Thus, the Plan calls for funding programs focused on Michigan's disadvantaged communities. Finally, we must take particular care to ensure that the energy transition does not result in a disproportionate energy burden for Michigan's disadvantaged communities. In other words, we must do everything we can to avoid a future in which utility bills cost families in those communities an even greater share of their disposable income.

Our frontline communities will also be hit first and hardest by the impacts of climate change. An environmentally just future includes making sure that no one experiences disproportionate harm from the extreme heat and precipitation that Michigan will experience over the next century no matter how quickly we decarbonize. This Plan does not contain a holistic adaptation and resilience strategy, though resilience will be core to our Plan implementation work.

Justice in funding decisions

In January 2021, the White House created the Justice40 Initiative by executive order. It aims to deliver to disadvantaged communities 40 percent of the overall benefits of relevant federal investments. As a part of this Plan, Michigan has committed to aligning our relevant federal and state investments with this initiative.

The State is currently waiting for guidance from the federal government on how to effectively implement Justice40. The State will also actively seek input from environmental justice communities, tribal governments, and other stakeholders as we define the scope, benefits, and community qualifications for this initiative and determine how to best implement Justice40 and track progress.

Inclusive and transparent engagement and decision-making

In addition to funding decisions, we must ensure all state agencies are considering environmental justice across their operations and decision making.

As mentioned above, the Plan calls for all state agencies to evaluate current information gathering, outreach and engagement, and decision-making processes and determine how environmental justice screening tools can assist them in avoiding and correcting disproportionate impacts on disadvantaged communities.

It also calls for the expansion and improvement of efforts initiated by EGLE and the MPSC to conduct an environmental justice and health impact analysis as part of utility Integrated Resource Planning, so that the potential community impacts of utility investment decisions are more fully and faithfully considered. The Plan also includes multiple opportunities to support meaningful engagement of Michigan's environmental justice communities, including calling for additional funding for the Utility Consumer Representation Fund, which is managed by the Utility Consumer Participation Board, to support ratepayer advocates in their interventions at the MPSC.

As the Plan is implemented, the OCE will establish consistent and transparent practices for engaging

EXPANDING ON THE WORK OF THE ENVIRONMENTAL JUSTICE PUBLIC ADVOCATE

In 2019, through Executive Order 2019-06, Governor Whitmer created the Office of the Environmental Justice Public Advocate (OEJPA).

To gather input from impacted communities, the OEJPA has hosted 8 regional roundtables across the state to discuss environmental justice challenges and identify opportunities to pursue more just outcomes in environmental decision-making. It has led the State of Michigan in developing the Michigan Environmental Justice Screening Tool, an interactive mapping tool that identifies Michigan communities that may be disproportionately impacted by environmental hazards. The map will allow users to explore the environmental, health, and socioeconomic conditions within a specific community, region, or across the entire state.

The OEJPA is also working directly with partners in individual communities, including a new pilot to build a Community Resiliency Plan in the 48217-zip code in Southwest Detroit. And the office coordinates initiatives with Michigan's tribal governments, like the Michigan Wild Rice Initiative, which brings together specialists and managers from all 12 federally recognized tribes, multiple state departments and federal agencies, and others to share information, coordinate approaches, and elevate awareness about wild rice conservation and restoration.

environmental justice communities in close collaboration with existing bodies like the MAC-EJ. In addition, the OCE will ensure robust engagement with tribal governments continues through the existing tribal consultation process.

Invest in workforce and a just transition

As we transition to a decarbonized economy with more efficient buildings, increased renewable energy sources, and expanded electrified transportation solutions, Michigan must invest in our workforce. We need to be prepared to capture new, good-paying jobs for Michigan workers and support those who may need to transition as the economy changes. Michigan is committed to ensuring no Michigan workers get left behind.

In 2020, Governor Whitmer launched the Energy Transition Impact Project (ETIP) under the leadership of the Department of Treasury. ETIP is designed to identify communities that will be impacted by the changes to the mix of energy production facilities in Michigan. The program works directly with those communities and workers to minimize impacts from a facility closure, including the loss of employment, property tax revenues, and related community services. Comprehensive transition strategies are developed to reposition communities for future economic development, high-paying jobs, new infrastructure investments, housing improvements, and other needs identified by local leaders and residents.

In addition, to support worker transitions and keep Michigan competitive for the clean energy jobs of the future, State of Michigan programs expanded their focus on high-quality workforce development, job training, pre-apprenticeship and apprenticeship, and joint labor management trainings for in-demand clean energy jobs. And, to make sure there is a demand for graduates of these programs, the Plan includes business development, retention, attraction, and other supports for minority-owned businesses in the clean energy industry. It is critical that workers who may be displaced by the energy transition—and residents who have been disproportionately impacted by climate change—are able to take advantage of new clean energy job opportunities.



Clean the Electric Grid

In 2019, Michigan's power sector contributed approximately 30 percent of Michigan's total GHG emissions. In 2020, coal and natural gas, the two primary sources of GHG emissions in the power sector, provided 59 percent of all electricity generation in the state. To meet our climate goals, Michigan will need to increase the adoption of wind and solar generation, increase energy waste reduction, invest in grid infrastructure and planning, and ensure that all of these actions are done in a manner aligned with environmental justice.

Key Strategies

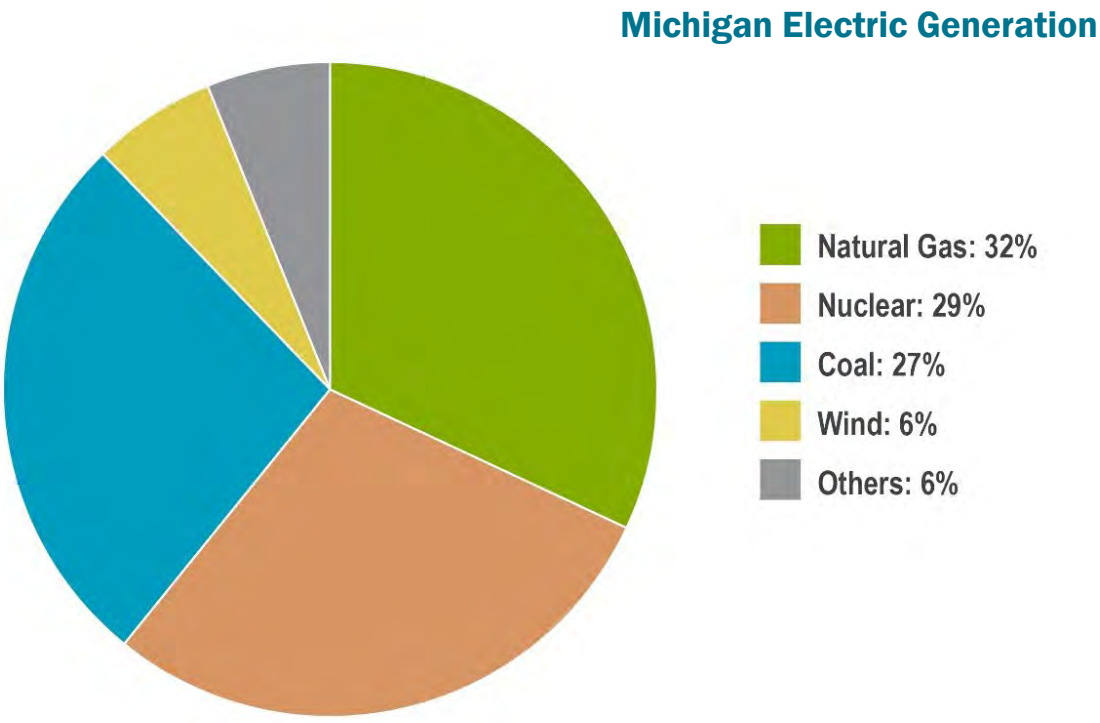
- **Clean energy resources** – Generate 60 percent of the state's electricity from renewable resources by adopting a renewable energy standard of 50 percent by 2030, supporting voluntary utility green pricing programs, and creating more favorable conditions for customer-sited behind-the-meter distributed energy resources like rooftop solar. Work with Michigan utilities to effectively phase out coal-fired power plants.
- **Holistic and integrated energy system planning** – Improve energy system planning by fully integrating traditional resources, transmission, distribution, new and emerging resources, and considerations related to the interdependency of electric and natural gas systems. Elevate community health impacts and equitable access to infrastructure in energy planning and investment decisions. Continue to develop and refine innovative rate designs to incent behaviors that advance clean energy goals.
- **Affordability and energy burden** – Limit energy burden from powering and heating homes to not more than 6 percent of annual income for low-income households. Increase affordability of utility services through expanded "Percent of Income Pilot Programs" and through minimum allocation levels for utility investment in low-income energy efficiency programs. Direct additional funding to the Michigan Utility Consumer Representation Fund (UCPF) to provide resources to intervenors in MPSC proceedings who represent the interests of low-income communities.
- **Siting** – Assist clean energy developers and communities in adopting best practices for siting renewable energy systems. Implement a plan to site solar on state-owned lands and properties as quickly as possible.
- **Energy storage** – Adopt a statewide storage target to deploy 4,000 Megawatt (MW) of grid scale storage by 2040 with a short-term target of 1,000 MW by 2025 and a medium-term target of 2,500 MW by 2030. Increase consideration of energy storage resources in utility Integrated Resource Plans through accurate modeling.

Background

To reach our climate-related goals, attract clean energy jobs, and drive down costs for Michiganders, rapid and comprehensive action is needed in the electricity sector. In fact, bolder action is particularly wise here—relative to other sectors—because of the cost-effective and scalable nature of decarbonizing the electricity sector.

This Plan's recommendations prioritize five key strategies for transforming the electricity sector: accelerating the adoption of renewable energy like wind and solar; retiring coal and other fossil fuels; investing in energy waste reduction measures that drive down costs for Michiganders; improving infrastructure and planning to ensure resource adequacy; and making sure all efforts are done with environmental justice in mind.

It is important to note that energy waste reduction is a key strategy in the electricity sector, but it is addressed more robustly in the "Repair and Decarbonize Homes and Businesses" section of the Plan.



Drive Adoption of Renewables

Michigan's progress over the last decade has shown that an economy powered by clean, renewable electricity is not only possible but increasingly preferred. Currently, renewable energy generates about 11% of Michigan's total in-state electricity. As deployment has increased and the wind, solar, energy storage, and related industries have scaled up, the cost of renewable energy has continued to fall. According to the MPSC, it cost energy providers an average of $64.48 per megawatt hour to purchase renewable energy in the period from 2009 to 2020. However, in some cases, recent contracts have dropped in cost by more than 35 percent, thus making them significantly less expensive and more stable for major energy providers than non-renewable resources.

Nearly all of Michigan's electric utilities have made individual commitments to reduce carbon emissions, with some utilities pursuing levels of renewable energy deployment beyond what is required under the state's existing mandates and goals. They are also retiring their fleets of aging coal-fired plants. According to utility retirement schedules, just one coal-fired power plant is scheduled to continue operating after 2028.

Despite this progress, Michigan will need a massive scaling up of renewable energy to achieve 60 percent renewable energy penetration this decade and reach carbon neutrality by 2050. To reach that 2030 target, Michigan must adopt a renewable energy standard of 50 percent by 2030 through the passage of legislation or via formal commitments from Michigan's utilities in proceedings before the Michigan Public Service Commission. As a demonstration of the feasibility of that standard, Michigan's investor-owned utilities already have plans in place to dramatically scale up their renewables. Taking solar for example, DTE intends to have at least 10 million panels in its generation mix by 2040, and Consumers Energy is planning for 8,000 MW built by the same year.

While a 50 percent renewable energy standard serves as a foundation, higher levels of renewable energy penetration will be necessary to achieve our goals and customer-enabled renewable energy will play a central role in additional gains. In Michigan and across the country, large companies and customers are helping to drive the increased adoption of renewable energy through tools like voluntary green pricing programs, customer-sited distributed energy, community solar, demand response, battery storage, and more. By encouraging the most-cost effective investments in clean energy resources for all energy customers, including supporting customer-sited resources, we can increase options for customers to participate in the fight against climate change and make our electric grid more resilient.

Of course, adoption of renewable energy on the scale necessary to achieve our goals will require Michigan to responsibly locate wind, solar, and storage in communities across the state. Local siting challenges have been well documented as a limiting factor in Michigan's path to reaching carbon neutrality. Through Michigan's Catalyst Communities program and tools like EGLE's Renewable Energy Ordinance Database, the state will expand support for local units of government to adopt best practices for siting renewable energy systems within their communities.



Transition away from fossil fuels

Retiring coal facilities on an accelerated timeline is fundamental to reaching Michigan's near-and long-term climate objectives. The Plan recommends that Michigan complete its transition away from coal-fired generation for powering our homes and businesses no later than 2030. It also calls for energy planning that will include options for reducing reliance on natural gas and other pathways for decarbonizing the electricity sector that go beyond coal plant retirement. As this transition takes place, Michigan must invest in support systems for workers displaced from fossil-fuel-powered generation facilities and ensure resource adequacy through investments in new generation assets and improved transmission, distribution, and storage.

Ensure resource adequacy through investments in infrastructure and planning

Building on the current IRP process at the MPSC—established with the passage of the 2016 energy laws—Michigan is well-positioned to undertake a comprehensive energy planning process to ensure reliability, affordability, and the cost-effective integration of new technologies as the sector decarbonizes. Comprehensive energy planning includes rate design, traditional resource planning, long-range transmission planning, distribution planning, storage planning, consideration of new and emerging resources, planning around areas of interdependency between the electric and natural gas systems, consideration of community and health impacts, and identification of viable decarbonization pathways aligned with carbon neutrality by 2050.

To help ensure reliability and affordability for ratepayers while we decarbonize this sector, Michigan must continue to invest in transmission and distribution infrastructure and maintain existing clean energy and energy storage assets. In addition, Michigan must invest more robustly in grid scale energy storage through a deployment target of an additional 2,500 MW by 2030 and 4000 MW by 2040.

Ensure affordability and justice

Energy burden is the percentage of household income that a given household spends on home heating and electricity costs. Energy burden is often much higher in low-income households, where residents may be unable to afford energy efficiency upgrades to their existing homes or the purchase of more expensive homes that are already energy efficient. For example, in 2018, households with an income between 0-30 percent of the state median had an average energy burden of 24 percent, compared to an average energy burden of 2 percent for households with an income at or above the state median. Michigan must develop and expand utility programs to ensure no low-income household is paying more than 6 percent of their annual income on energy. As these programs are developed, Michigan should increase funding to the UCRF, which is overseen by the Utility Consumer Participation Board, with the express intent of allowing for more participation from disadvantaged communities in the design of these programs.

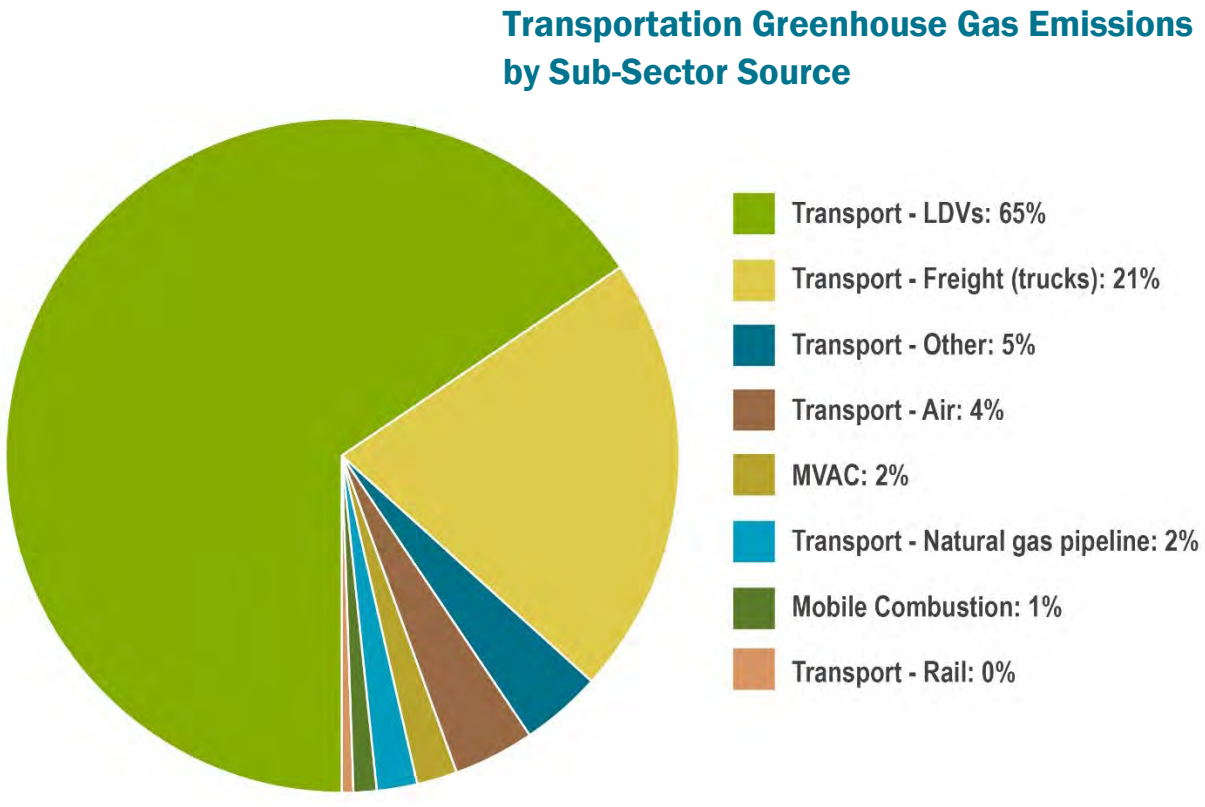
Electrify Vehicles and Increase Public Transit

As of 2019, Michigan's transportation sector accounted for almost 28 percent of the state's total GHG emissions, the second highest emitting sector after the power sector. Transportation emissions are primarily due to the combustion of petroleum products such as gasoline and diesel in light-duty vehicles and freight trucks.

It will take a broad, all-options approach to transportation to put Michigan on track to achieve its decarbonization goals, increase equity, and offer new economic opportunities to Michiganders. To decarbonize how Michiganders move, Michigan will need to drive a rapid transition to cleaner fuels and electrification, make unprecedented investments in electric vehicle charging infrastructure, increase access to diverse transportation options, and focus on integrated people- and planet-focused transportation planning.

Key Strategies

- **Purchase incentives** – Create and fund an incentive program for the purchase of electric vehicles and at-home charging stations. Explore incentives for products like electric off-road vehicles, electric recreational vessels, and e-bikes.
- **Electric vehicle charging** – Build the infrastructure necessary to support two million electric vehicles on Michigan roads by 2030. Leverage the success of the Charge Up Michigan program to equip Michigan with a comprehensive, accessible network of chargers using various financing tools, including public funding opportunities and public-private partnerships.
- **Electrified fleets** – Transition the State of Michigan's fleet to 100 percent zero-emission vehicles. Fund and support local governments and small businesses with fleet transitions and work with schools to quickly electrify school bus fleets, with a prioritization on communities with high levels of air pollution.
- **Clean Fuels Standard** – Adopt a Clean Fuels Standard (CFS) to reduce the carbon intensity of every fuel in use.
- **Transit and diverse transportation options** – Increase access to clean transportation options – from public transit to electric vehicles – by 15 percent each year. Work with communities that are mobility insecure to set community-specific targets to expand access to clean transportation options. Increase investment in more efficient, cleaner public transit systems—as well as bike paths, walking trails, and other such infrastructure—to offer the broadest possible range of options to residents.
- **Transportation planning** – Implement a Safe Systems Approach in transportation planning to work towards the elimination of fatal and serious injuries for all road users. Develop a transportation strategic plan focused on electrification to guide state agencies in moving Michigan toward our cleaner mobility future. Consider creation of a statewide electrification plan for transit.



Background

For over a century, Michigan has enjoyed global automotive leadership. To remain at the forefront, the State needs to lead on the transition to electric vehicles, invest in infrastructure, support the retraining of our transportation workforce to ensure all workers transition into new high-paying jobs, and provide an attractive business environment for our auto industry.

While vehicle electrification is a key technology needed to meet 2050 decarbonization goals for the transportation sector, it cannot be the only decarbonization solution for Michigan. Michigan needs to employ multiple strategies and effective planning to achieve our state's transportation decarbonization goals and mobility needs as the transition to electrification unfolds over time.

Transition to cleaner fuels and electric vehicles

Electric vehicles represent a small fraction of Michigan's current auto sales today. Just 0.62 percent of all vehicles sold here in 2020 were electric. Two of the key current barriers to widespread uptake are the higher purchase cost typically associated with these vehicles and the real or perceived lack of electric vehicle charging infrastructure.

To address these challenges, the State of Michigan will develop purchase incentives targeted to spur sales of electric vehicles throughout Michigan, particularly in the near-term to stimulate market growth and help more Michiganders access clean transportation options. To lead by example on this path, the State of Michigan will transition its fleet to 100 percent zero-emission vehicles by 2035 for light-duty vehicles and 2045 for medium- and heavy-duty vehicles. Leveraging this leadership, the State will also expand funding options for fleet conversions for local governments, small businesses, and school bus fleets, with a prioritization on communities with high levels of air pollution.

To build out the necessary charging network, Michigan will expand funding opportunities for direct current fast charging stations to make sure that Michigan residents can drive an electric vehicle throughout the state without anxiety over where to get their next charge. Through Charge Up Michigan, the State has already invested more than $45 million in charging infrastructure and will spend millions more in the coming years thanks to the recent and forthcoming influx of additional federal resources. By expanding funding through the Charge Up Michigan program and partnering with utilities and the private sector, Michigan will deploy enough charging infrastructure to support two million electric vehicles on Michigan roads by 2030. In pursuing that 2030 target, Michigan should aim for electric models to account for at least 50 percent of light-duty vehicle sales, 30 percent of medium- and heavy-duty vehicles sales, and 100 percent of public transit vehicles and school buses sold that year.



Michigan should also pass legislation to adopt a CFS, a technology-neutral, performance-based policy to reduce the carbon intensity of transportation fuels. These standards ratchet down carbon emissions in the transportation sector over time, increasing the use of lower-carbon fuels and reducing the use of higher carbon fuels. By setting a standard that grows more stringent over time, the program will dramatically increase private investment in lower carbon fuels. While providing added encouragement and support for the emerging electrified transportation sector, this policy can also incentivize the use of lower-carbon liquid fuels in non-electric vehicles during the transition to a fully electric future. In addition, a CFS can be designed to create revenue for reinvestment in electric vehicle purchase incentives or charging infrastructure. This policy is a critical bridge between the status quo's carbon-intensive fuels and electrification.

Increase access to diverse transportation options

Vehicle electrification cannot be the only transportation decarbonization solution for Michigan. Vehicle fleets have inherently slow turn-over rates. The vast majority of vehicles on Michigan's roads will still be burning gasoline in 2030, even if we adopt the market incentives recommended in this Plan and automakers aggressively pursue their electric vehicle sales goals. In light of this reality, Michigan needs to employ multiple strategies to achieve our transportation decarbonization goals as the transition to electrification unfolds over time. Expanding access to safe and convenient public transit, mobility solutions like car sharing, and high-quality bike and walking infrastructure will play a vital role in decarbonization.

Better and more widely available transit also represents an opportunity to advance equity. It increases access to opportunities to learn, earn a living wage, and remain healthy for the many Michigan families that currently lack reliable transportation. Almost eight percent of Michigan households have no vehicle at all, and that number more than doubles to 19 percent for renters. Nearly 3 out of every 5 jobs cannot be reached by public transit, meaning that these opportunities are not equitably accessible to all Michigan families. This is particularly true for non-white households, which make up 79 percent of transit riders. Public transportation is also the best transportation option—and in some cases the only viable one—for many seniors and Michiganders with disabilities. This Plan sets goals to diversify transportation options and increase investments in public transit and related mobility solutions.

Implement people and planet focused transportation planning

Strategic transportation planning will help knit traditional and advanced transportation options into an integrated system that serves all Michiganders equitably. As Michigan develops a statewide electrification plan and related tools to do just that, coordination will be critical given the many key players involved, including local, state, and federal agencies and a great variety of private partners.

The Plan also recommends the implementation of a Safe Systems approach to transportation planning that focuses on safe mobility for all road users. Implementing the Safe System approach means anticipating and proactively planning for road user mistakes through the design and management of road infrastructure and the development of rules and regulations for drivers that lower the risk of death or serious injury.

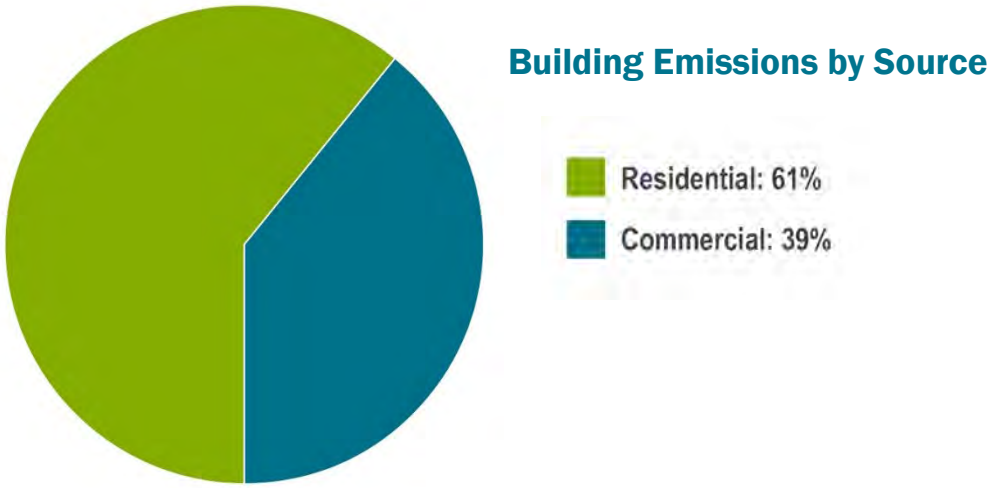
Repair and Decarbonize Homes and Businesses

As of 2019, Michigan's buildings accounted for almost 18 percent of the state's total GHG emissions, the third highest emitting sector after the power and transportation sectors. While Michigan's buildings use a significant amount of electricity for lighting, appliances, air conditioning, ventilation, and other purposes, those emissions are accounted for in the electric generation sector. Emissions related to the built environment are primarily due to use of heating fuels such as natural gas, propane, and oil.

In addition to its pivotal role in achieving our climate goals, investing in our building stock will help lower utility and other costs for working families and small businesses, make our homes and workplaces healthier, and expand economic opportunities across the state. Decarbonizing our buildings will require baseline investments in repairing Michigan's homes; stronger requirements, incentives, and financing options for energy efficiency and waste reduction; and evaluation and adoption of innovative home heating alternatives, including electrification in immediately cost-effective use cases.

Key Strategies

- **Heating Michigan homes and businesses** - Reduce emissions related to heating Michigan homes and businesses 17 percent by 2030. Focus on both public and private-sector investments and targeted efficiency and assistance programs to reduce the energy burden for low-income residents.
- **Clean financing opportunities** – Explore programs, financing options, and public funding opportunities – including the allocation of funds to the state's nonprofit green bank, Michigan Saves – to help families, small businesses, and schools invest in clean energy projects from weatherization to renewables and building decarbonization. Adopt and promote utility on-bill financing and property assessed clean energy programs (PACE). Identify sources of consistent, ongoing funding to address homes that are ineligible for weatherization assistance.
- **Building codes and climate readiness** – Adopt the 2021 Model Energy Code with provisions to support electric vehicle charging and consider incorporation of additional climate mitigating solutions such as energy storage, renewable energy, and building decarbonization.
- **Energy waste reduction programs** – Increase utilization of cost-effective opportunities to reduce energy waste. Achieve at least 2% annual electric energy efficiency savings by increasing the current energy waste reduction target for electric utilities and maintaining the corresponding incentives for exceeding statutory minimums. Restore the energy waste reduction target for municipal and cooperative electric utilities. Increase energy waste reduction (EWR) for natural gas utilities to a minimum of 1.5% annual savings with enhanced cost-effective incentives for exceeding statutory minimums. Work to ensure energy efficiency is on a level playing field with supply-side resources (i.e., power generation) in the MPSC integrated resource planning (IRP) process which guides the financial investments of Michigan utilities. Explore additional pathways to reduce energy demand and energy burden.
- **Incentives for energy efficient appliances** – Establish incentives for the sale of electric appliances that yield immediate energy and cost savings, particularly for low-income Michiganders.
- **Evaluate gas system regulatory and policy options** – Undertake a pathway analysis to assess options to reduce carbon intensity in the built environment.



Background

To reach our 2030 goals of reducing emissions relating to heating Michigan homes and businesses 17 percent by 2030, Michigan must reduce end-use emissions related to heating Michigan homes and businesses by approximately three percent per year from now to 2030. We will accomplish this objective through investments in energy conservation, energy efficiency, smart consumption, cogeneration, and replacing traditional fossil fuel use with cost-effective technologies that rely on electricity and alternatives like renewable natural gas and hydrogen.

Half of Michigan homes are less than 50 years old. With adequate care and maintenance, most will remain in use through and beyond 2050. While the other half of Michigan homes are more than 50 years old, most can be expected to last another 50 years or more with modest investments. However, many of these buildings are inefficient and rely on fossil fuels for heating and appliances like gas stoves. They will require significant upgrades to be fully decarbonized.

Energy efficiency and weatherization investments targeted at Michigan's most inefficient buildings will drive significant investments in Michigan's most disadvantaged communities. Unfortunately, not every home is ready for energy efficiency and weatherization upgrades. Many of Michigan's most inefficient buildings need a new roof or upgrades to remove carbon monoxide from the home before they can qualify for many available funding programs. In fact, 25 percent of all weatherization projects across the state are deferred due to structural challenges. This barrier is even higher in older communities like Detroit where deferral reaches nearly 75%. Michigan must increase investments in home repairs and streamline access to energy efficiency and weatherization funding programs for communities with aging housing stocks. This is a pre-requisite to decarbonizing our building sector and achieving our short- and long-term GHG reduction goals.

Reduce energy waste

Under Michigan law, electricity providers must achieve annual EWR of one percent per year (based on total annual retail sales of the prior 12 months) and gas providers must hit 0.75 percent. In addition, Michigan law provides financial incentives for energy providers to meet or exceed those standards. In just over a decade, these policies have resulted in a lifetime savings of nearly $1.2 billion for electric and gas customers. When it comes to reducing emissions—and saving money for Michigan families and businesses—it is hard to get more bang for the buck than cutting energy use.

Building from their success thus far, Michigan should strengthen existing EWR programs for investor-owned utilities – doubling the energy waste reduction target for electricity to two percent and bumping it up to 1.5 percent for natural gas. The state should also restore the EWR targets for municipal and cooperative electric utilities. In taking these steps, we must create and leverage incentives for over-performance and encourage robust consideration of EWR alongside power generation in IRPs.

Building new, clean buildings

While Michigan's existing homes and buildings will account for most of the GHG emissions in this sector from now through 2030, we must work to ensure that all new residential and commercial buildings are as efficient as possible, use materials with a low carbon footprint like mass timber, and prepare for new technologies. To help make this possible, Michigan must adopt the 2021 Model International Energy Conservation Code for new buildings. Michigan should also expand on the model code to include provisions to support electric vehicle charging and consider the incorporation of additional climate mitigating solutions such as energy storage, renewable energy, and building decarbonization.

Rethink how we heat our buildings

Moving forward, Michigan should consider and evaluate alternatives to current strategies for heating Michigan's buildings. According to research from Rewiring America, at least 39 percent of Michigan households—or 1.5 million households—could save a total of $710 million a year on energy bills if they were using modern heat pump space heaters and heat pump water heaters instead of their current appliances, which use electric resistance, fuel oil, or propane. That's an average savings per household of $460 each year. Half of the households with immediate savings potential are considered low- and moderate-income. The switch to electric heating and other appliances may also yield health benefits, such as helping to reduce the risk of respiratory symptoms associated with gas stove use. To make heating less carbon-intensive, Michigan should establish incentive programs for electric appliances and heat pumps for use-cases that will save customers money today, with an emphasis on energy burden relief for low-income residents.

To complement immediate policy actions, the Plan recommends the state undertake a pathway analysis to assess options to achieve carbon neutrality from natural gas production, transmission, distribution, compression, storage, and end uses in a least-cost manner. This analysis should consider a full range of options for decarbonizing natural gas end uses, including energy efficiency, electrification, fuel switching to renewable natural gas and hydrogen, and other potential opportunities.

Increase financing

To facilitate home repairs, energy efficiency investments, and electrification, Michigan should also expand direct state investments and customer-facing financing options. By supporting programs like on-bill financing and property assessed clean energy (PACE), Michigan can create easier access to capital at better terms for customers and attract more private sector capital to the building decarbonization challenge.

Drive Clean Innovation in Industry

As of 2019, Michigan's industrial sector accounted for 15 percent of the state's total GHG emissions, the 4th highest emitting sector after the buildings and housing sector. While aggregated together in tracking emissions, the state's industrial sector is remarkably diverse, and makes products like chemicals, iron, steel, cement and food using specific manufacturing processes that can cause on-site GHG emissions, often require a lot of power, and/or involve GHG emissions in their supply chains.

Decarbonizing these sectors will require process-specific solutions with a focus on advancing research and development, improving facility efficiency, using cleaner products and fuels, and developing new markets for byproducts.

Key Strategies

- **Buy clean, buy Michigan** – Strengthen public and private-sector procurement programs to favor the use of low-carbon and circular-economy products and identify opportunities to support disadvantaged businesses in procurement. Encourage the production and purchase of materials made by Michigan workers.
- **Recycling and waste** – Triple the state's recycling rate to 45 percent and cut food loss and waste in half by 2030. Expand on efforts like 'Next Cycle' to develop markets for recycled materials.
- **Shared clean industrial innovation** – Encourage clean innovation hubs to collaborate on the development and deployment of new, cleaner manufacturing technologies and reduce emissions from hard to decarbonize industries. Work to ensure that Michigan communities impacted by industrial development and operations are meaningfully engaged in the siting, construction, and operation of clean innovation hubs.
- **Clean industry process improvements** – Provide incentives and technical assistance to advance the energy efficiency and other process improvements necessary to achieve carbon neutrality in the industrial sector by 2050. Deploy combined heat and power (CHP) in new facilities and convert existing facilities to renewable energy or lower-carbon fuels such as biogas, renewable natural gas or biomethane, and clean hydrogen.
- **Carbon capture, utilization, and sequestration** – Explore the use of carbon capture, utilization, and sequestration in industrial applications where eliminating the use of fossil fuels is impossible or cost-prohibitive and for entities attempting to go carbon negative in their operations.

Background

Michigan's industrial sector represents one the state's greatest strengths on the path to carbon neutrality. Michigan has the 5th largest advanced manufacturing workforce in the country, with more than 65,000 workers employed in that sector in 2019. The state is a national leader for employment in industries related to Industry 4.0 and automation. Of the top 100 automotive suppliers to North America, 96 have a presence in Michigan and 71 are headquartered here. The state is home to nearly 19% of all U.S. auto production, more than any state in the nation.

This unparalleled industrial heritage and the technological know-how of our workforce positions Michigan well to develop and manufacture the next generation(s) of innovative products that will be used in every sector of our economy to unlock new decarbonization strategies. To make Michigan the trailblazing home for the low-carbon inventions of tomorrow—and create the corresponding opportunities for sustained economic growth and job creation—the state will need innovative market development and regulatory programs and strong financial incentives.

In addition to manufacturing the products needed to decarbonize other sectors, Michigan's industrial sector has already taken significant steps in reducing GHG emissions from its operations. Between 2005-2018, the industrial sector cut their emissions by 5.9 million metric tons – or more than 23 percent. Additional analysis suggests that the industrial sector has the potential to reduce their annual emissions by an additional 5.7 million metric tons by 2030 – a reduction of more than 45 percent when compared to 2005 levels.

Efficient facilities

Energy efficiency is a vital tool that can help Michigan's industrial sector reduce GHG emissions while keeping energy costs reasonable. Importantly, industrial energy efficiency and process improvements may be able to reduce local air pollution in communities located near industrial facilities and can create new workforce opportunities conducting energy audits and implementing the energy saving strategies they identify.

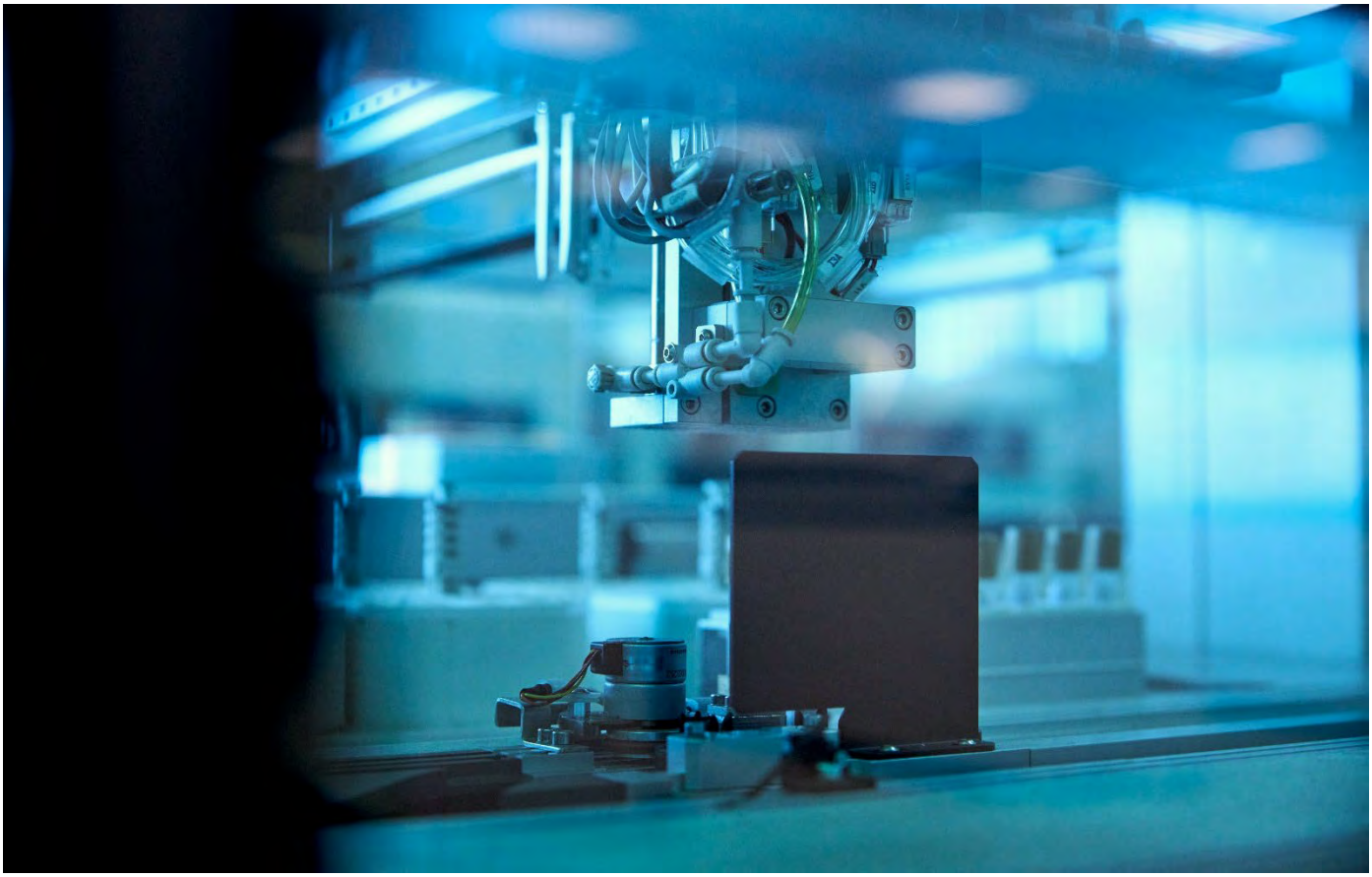
A key efficiency opportunity exists around CHP, which is a process that takes excess heat from an industrial process or facility and uses it to generate electricity. CHP is the most fuel-efficient way to produce and utilize both electric and thermal energy from a single fuel source. In 2018, the Michigan Energy Office released its CHP Roadmap for Michigan, which recommended an optimal level of additional CHP deployment in Michigan ranging from 722 MW to 1,014 MW by 2030. The next wave of CHP applications will enable deeper decarbonization of the industrial sector through the use of renewable energy or lower-carbon fuels such as biogas, renewable natural gas or biomethane, and hydrogen.

Cleaner products

Michigan is well-positioned to grow its circular economy—a systems approach that emphasizes growing markets for recyclable materials so they are (re)used by Michigan workers and business to make new products, rather than taken to landfills or other disposal facilities. For example, EGLE's 'Next Cycle' program works with businesses to incubate ideas that grow Michigan's recycled materials supply chain and end markets. The Plan identifies a number of opportunities to further spur market demand for cleaner products, such as lower-carbon cement for use in infrastructure projects. It also calls for expanding public and private sector clean procurement programs.

Clean innovation hubs

While some decarbonization solutions already exist today, many are still waiting to be innovated. As home to many energy-intensive industries, Michigan is well-positioned to lead the way on industrial decarbonization solutions. Clean innovation hubs can help Michigan's industrial sector achieve GHG emissions reductions as cost-effectively as possible through shared infrastructure, the strategic co-location of industrial facilities, and the efficient use of materials and energy streams. Individual clean innovation hubs could focus, for example, on hydrogen technologies or electric vehicle battery recycling. Safeguards must be put in place to address any public health and environmental justice concerns with these facilities. Potentially impacted communities should have the opportunity for adequate consultation in the siting, construction, and operations of any innovation hub.



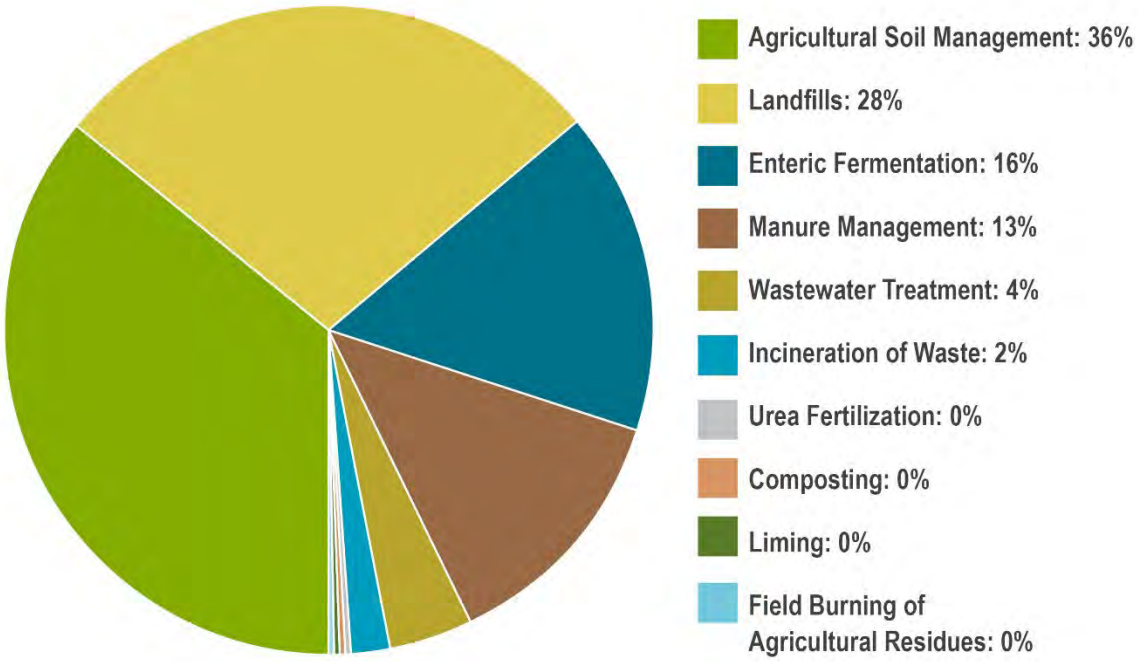
Protect Michigan's Land and Water

As of 2019, Michigan's natural and working lands accounted for nine percent of the state's total GHG emissions, contributing the smallest percentage of overall emissions from an individual sector. These emissions come primarily from agricultural practices and land-use changes. To drive decarbonization and sequester carbon in Michigan's natural and working lands sector, it will be crucial to protect and conserve Michigan's natural resources and support innovative solutions in agriculture.

Key Strategies

- **30 x 30** – As a part of the national 'America the Beautiful' initiative, protect 30 percent of Michigan's land and water by 2030 to naturally capture GHG emissions, while maintaining and improving recreational opportunities for all Michiganders, expanding access in disproportionately impacted communities, and protecting biodiversity.
- **Wetlands, waters, soils, forests** – Avoid land-use conversion that causes a net increase in GHG emissions and prioritize land uses that reduce GHG emissions. Protect and restore existing wetlands and waterways and create new wetlands where appropriate. Adopt policies to protect the state's soils and enhance their capacity to capture and store carbon. Maintain and develop healthy forests across public and private lands. Support and promote tools that expand the use of the mass timber as a sustainable building material.
- **Treaty rights** – As conservation efforts move forward, the state will not interfere with treaty rights, treaty resources, and tribal cultural resources and will consult with Tribal Nations. Conservation efforts must respect the exercise of treaty rights.
- **Farm management and practices** – Develop initiatives to support farmers in adopting best management practices to improve soil health, store carbon, and utilize other greenhouse gas emissions, while also protecting water quality. Create programs to catalyze and accelerate the transition to cleaner technologies like electric and hydrogen fuel-cell farm equipment.
- **Michigan grown products** – Fund programs like the 'Buy Michigan Agriculture Campaign' to encourage the purchase of Michigan grown and raised products, address food insecurity challenges, and counter supply chain issues.

Agriculture and Waste Emissions by Source



Background

From birdwatching, hunting, and camping to the timber and forest products that are used in our homes and businesses, our lands, waters, and forests are essential components of what makes Michigan, “Pure Michigan.”

The lands and waters we call Michigan today are the ancestral territories of the Anishinaabe, who have lived in the State of Michigan from before recorded history to present day. The Anishinaabe people’s commitment to this place should encourage us to be better stewards of the land we inhabit and the waters on which we depend.

The Michigan Department of Natural Resources manages 4.6 million acres of public lands, 3.86 million of which are forested, and the state contains roughly 5.5 million acres of wetlands. Michigan is also home to over 50,000 farms. If protected and appropriately managed, Michigan’s natural and working lands can store and sequester carbon and offer additional benefits including limiting water runoff pollution, providing habitats that support biodiversity, and reducing the impacts on Michigan communities from more frequent and intense flooding, extreme heat, and other effects of climate change. These lands are critical to our economy and the health of all Michiganders.

Michigan's natural resources and land use

Michigan's forests currently store approximately 537 million tons of live tree carbon and 2,045 million tons of total forest ecosystem carbon, and they continue to sequester additional carbon from the atmosphere with each passing day. Sustainable forest management is key to maintaining and expanding the role of forests in reducing carbon emissions – and avoiding the loss of important carbon sinks that would make Michigan's path to carbon neutrality even more challenging.

In addition, sustainable forestry can encourage responsible sourcing and recycling of forest products. Building out a sustainable forestry and forest product industry can create thousands of good-paying jobs for Michiganders, capture new economic development opportunities, and provide sustainable building materials like mass timber.

Many of the state's powerful natural carbon sinks have been developed or converted and lost their natural ability to store carbon, increasing net GHG emissions. Wetlands, in particular, are important carbon sinks and stocks. Building out green waterway infrastructure, like constructed wetlands, can yield both climate adaptation and mitigation benefits. This Plan recommends avoiding further land-use conversions that increase GHG emissions and stewarding Michigan's natural resources by implementing land-use strategies that reduce GHG emissions in partnership with Michigan's tribal governments.

The federal government signed several treaties with tribal nations in Michigan, which reserved hunting and fishing rights for tribal members. Working with and supporting tribal nations will be an essential component of managing natural and working lands in a way that respects and does not interfere with treaty rights, treaty resources, and tribal cultural resources.



Soil health and innovation in agriculture

Michigan is the second most agriculturally diverse state in the country. The state is home to nearly 50,000 farms, spanning over nine million acres of agricultural land. These lands have an opportunity to sequester carbon, but many agricultural practices also emit it. This Plan recommends solutions to implement best practices for managing working lands to restore soil health and store carbon, provide low-carbon equipment to farmers, increase access to locally sourced agriculture, and reduce food waste.

Promoting climate-smart strategies like cover crops, conservation tillage, and precision agriculture can improve soil health, store carbon, improve water quality, and reduce fertilizer needs. Biochar and compost also have the opportunity to reduce both food waste and reliance on synthetic fertilizers. Innovative animal feed mixes and additives can be used to reduce GHG emissions from livestock.

Across the state, there are communities that lack access to healthy, high-quality food. As we transform our agricultural sector to mitigate and adapt to climate change, we must also take that opportunity to ensure that everyone can get the food they need to live healthy lives. Supporting Michigan-grown agriculture, urban agriculture, and farmer's markets by funding programs like the 'Buy Michigan Agriculture Campaign' can promote healthy local food systems and reduce emissions from transporting food.

While some solutions are apparent for Michigan's working lands, additional funding opportunities, research, and technological advancements will be necessary to understand how to fully decarbonize this sector in a way that balances the needs of farmers, ecosystems, and all Michiganders.



LEADING BY EXAMPLE IN STATE GOVERNMENT

State governments have a variety of tools in their purview to address climate change. For example, state agencies use energy, procure or purchase vehicles and other goods/services, and make a wide variety of other investments in our communities and economy. Decisions and actions in these and other areas are opportunities for the State of Michigan to show the way to carbon neutrality.

In 2019, the governor's office launched an interdepartmental workgroup to identify opportunities for state government to lead by example and use administrative powers to reduce GHG emissions. This work focused on how the state could incorporate climate mitigation into existing state programs and identify initiatives that departments could pursue to accelerate the transition toward carbon neutrality. This effort demonstrated that every state department – from the Department of Natural Resources to the Department of Treasury – has an opportunity to act on climate.

In response to this work, Governor Whitmer created new offices and initiatives to help strengthen climate action across state government, including the Energy Transition Impact Project at the Department of Treasury and the Office of Future Mobility and Electrification at the Department of Labor and Economic Opportunity (LEO). The leaders of these programs collaborate closely with their colleagues in the Office of Climate and Energy and Office of Environmental Justice Public Advocate, which Governor Whitmer created at EGLE as one of her first acts in office to lead carbon reduction, just transition, and environmental justice efforts.



Solar Panels at Oden State Fish Hatcher – *photo courtesy of the Michigan DNR*

This focus and planning on climate—along with the structuring of climate work directly into state agency organizational charts—has led to bold actions by the State of Michigan to reduce GHG emissions. While not an exhaustive list, the following highlights some examples of the state leading by example.

LEADING BY EXAMPLE IN STATE OPERATIONS

To reduce GHG emissions in State of Michigan operations, the Whitmer administration and state agencies have:

- Signed agreements to power state-owned facilities with 100 percent renewable energy by 2025.
- Committed to carbon neutrality in state-owned buildings by 2040.
- Pledged to reduce energy usage in state-owned facilities 40 percent by 2040.
- Established a $5 million Energy Efficiency and Green Revolving Fund to expand renewable energy and energy efficiency projects at state facilities (and proposed an expansion of this investment in the FY 2023 budget proposal).
- Developed a plan to responsibly site solar across state-owned properties.
- Upgraded state systems to deploy more efficient water use (and reuse) techniques, saving energy and thousands of gallons of water per year.
- Launched the nation's first carbon sequestration and carbon market program on state owned forest land.
- Committed to electrify the state's vehicle fleet, starting with a $10 million FY 2023 budget proposal.
- Required consideration of vendor environmental track records in the state's procurement and purchasing decisions.
- Required all state facilities to offer recycling services.
- Developed a toolkit for state agencies to review sustainability projects on state properties and ensure easy access to information on how to initiate eco-friendly practices.
- Launched a state employee education campaign around sustainability.
- Invested in backup power for all state-owned pumping stations to reduce freeway flooding events in Southeast Michigan.

LEADING BY EXAMPLE IN STATE BUDGETS

Each of the budgets Governor Whitmer has signed so far have delivered millions of dollars for strategies and investments to address climate change. Most recently, Governor Whitmer proposed an FY 2023 executive recommendation that included over half a billion dollars in climate, advanced mobility, and clean energy related funding. These proposals ranged from investments in the state green bank and building out electric vehicle charging infrastructure to the reforestation of native trees and grants to communities for climate-resilient infrastructure.

LEADING BY EXAMPLE IN STATE PROGRAMS

State agencies are also showing the way to carbon neutrality by developing new programs—and reshaping existing ones—to jumpstart progress in implementing the strategies in this Plan.

Commit to Environmental Justice and Pursue a Just Transition

- EGLE developed a Michigan-specific EJ Screening tool that provides maps and data to help Michigan move toward environmental equity. It allows users to identify where populations are more vulnerable and what challenges communities face. EGLE is also supporting the Michigan Public Service Commission (MPSC) in considering environmental justice and health impacts as a part of the utility integrated resource plan process.
- The Department of Health and Human Services published a *Climate and Health Adaptation Planning Guide for Michigan Communities* to help local units of government and their residents integrate climate and health concepts into existing community planning and decision making.

Clean the Electric Grid

- The MPSC launched MI Power Grid, a multi-year stakeholder process to maximize the benefits of clean, distributed energy resources for Michigan residents and businesses.
- The Michigan Department of Agriculture and Rural Development (MDARD) developed a policy allowing farmers to rent land for large scale solar operations while maintaining preservation of farmland by suspending and extending agreements for an equivalent number of years to properties enrolled in the PA 116 program.

Electrify Vehicles and Increase Public Transit

- The Office of Future Mobility and Electrification within LEO has led several projects to promote electric vehicle adoption and eliminate range anxiety associated with the availability of electric vehicle charging infrastructure.
- The Michigan Department of Transportation (MDOT) completed a Transportation Asset Management Plan which included analysis of risks to the department related to climate change. It has also supported external initiatives like the Southeast Michigan Council of Government's climate resiliency and flooding mitigation study to determine which infrastructure assets in southeast Michigan—including roads, bridges, culverts, and pump stations—are most at risk for flooding

Repair and Decarbonize Homes and Businesses

- The Michigan State Housing Development Authority (MSHDA) within LEO included a Green Policy within their Qualified Allocation Plan to require all its housing projects to achieve a green building certification and to add incentives for projects to achieve higher levels of sustainability commitments and energy efficiency. MSHDA's 2022 Statewide Housing Plan also includes focuses on environmental justice in housing development and rehabilitation.

Protect Michigan's Land and Water

- The DNR incorporated climate mitigation as a key pillar in their Public Land Strategy to ensure the department identified appropriate strategies for emerging, climate-based threats to natural resources, and launched the nation's first carbon sequestration and carbon market program on state forest land.

Drive Clean Innovation in Industry

- The Michigan Economic Development Corporation (MEDC) within LEO has started integrating Michigan's climate goals into its business attraction efforts and has adjusted their focus to strategic industries that support the transition to a clean energy future, including energy storage businesses, electrified vehicle manufacturers, and companies that perform research and development in these sectors.



Governor Gretchen Whitmer and EGLE Director, Liesl Clark speak at an Earth Day Event.

This broad and deep State of Michigan leadership will help spur the state's economy and catalyze rapid progress toward achieving carbon neutrality by 2050.

CONCLUSION

The realities of the climate crisis are already directly impacting Michiganders and present our state with both an existential challenge and a compelling opportunity. If we fail to act with the urgency required, the impacts of climate change will likely only get worse, disproportionately affecting those who have long borne the brunt of environmental injustice. Yet a better path exists—a bold and strategic response to the climate crisis that will reward our state with enhanced economic opportunities, good-paying sustainable jobs, affordable and reliable energy for all, and clean air and water for every Michigander.

The steps to achieving this vision are within reach, though urgent action is needed. This MI Healthy Climate Plan lays out in detail the steps we need to take immediately to achieve a 52 percent reduction in GHG emissions by the end of this decade, including efforts to clean the electric grid, electrify vehicles and increase public transit, repair and decarbonize homes and businesses, drive clean innovation in industry, and protect Michigan lands and water. As we drive GHG reductions in each of those areas, the Plan calls on us to pursue environmental justice every step of the way and commit to a just transition to a carbon neutral economy for all Michigan workers and communities.

No less importantly, the Plan identifies the equally urgent actions needed now to fully decarbonize Michigan's economy by 2050, including areas where additional work and study are needed for harder-to-decarbonize sectors including buildings and housing, industry, and agriculture.

With bold leadership by example from state government and every Michigan resident and business playing their parts, we can – together – build a more equitable, just, healthy, and prosperous future and ensure that the benefits of this clean energy transition are enjoyed by all Michiganders.

IMPLEMENTATION

The State of Michigan is committed to implementing the MI Healthy Climate Plan. As directed by the Executive Order calling for this Plan, the Office of Climate and Energy within EGLE will oversee its implementation in concert with state departments and agencies, tribal and local governments, and key stakeholders. The Council on Climate Solutions and Michigan Advisory Council on Environmental Justice will provide advice, feedback, and guidance along the way. And, as required by the Order, EGLE will submit publicly available annual reports updating all 10 million Michiganders on our progress.



APPENDICES

- Workgroup summaries of Key Recommendations presented to the Council on Climate Solutions
- Michigan Advisory Council on Environmental Justice recommendations to the Council on Climate Solutions and the State of Michigan.

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-9
Farmland Protection



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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EXHIBIT A-9: FARMLAND PROTECTION 1

(a) Provide an explanation for how the proposed facility will not unreasonably diminish farmland. 1

(b) Provide the information below at both the local (township/city/village) and the county level using publicly available data, such as https://croplandcros.scinet.usda.gov/, as follows: 3

REFERENCES 5

LIST OF TABLES

Table A-9-1 Summary of Farmland Classification with the County and Township 5

LIST OF ATTACHMENTS

Attachment A-9 A Land Use Analysis of the Lakeside Solar Project
Attachment A-9 B Farmland Protection

EXHIBIT A-9: FARMLAND PROTECTION

Lakeside Solar, LLC (Lakeside), a wholly owned subsidiary of Geronimo Power, LLC (Geronimo Power) proposes to develop the Lakeside Solar Facility (Solar Facility) and Battery Energy Storage System (BESS), collectively the Project, in White River Township, Muskegon County, Michigan. This exhibit was prepared following the requirements outlined in the Application Filing Instructions and Procedures.

(a) Provide an explanation for how the proposed facility will not unreasonably diminish farmland.

Agricultural land in the Preliminary Development Area will be utilized for solar energy generation and battery storage use for the life of the Project. The Preliminary Development Area consists of areas within the fence line of the proposed Project. The Project will be designed, constructed, operated, and maintained in a manner that is harmonious with the character of the surrounding area. Agricultural production may be able to continue in the area within the Land Control Area but outside the fence of the Preliminary Development Area during operation of the Project.

Lakeside will implement best management practices (BMPs) prior to, during, and following construction to ensure a reasonable return to agricultural use. Implementation of BMPs during construction and installation and maintenance of pollinator friendly vegetation in accordance with the Vegetation Management Plan (refer to Exhibit 1.3, Attachment A-1.3 A) may enhance soil health for future agricultural use after Project decommissioning. Removing the land from agricultural production for the duration of the Project's operational life may be beneficial for limiting nitrogen infiltration into groundwater supply via reduced application of fertilizers, thereby improving groundwater quality during the life expectancy of the Project (Great Plains Institute, 2022).

The following list identifies measures that Lakeside and its contractors will implement to avoid and/or repair potential impacts from the construction, operation, and eventual decommissioning of the Project. Mitigative measures may include the following:

- Minimize clearing, grubbing, and grading and maintain topography on site as much as practicable to allow soils to remain intact.
- Stabilize soils with a cover crop, if applicable with construction schedule, where vegetation is not present due to vegetation or row-crop debris removal and site clearing.
- Strip, segregate, and conserve topsoil during construction activities such as permanent access road and inverter installations and place topsoil at preselected areas to receive excess topsoil, grade and prepare the seed bed as appropriate, and revegetate to maintain for suitable plant growth.
- Identify storage areas to receive topsoil from nearby areas and record (global positioning system [GPS] boundary and depth) on site maps to facilitate final reclamation after decommissioning.
- Strip the topsoil (up to a maximum depth of 12 inches) using a small backhoe from the trenched area created to install the below-ground alternating current (AC) collection system

and temporarily store the soil adjacent to the trench. Once cables are installed, backfill the trenches using a small backhoe and compaction equipment. Replace the topsoil to the restored trench line and re-establish the pre-construction contour using a small front-end loader.

- Remove all topsoil from the substation footprint and/or BESS location, if necessary, to a pre-established suitable location for storage near the site where the soil was removed, accurately locate (GPS boundary, soil depth), and grade to facilitate revegetation. Remove the subsoil, if necessary, to an acceptable pre-established and approved area for storage. After decommissioning, return the subsoil to the area from which it was excavated (as needed), replace the topsoil, and reestablish pre-construction contours.
- Install solar panels with a piling or screw system that does not require footing, concrete or other permanent mounting.
- Limit vehicular traffic to the extent practicable to permanent and temporary access roads to minimize soil disturbance, mixing, and compaction during the array and racking assembly process.
- Design construction access and manage construction passes to minimize the number of trips occurring on a given soil type.
- Use construction equipment consisting of smaller, low ground pressure tracked vehicles as applicable.
- Stage the solar panels in advance of installation throughout the Preliminary Development Area and deliver to specific work areas for installation by wagon-type trailers pulled by small tractors or by all-terrain tracked equipment. Restrict the crews installing the Solar Facility along staked temporary access roads in a pre-established route to minimize off-road traffic.
- Vegetate stormwater basins with specified wet vegetation seed mix in accordance with the Vegetation Management Plan suitability and to facilitate soil stabilization following precipitation events.
- Backfill soil that is displaced by the auger during wooden fence post installation around the Solar Facility.
- Maintain drainage features, county drain systems, and drain tiles to the extent practicable.
- Implement wet weather procedures any time that rutting is observed.
- After construction, and for the life of the Project, soils will be stabilized and given an opportunity to rest, as the site is revegetated in accordance with the Vegetation Management Plan.
- Manage seeding times when soil conditions are optimum for germination (and in consideration of the time of year of the construction schedule) and use mulch, specified cover crop and other BMPs as described in the Vegetation Management Plan.
- Follow the Vegetation Management Plan for successful plant establishment and soil stabilization with respect to site preparation, seeding method, establishment monitoring,

control of noxious weeds, reseeding bare ground as applicable and complying with maintenance tasks.

Agricultural production would continue in the surrounding areas during construction and operation of the Project. The reduced revenue from minimized agricultural production in the Preliminary Development Area will be offset by the leases and purchase option agreements between Lakeside and the landowners. Areas disturbed during construction will also be repaired and restored to pre-construction contours and characteristics to the greatest extent practicable. This restoration will allow the Project's land surfaces to drain properly, blend with the natural terrain, re-vegetate, and avoid soil erosion. Agricultural production may be able to continue within the Land Control Area but outside the fence of the Preliminary Development Area during construction and operation of the Project. Any area outside of the fenceline within the Land Control Area that is not used for agricultural production will be seeded with the permanent seed mix during operation and following decommissioning.

Lakeside commissioned a land use analysis by Strategic Economic Research, LLC (Attachment A-9 A). This analysis determined the expected production of soybeans in Muskegon County to be higher than pre-construction within 4.1 years following construction of the Project, based on historic trends attributable to improvements to crop genetics, pesticides, fertilizer, machinery, and labor. Corn yields for Muskegon County would exceed pre-construction amounts within 1.27 years following construction of the Project.

(b) Provide the information below at both the local (township/city/village) and the county level using publicly available data, such as https://croplandcros.scinet.usda.gov/, as follows:

1. Type of farmland being utilized by the project (i.e. Standard, Prime, Specialty Crops).

According to data obtained from the USDA National Agricultural Statistics Service Cropland CROS system, the top crops currently grown within Muskegon County include corn, alfalfa, soybeans, apples, cucumbers, and winter wheat. The top crops currently grown within White River Township include soybeans, alfalfa, corn, winter wheat, hay (not alfalfa) and oats. The top crops within the Land Control Area include soybeans, corn, alfalfa, winter wheat, and oats.

A majority of the Preliminary Development Area is within areas of prime farmland. Attachment A-1.2 C, Exhibit A-1.2 illustrates prime farmland and farmland of local or unique importance. However, it is important to note that the prime farmland designation is independent of current land use (USDA, 2024). Approximately 851 acres (86.7 percent) of the Preliminary Development Area are classified as prime farmland, including prime farmland if drained, or farmland of local or unique importance. A majority of the impacts (approximately 662.5 acres) from the Project will occur to prime farmland and prime farmland (if mitigated through draining), approximately 34 percent and 33 percent, respectively. A total of approximately 188.4 acres (19.2 percent) within the Preliminary Development Area consist of farmland of local or unique importance.

Within Muskegon County, there are approximately 71,389.7 acres of soils listed as prime farmland, (including prime farmland if mitigated), and farmland of local or unique importance. Approximately 851 acres (87.6 percent) of the Preliminary Development Area is classified as

prime farmland, including prime farmland if drained, farmland of local importance, and farmland of unique importance. The Project will not unreasonably diminish farmland as approximately 850.9 acres (1.2 percent) of prime farmland (including if mitigated) and farmland of local or unique importance within the county will be affected.

No areas used for specialty crop production are located within the Land Control Area, based upon review of Google Earth and information gathered through landowner outreach. However, specialty farms such as the Degen Sunflower Farm, Scholl Farms, and Jawor Brothers Blueberries are located within 1,000 feet of the Land Control Area as shown on Attachment A-9 B.

The Project proposes to utilize parcels currently enrolled in the PA 116 Farmland Preservation program administered by the Michigan Department of Agriculture and Rural Development (MDARD). Attachment A-9 B illustrates lands enrolled within the PA 116 program within the Land Control Area. Approximately nine parcels under consideration for development are subject to active PA 116 agreements. Prior to construction, Lakeside, affected landowners, and MDARD will engage in an administrative process to coordinate solar releases on enrolled parcels in accordance with MDARD's Policy for Allowing Commercial Solar Panel Development on PA 116 Lands. Requirements under this policy include, but are not limited to, pollinator-friendly ground cover, financial assurance for decommissioning, maintenance of any drainage features, and a return to agricultural use upon project decommissioning. All active PA 116 agreements affected by the Project will undergo the formal MDARD amendment process following permit approval, as required.

2. Total acreage of farmland utilized by the project.

Of the approximately 982 acres of land within the Preliminary Development Area, approximately 98 percent (966 acres) is classified as agricultural land (cultivated crop and hay/pastureland) according to the United States Geological Survey (USGS) National Land Cover Database (NLCD) (USGS, 2024). Attachment A-1.2 B in Exhibit A-1.2 shows the NLCD land use categories within the Project's Land Control and Preliminary Development Areas and the 1,000-foot buffer.

3. Farmland utilized by the project as a percentage of farmland in the township and county.

The development of the Project on agricultural land within the Preliminary Development Area will have only minor impacts on the availability of agricultural land in Muskegon County. Of the 337,543 acres in Muskegon County, approximately 14 percent (approximately 47,071 acres) are currently used for agricultural cropland production (USDA, 2022). Conversion of 966 acres of agricultural land to construct and operate the Project would reduce the amount of active agricultural land in the county by two percent.

White River Township has approximately 4,000 acres of farmland (White River Township, 2005 and 2012). Of the 982 acres of land needed to construct and operate the Project, approximately 966 acres (98 percent) of the land is agricultural land (cultivated crop and hay/pastureland) according to the USGS NLCD (USGS, 2024). Development of 966 acres of agricultural land would reduce the amount of active agricultural land in White River Township by 24 percent.

4. Current percentage of land within the township and county considered farmland, differentiated by type.

According to the USDA's 2022 Census of Agriculture, 65,932 acres of land is farmland in Muskegon County. Of the approximate 337,543 acres that comprise Muskegon County, 47,071 acres (14 percent) are actively cultivated farmland (USDA, 2022). White River Township has approximately 4,000 acres of farmland (White River Township, 2005 and 2012). There are approximately 3,744 acres of prime farmland, prime farmland if mitigated and protected, and farmland of local and unique importance in the Township.

Table A-9-1 summarizes the acreage and percentage of land considered farmland by type for the County and Township according to the USDA Natural Resources Conservation Service.

Table A-9-1 Summary of Farmland Classification with the County and Township

Farmland Classification	Muskegon County (acres/ %)	White River Township (acres / %)	Preliminary Development Area (acres)	Percent of Preliminary Development Area	Percent of Total Farmland Type of County within Preliminary Development Area	Percent of Total Farmland Type of Township within Preliminary Development Area
Prime Farmland	22,851.5 / 6.8%	1,328.9 / 13.1%	338.5	34.5%	1.4%	25.5%
Prime Farmland if Drained	18,904.3 / 5.6%	1,113.7 / 10.9%	324.1	33.0%	1.7%	29.1%
Farmland of Local Importance	29,633.9 / 8.8%	1301.5 / 12.8%	188.4	19.2%	0.6%	14.5%
Not Prime Farmland	266,153.2 / 78.9%	6,428.8 / 63.2 %	131.0	13.3%	<0.1%	2.0%
TOTAL	**337,542.9 / 100%**	**10,172.9 / 100 %**	**982**	**100%**	-	-

Source: USDA NRCS 2019

5. Total acreage of farmland within the township and the county, differentiated by type.

The total acreage of farmland within White River Township and Muskegon County, differentiated by type, is shown above in Table A-9-1.

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Attachment A-9 A

Land Use Analysis of the Lakeside Solar Project

Strategic Economic Research, LLC



LAND USE ANALYSIS OF THE LAKESIDE SOLAR PROJECT

June 2026

Dr. David G. Loomis, Bryan Loomis, and Sawyer Keithley

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Strategic Economic Research, LLC (SER) provides economic impact and local tax analyses for energy projects throughout the United States. SER reports show the jobs, earnings, output, and property taxes that these projects bring to local communities. The company has analyzed over 700 projects (over 132 gigawatts of energy) in 38 states. SER has grown to over 25 employees across the country. For more information about the associates who contribute to SER's reports, visit our website: **strategiceconomic.com/about**

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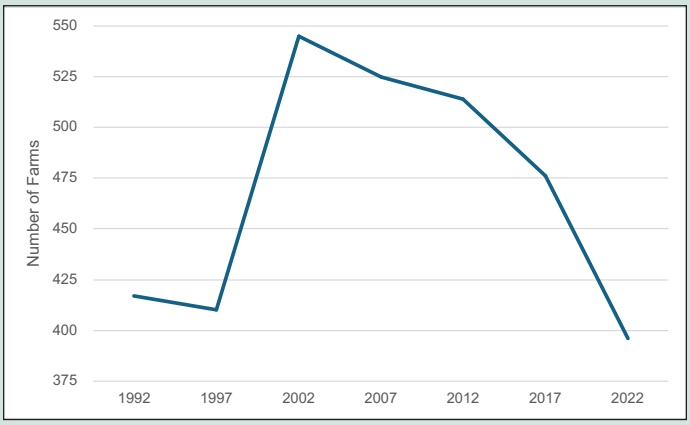
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I. Current and Proposed Usage Statistics

The farming industry has fluctuated in Muskegon County, Michigan. As shown in Figure 1.1, the number of farms hit a high of 545 in 2002 and a low of 396 in 2022.

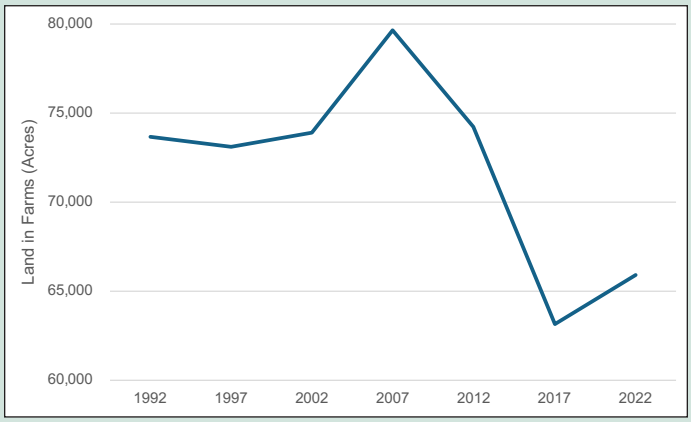
According to Figure 1.2, the amount of land in farms has trended downward in Muskegon County. The county farmland hit a high of 79,663 acres in 2007 and a low of 63,182 acres in 2017.

Figure 1.1 – Number of Farms in Muskegon County from 1992 to 2022



Source: USDA National Agricultural Statistics Service, Census of Agriculture, 1992-2022

Figure 1.2 – Land in Farms in Muskegon County from 1992 to 2022



Source: USDA National Agricultural Statistics Service, Census of Agriculture, 1992-2022



According to the 2022 Census of Agriculture, Michigan is ranked 17th among U.S. states in total value of agricultural products sold (USDA NASS, 2024a). It is ranked 20th in the value of livestock and 15th in the value of crops (USDA NASS, 2024a). In 2024, Michigan had 44,000 farms and 9.4 million acres in operation with the average farm being 214 acres (USDA NASS, 2025). Michigan had 438 thousand cattle and produced 12.1 billion pounds of milk (USDA NASS, 2025). In 2024, Michigan yields averaged 181 bushels per acre for corn with a total market value of over $1.4 billion (USDA NASS, 2025). Soybean yields averaged 49 bushels per acre with a total market value of over $1.1 billion (USDA NASS, 2025). The average net cash farm income per farm is $65,442 (USDA NASS, 2024a).

In 2022, Muskegon County had 396 farms covering 65,932 acres for an average farm size of 166 acres. The total market value of products sold was $111 million, with 37% coming from livestock sales and 63% coming from crop sales. The average net cash farm income of operations was $53,421 (USDA NASS, 2024).

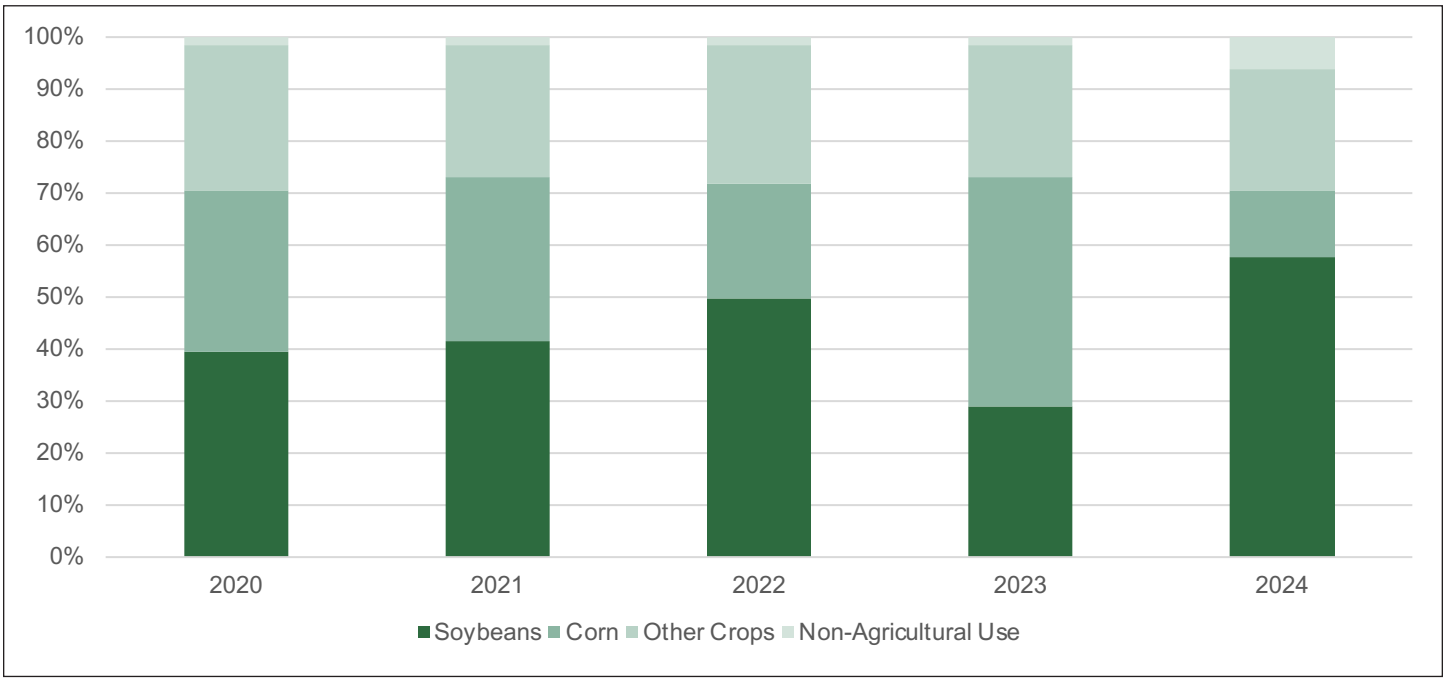
Since the late 1990s, the NASS has provided Cropland Data Layer (CDL) information in many states, and in all contiguous states since 2009. CDL uses satellite imagery to identify crop types and other land uses. The USDA has an online resource, CroplandCROS, that can be used to access CDL data.



The Lakeside Solar Project footprint is estimated to include 978 acres of land within White River Township and Muskegon County. This represents the expected land taken out of agricultural production for the Project rather than the total acreage of all signed parcels, which may be larger. The CDL data shows that crops have been grown on approximately 955 acres of the Project footprint between 2020 and 2024. Over that time, the top two crops grown within the Project footprint were soybeans and corn. The cropland taken out of production within the Project footprint would represent 28.5% of the total cropland in White River Township and 1.7% of the total cropland in Muskegon County. Figure 1.3 shows the land use for the Project footprint over the last five years.

Soybeans and corn are classified as "standard" crops according to the USDA. Standard crops (or non-specialty crops) include grains, oil seed crops, bio-energy crops, field crops, and plants federally controlled as illegal drug plants. Other standard crops grown on the land include alfalfa, barley, sorghum, sugar beets, winter wheat, rye, oats, millet, and triticale. The Agricultural Act of 2014, Public Law 113-79 (the Farm Bill) defines specialty crops as, "fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops (including floriculture)." The Project footprint has grown an average of 14.56 acres of specialty crops from 2020 to 2024, which makes up approximately 1.5% of the total crops grown within the Project footprint. The specialty crops grown within the Project footprint include apples, asparagus, blueberries, broccoli, carrots, cherries, cucumbers, dry beans, peaches, peas, potatoes, pumpkins, squash, and sunflowers.

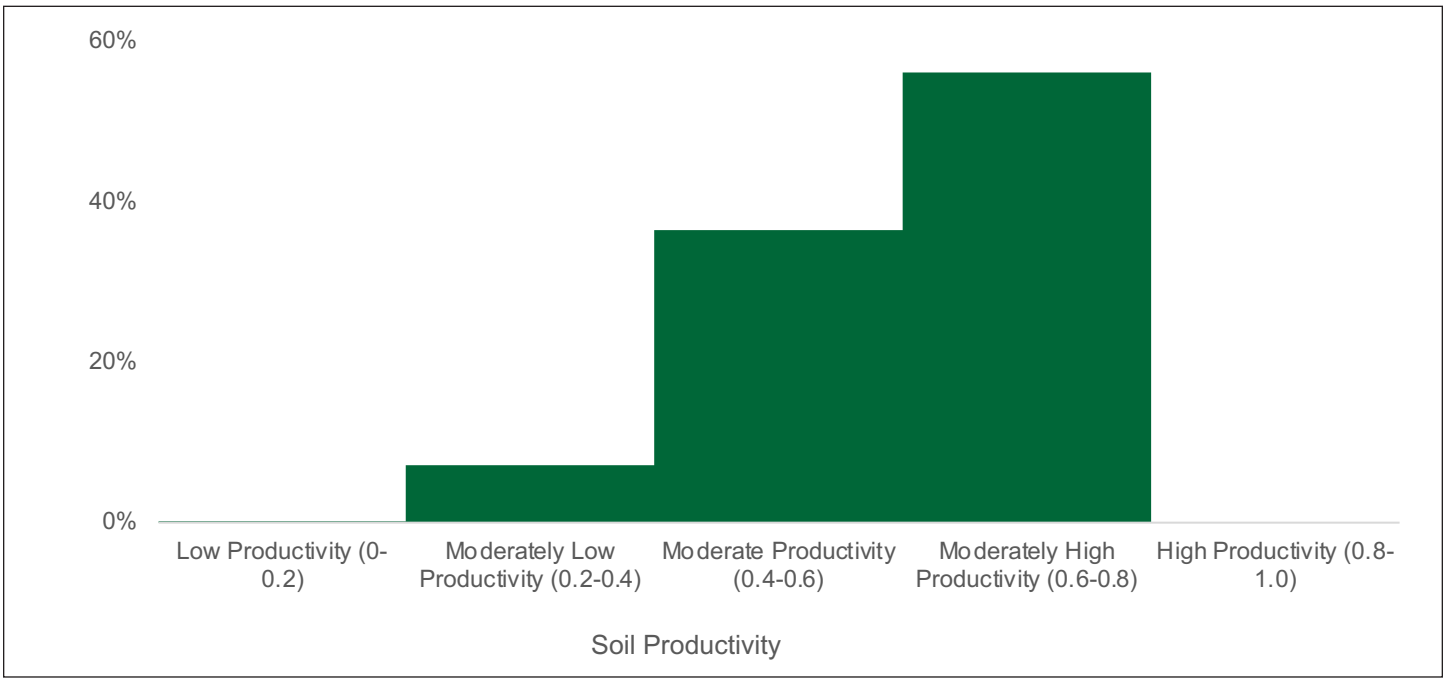
Figure 1.3 – Percentage of Project Area Utilized for Crops and Non-Agricultural Use from 2020 to 2024



Source: USDA National Agricultural Statistics Service, Cropland Data Layer, Land Use, 2020-2024

The National Resources Conservation Service (NRCS), another division of the USDA, publishes information on soil quality and land classification across the United States. They developed the National Commodity Crop Productivity Index (NCCPI), a national interpretation for nonirrigated commodity crops that examines the soil, landscape, and climate in order to model potential crop growth and health. The NCCPI uses a scale between 0 and 1, with a land rating close to 0 being the least productive and a land rating close to 1 being the most productive. Figure 1.4 shows the NCCPI ratings for the Project footprint.

Figure 1.4 – National Commodity Crop Productivity Index Ratings for the Lakeside Solar Project Footprint



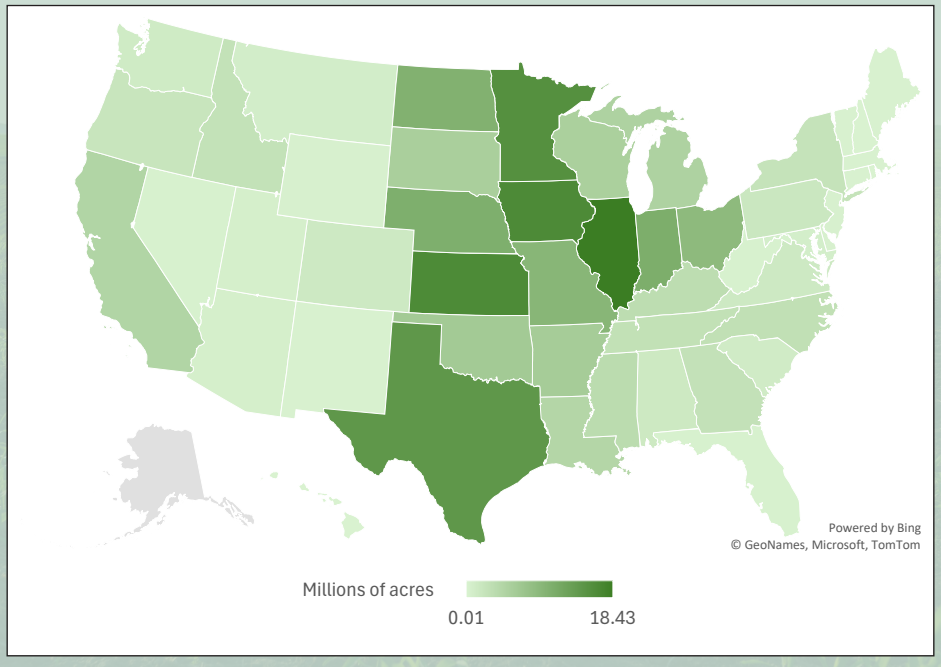
Source: USDA Natural Resources Conservation Service, Web Soil Survey, NCCPI Rating, 2025

The NRCS also publishes information on the classification of land across the United States. In general, land is classified as prime farmland if it has a combination of specific characteristics that make it useful for producing food, feed, oilseed crops, and others. Land can also be classified as unique farmland if it is useful for producing specific fruits and vegetables like citrus, tree nuts, olives, and cranberries. Beyond these national classifications, state agencies can classify land as farmland of statewide importance, and local agencies can classify land as farmland of local importance.

According to the USDA's National Resources Inventory from 2017, there are over 202 million acres of U.S. prime farmland, which accounts for 55% of the nation's total cropland. Figure 1.5 below shows the distribution of prime farmland across the United States.

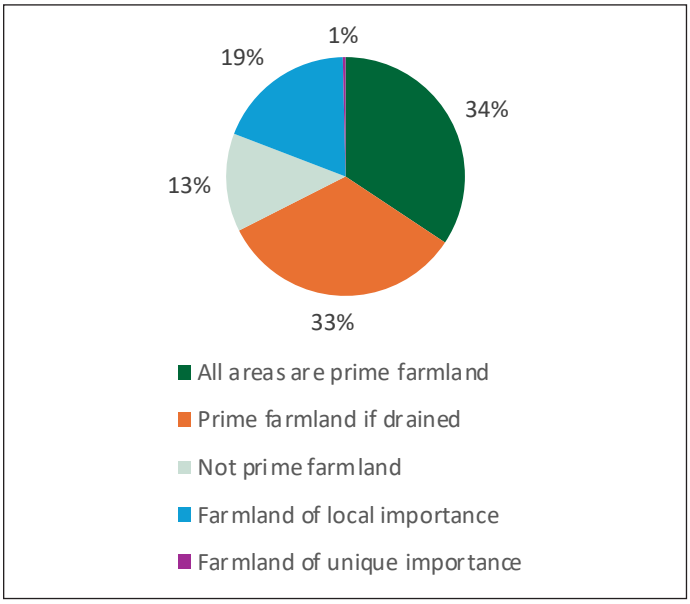
202 Million Acres = 55% of U.S. Cropland

Figure 1.5 – Prime Farmland in the United States



Source: USDA National Resources Inventory, Web Soil Survey, 2017

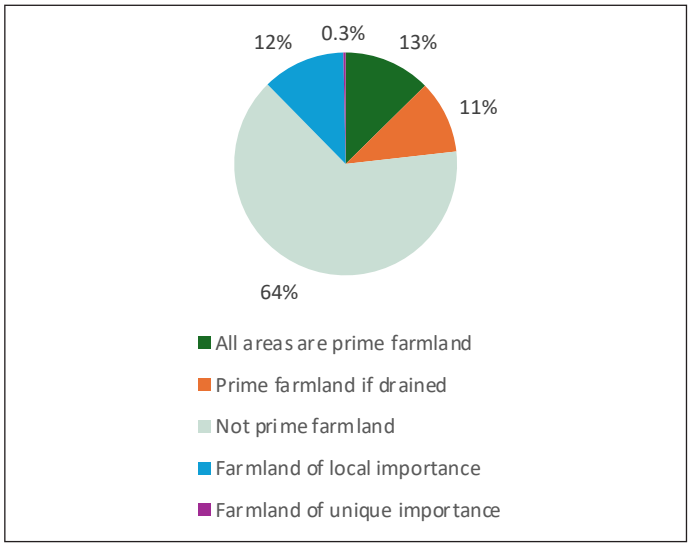
Figure 1.6 – Land Classification for the Lakeside Solar Project Footprint



Source: USDA Natural Resources Conservation Service, Web Soil Survey, Land Classification, 2025

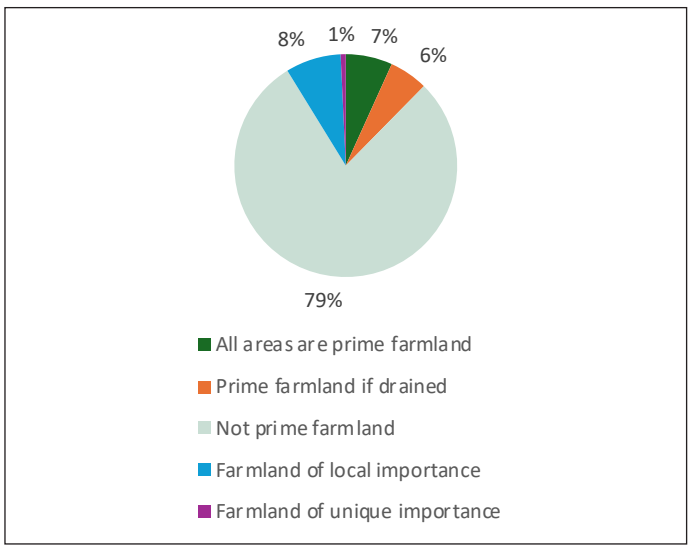
Michigan has 5 million acres of prime farmland, accounting for 62.9% of its total cropland. Figures 1.6, 1.7, and 1.8 show the land classification statuses for the Project footprint, White River Township, and Muskegon County respectively.

Figure 1.7 – Land Classification for White River Township



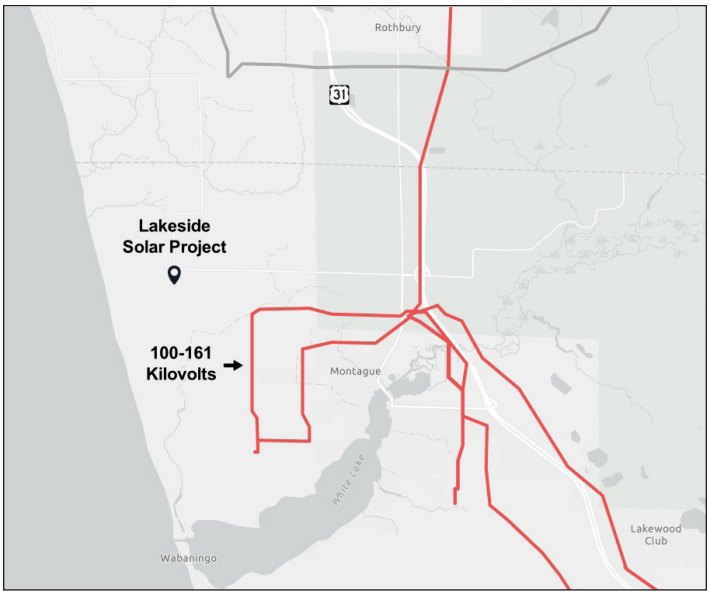
Source: USDA Natural Resources Conservation Service, Web Soil Survey, Land Classification, 2025

Figure 1.8 – Land Classification for Muskegon County



Source: USDA Natural Resources Conservation Service, Web Soil Survey, Land Classification, 2025

Figure 1.9 – Map of Transmission Lines Near Project



Source: U.S. Electric Power Transmission Lines from Homeland Infrastructure Foundation-Level Data (HIFLD), ArcGIS GeoService

To determine if an area is suitable for a solar project, developers examine the ease of electricity grid access, the amount of sun the land receives, and the county's current policies or ordinances related to solar energy.

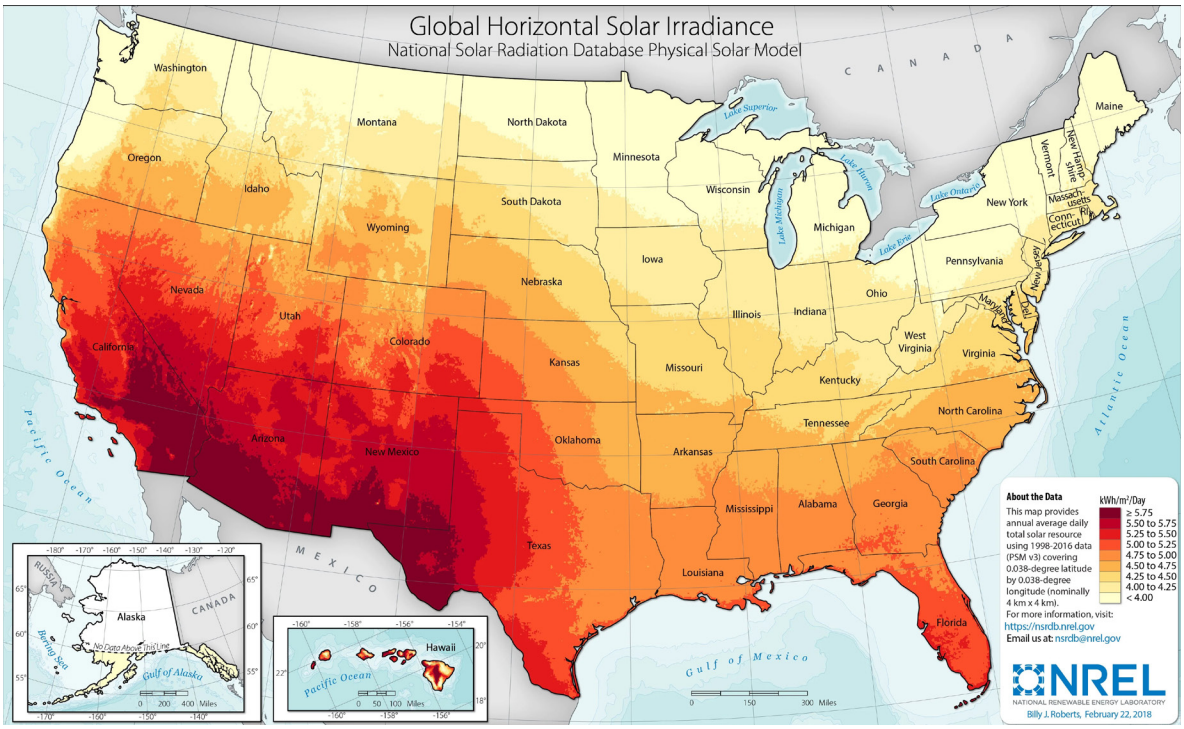
In order to connect the energy it generates to the electricity grid, a solar project must be tied to a transmission line. The average cost of installing a transmission line to transmit solar energy is approximately $2.4 million per mile (EIA, 2024). The cost of building transmission lines decreases the closer the area is to the transmission grid, making it more attractive to potential solar developers. Figure 1.9 shows the current layout of the transmission lines in the area surrounding the proposed Project.



Additionally, the amount of sun the land receives can help determine if it is a suitable location for a solar project. A common measure for this is solar irradiance, which is defined as "the amount of solar energy that arrives at a specific area of a surface during a specific time interval" (NREL). Figure 1.10 shows solar irradiance levels across the United States.

Muskegon County is located in the eastern part of Michigan. According to Figure 1.10, the area has an estimated Global Horizontal Irradiance (GHI) less than 4.00 kWh/m2/Day. The solar market has expanded to less sunny parts of the country in the last decade, with the average GHI of newly constructed solar projects in the United States decreasing from 5.35 kWh/m2/Day in 2013 to 4.65 kWh/m2/Day in 2021 (NREL, 2023).

Figure 1.10 – Global Horizontal Solar Irradiance in the United States



Source: Lawrence Berkley National Renewable Energy Laboratory (NREL), National Solar Radiation Database, 2018

9 II. The Economic Impacts of Shifting Agricultural Land to Solar Use

The economic analysis of the Project was created using IMPLAN (IMpact analysis for PLANning). IMPLAN software and parameters are based on government data collected at federal, state, and local levels. IMPLAN is a leading provider of economic development software that is widely used by economists and economic development professionals. More information about IMPLAN can be found at implan.com.

IMPLAN is an input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output. In other words, IMPLAN demonstrates how one industry's output can be used as an input for another. For example, the purchase of seed, fertilizer, and equipment repair not only increases demand for those items, but also supports the labor required to farm with those items. When fertilizer is purchased from a supply store, the store uses some of that money's retail margin to pay its employees. The employees then spend the money on goods and services within their community. Likewise, when a farmer hires laborers to work the land, those laborers spend money within the local economy which boosts economic activity and employment in other sectors. The goal of an economic impact analysis is to quantify all those reverberations throughout the local and state economies.

The IMPLAN model utilizes county-specific industry multipliers in its analysis. This study analyzes the gross number of jobs supported by its current use for agriculture, its proposed use for the new solar energy project, and the net difference between the two uses.

The total economic impact can be broken down into three distinct types:



Direct impacts

This refers to the labor and services needed to use the land for agriculture or solar.



Indirect impacts

Also known as supply chain impacts, consist of changes in inter-industry purchases resulting from the direct final demand changes.



Induced impacts

This refers to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes.

Local spending by employees, working directly or indirectly on the Project, who receive their paychecks and then spend money in the community is one example. The model includes additional local jobs and economic activity supported by the purchases of these goods and services.

The Lakeside Solar Project is estimated to begin construction in 2027, using 978 acres of land within Muskegon County. The following calculation is used to find the total crop output from each of the two highest crops within the Project area:

$$Total\ Crop\ Output = A \cdot P \cdot Y$$

Where *A* is the number of acres within the project area used to grow the crop, *P* is the state's price per unit of the crop, and *Y* is the county's yield per acre of the crop. The *Total Crop Output* represents the value of those acres if they continued to be used for crop production.

To find the value of the agricultural acres not represented by the top two crops, the following calculation is used:



Where *A* is the number of project area acres remaining after removing the top two crops in acres. The *Net Cash Income Per Farm* in the county divided by the *Average Farm Size* provides the average income per acre, which is then multiplied by the number of excess acres in current agricultural use.

$$Total\ Output\ from\ Other\ Crops = A \cdot \left(\frac{Net\ Cash\ Income\ per\ Farm}{Average\ Farm\ Size} \right)$$

The *Total Output* of all crops is the sum of the *Total Crop Output* for the top two crops and the *Total Output from Other Crops*, which is entered into IMPLAN as a "Commodity Output" under the specification "3002 - Grains." Tables 2.1-2.3 show the annual economic impacts of continued agricultural land use versus solar use.

Table 2.1 – Employment Impacts from Land Use

	Agriculture	Solar	
	(Annual)	Construction (Total)	Operations (Annual)
1 - Direct	0.9	58	2.0
2 - Indirect	0.4	69	7.6
3 - Induced	0.1	47	7.7
Total	1.4	174	17.3

Table 2.2 – Labor Income Impacts from Land Use

	Agriculture	Solar	
	(Annual)	Construction (Total)	Operations (Annual)
1 - Direct	$43,602	$7,014,534	$188,118
2 - Indirect	$12,182	$5,718,363	$591,520
3 - Induced	$7,622	$2,366,439	$390,588
Total	$63,406	$15,099,336	$1,170,226

Table 2.3 – Output Impacts from Land Use

	Agriculture	Solar	
	(Annual)	Construction (Total)	Operations (Annual)
1 - Direct	$143,961	$19,656,437	$465,853
2 - Indirect	$40,839	$13,372,612	$925,289
3 - Induced	$24,966	$7,742,649	$1,274,499
Total	$209,767	$40,771,698	$2,665,641

To visually assess the difference between the economic impacts of the two potential land uses, Figures 2.1-2.3 below show that the solar Project's annual operations have a greater estimated positive economic impact than continued agricultural use.

Figure 2.1 – Employment Impacts from Agriculture and Solar

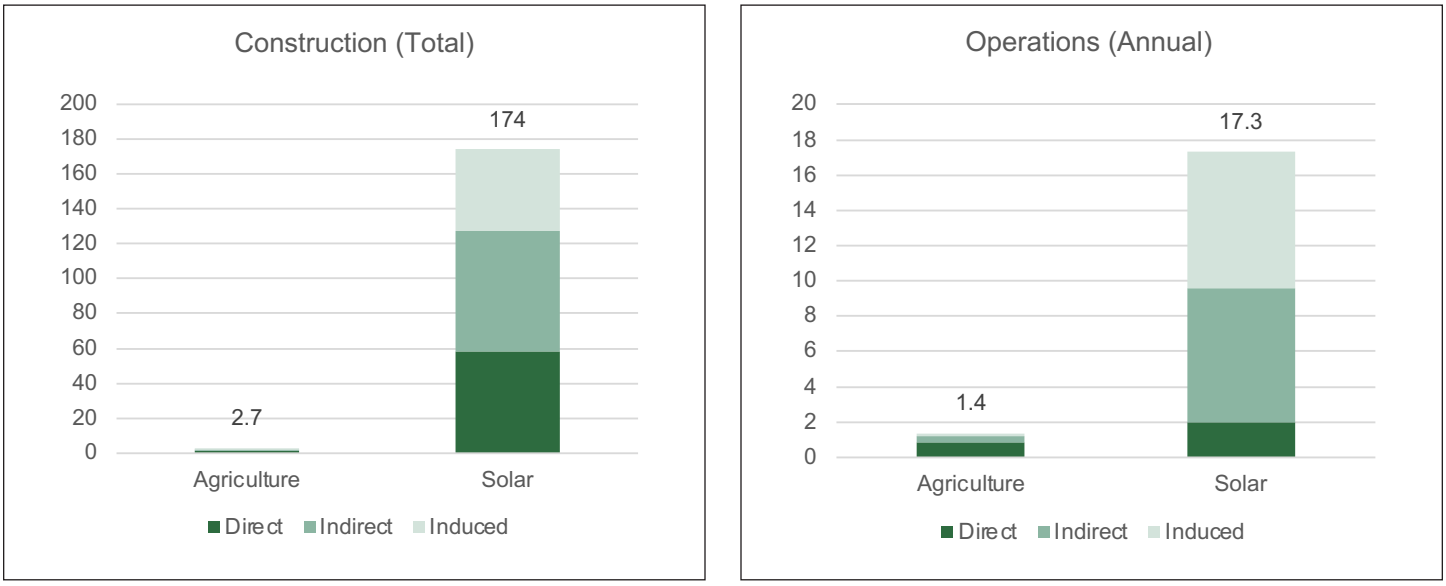


Figure 2.2 – Labor Income Impacts from Agriculture and Solar

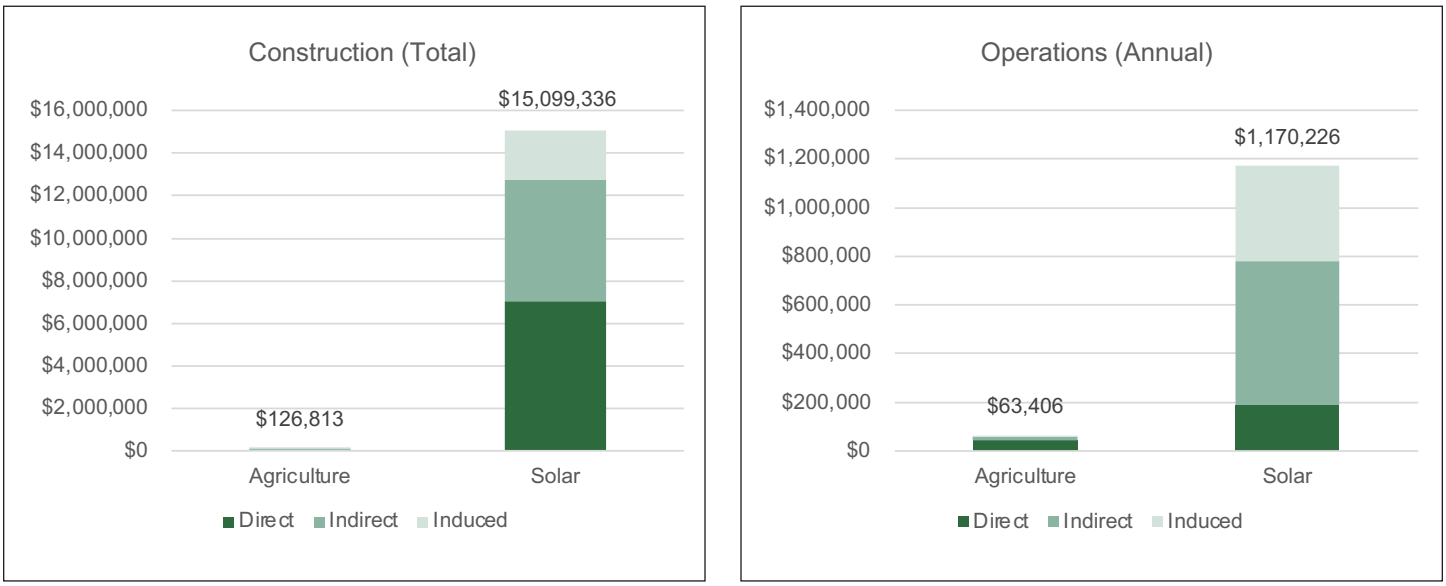
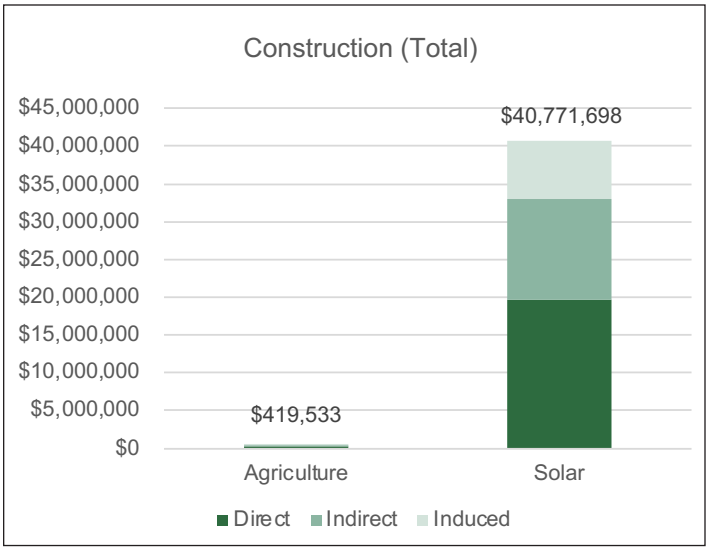


Figure 2.3 – Output Impacts from Agriculture and Solar



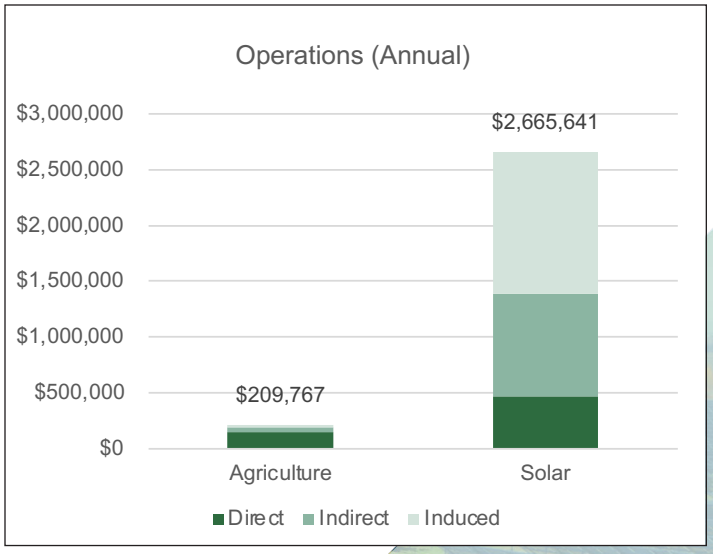


Table 2.4 shows the difference between the estimated impacts of agricultural use versus solar use throughout the proposed solar Project's construction phase. Table 2.5 shows the differences in estimated impacts during the proposed Project's operations phase. The values are found using the following formula:

Estimated Impact of Solar = Benefits from Solar – Benefits from Agriculture

Although the overall impact is positive, it is important to remember what this analysis represents and what it does not represent. This overall positive economic impact means that the value of the economic **inputs** to solar is more valuable to the county than the value of the economic **inputs** to agriculture. The economic value of producing more solar energy is captured in the **output** price that is received by the solar farm which far exceeds the **output** price that is received from agricultural goods.

Table 2.4 – Net Impacts of the Lakeside Solar Project During Construction

	Employment	Labor Income	Output
1 - Direct	56	$6,927,330	$19,368,514
2 - Indirect	68	$5,693,998	$13,290,934
3 - Induced	47	$2,351,195	$7,692,717
Total	171	$14,972,523	$40,352,165

Table 2.5 – Net Impacts of the Lakeside Solar Project During Operations

	Employment	Labor Income	Output
1 - Direct	1.2	$144,516	$321,892
2 - Indirect	7.2	$579,338	$884,450
3 - Induced	7.5	$382,966	$1,249,532
Total	15.9	$1,106,820	$2,455,874

III. Agricultural Trends

One significant agricultural trend that has been observed for over a century is that the yields of many common U.S. crops have increased over time. The USDA's Agricultural Information Bulletin states: "Over the past 70 years, there has been a remarkable increase in the yields of all major field crops in the United States, and more than half of the yield gains are attributed to genetic improvements achieved by plant breeders." According to the bulletin, these major field crops include corn, cotton, soybeans, and wheat. Other factors — beyond plant breeding — that contributed to this historical increase are improvements in pesticides, fertilizer, machinery, and labor.

This trend of increased yields is significant on a global level because it means that the same amount of agricultural output can be obtained with less land devoted to agriculture. Locally, if yields for soybeans and corn (the top crops currently being grown in the Project footprint) continue to increase across Muskegon County after the Project is placed into service, it will counter the impact of taking some agricultural land out of production. Figures 3.1 and 3.2 show the historical increases in soybeans and corn in Muskegon County.

Figure 3.1 – Historical Yield Increase of Soybeans in Muskegon County

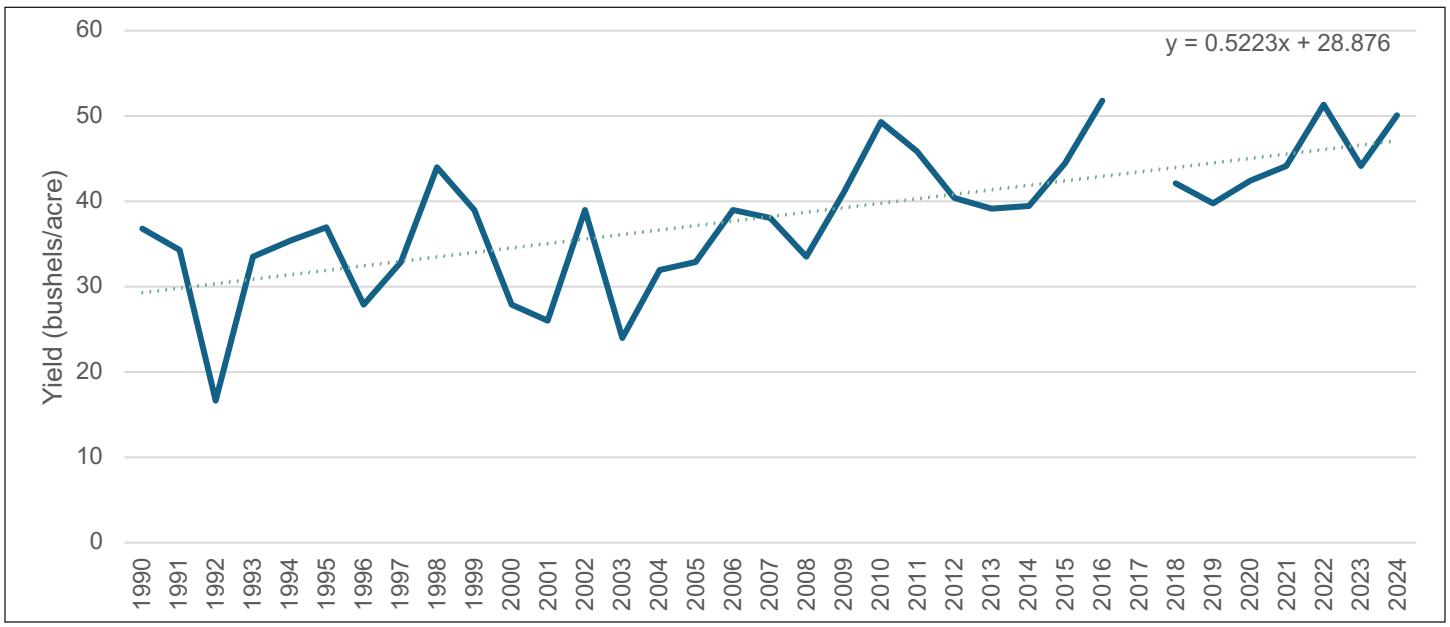
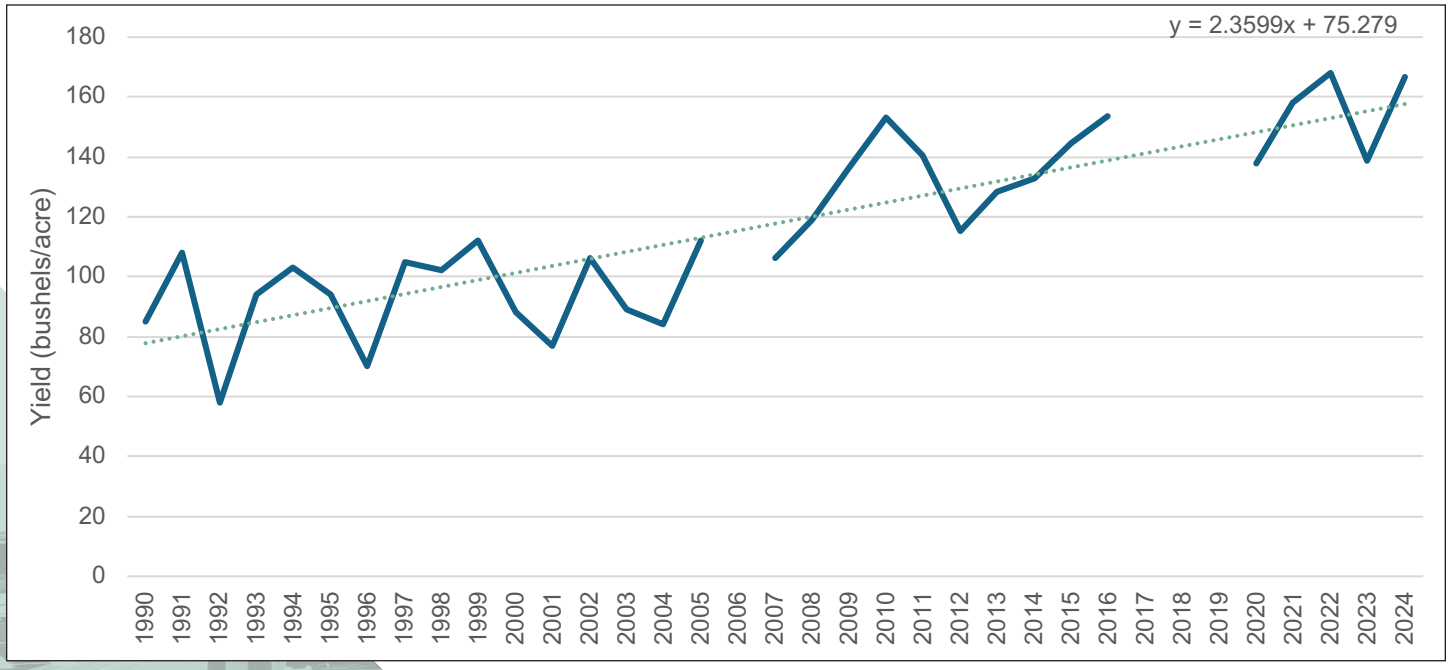


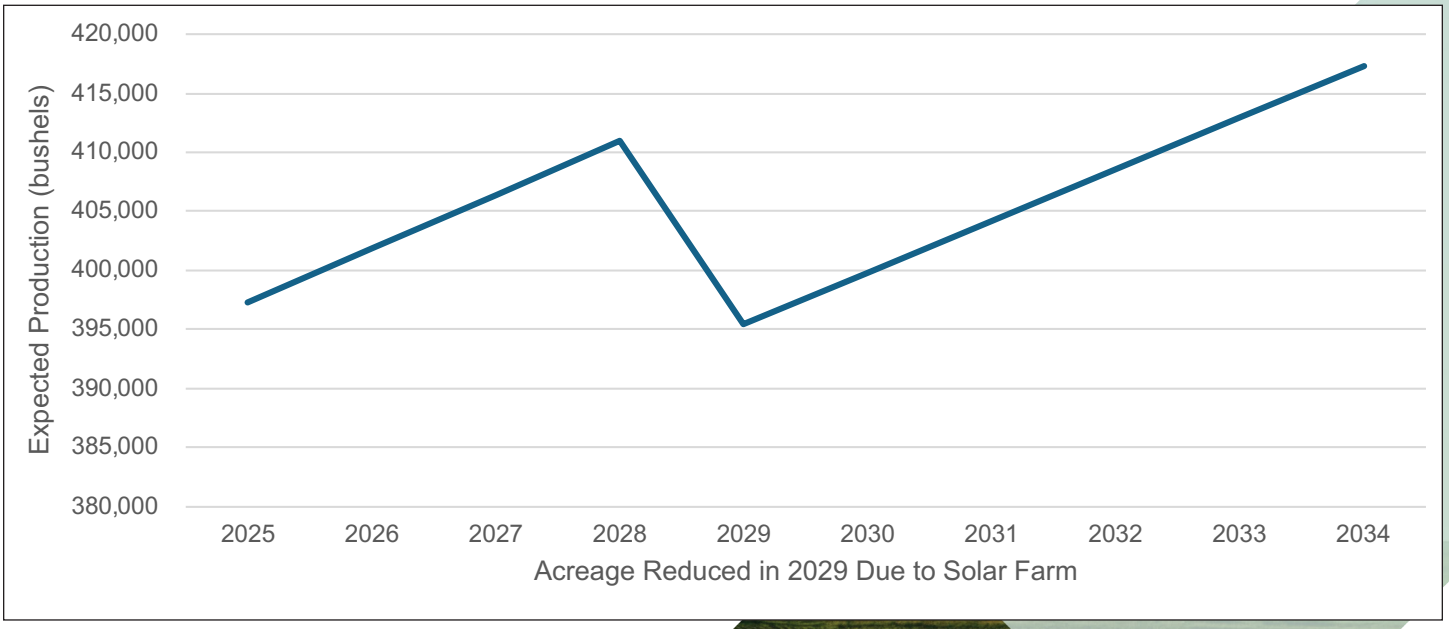
Figure 3.2 – Historical Yield Increase of Corn in Muskegon County





Considering there are currently 8,780 acres in Muskegon County and 898 acres in White River Township used for soybeans, the Project would take 4.84% of the county's and 47.3% of the township's soybeans land out of production, thus reducing their total agricultural output. However, it is possible to offset this loss as yields for soybeans have been increasing by 0.52 bushels per acre annually since 1990. Therefore, less land will be needed to produce the same amount of soybeans. By projecting these anticipated yields into the future using a basic linear regression and holding other factors constant, it is possible to compare the county yield impacts if all agricultural land remains the same compared to the impacts if a portion of the agricultural land shifts to solar use. Figure 3.3 shows Muskegon County's resulting soybeans production for this analysis.

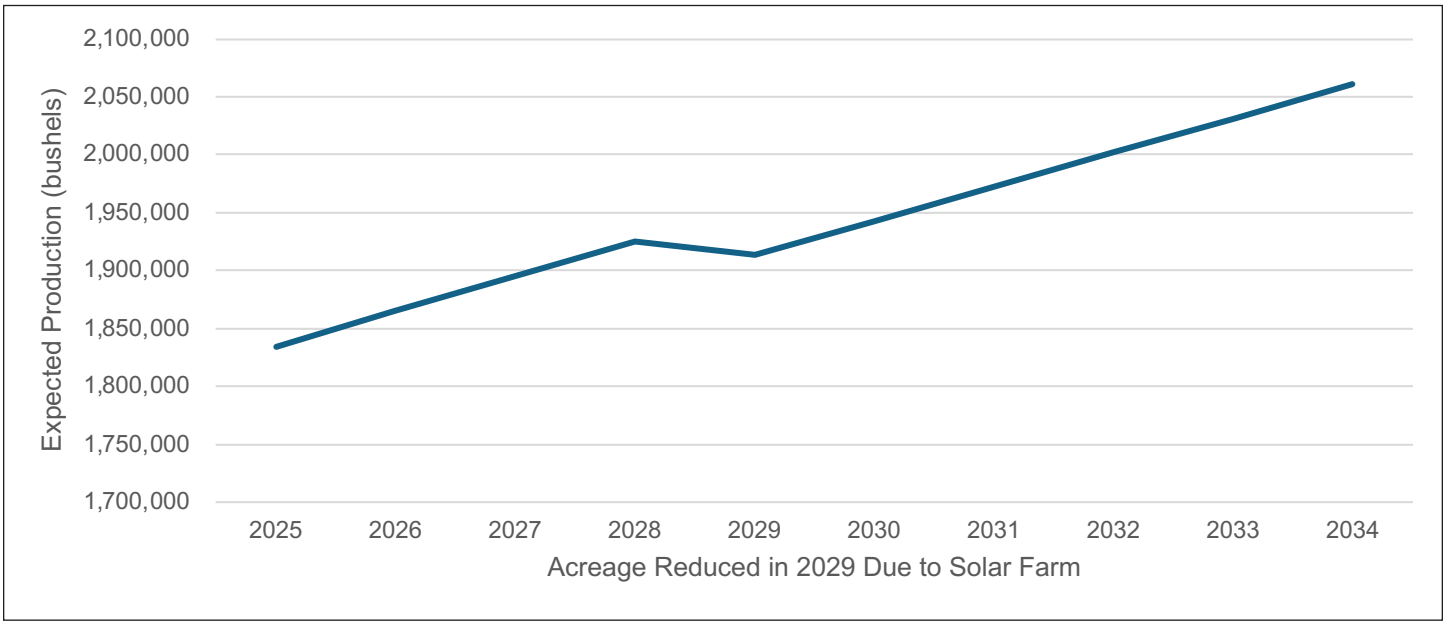
Figure 3.3 – Expected Production of Soybeans in Muskegon County with Decreased Acreage





Similar to soybeans, there are currently 12,800 acres in Muskegon County and 923 acres in White River Township used for corn. The Project would take 2.17% of the county's and 30% of the township's corn land out of production, thus reducing their total agricultural output. However, it is possible to offset this loss as yields for corn have been increasing by 2.36 bushels per acre annually since 1990. Figure 3.4 shows Muskegon County's resulting corn production for this analysis.

Figure 3.4 – Expected Production of Corn in Muskegon County with Decreased Acreage



Put another way, our analysis shows that countywide yields for soybeans would need to increase from the 50.1 bushels per acre grown in 2024 to 52.66 bushels per acre to result in the same amount of soybeans grown and compensate for the land taken out of production. If yields continue to increase according to their historical trends, this will happen in just 4.1 years.

Likewise, yields for corn would need to reach 126.57 bushels per acre to compensate for any land taken out of production. If yields continue to increase according to their historical trends, this will happen in just 1.27 years.

Another significant agricultural trend has been the end use change in crops grown in the United States. Nationwide data from the USDA in Table 3.1 shows the current likely end uses for both corn and soybeans produced in the country. Since these crops are considered commodities, national data is appropriate to illustrate the likely end uses from an economics perspective.

Table 3.1 – Likely End Uses for Corn and Soybeans

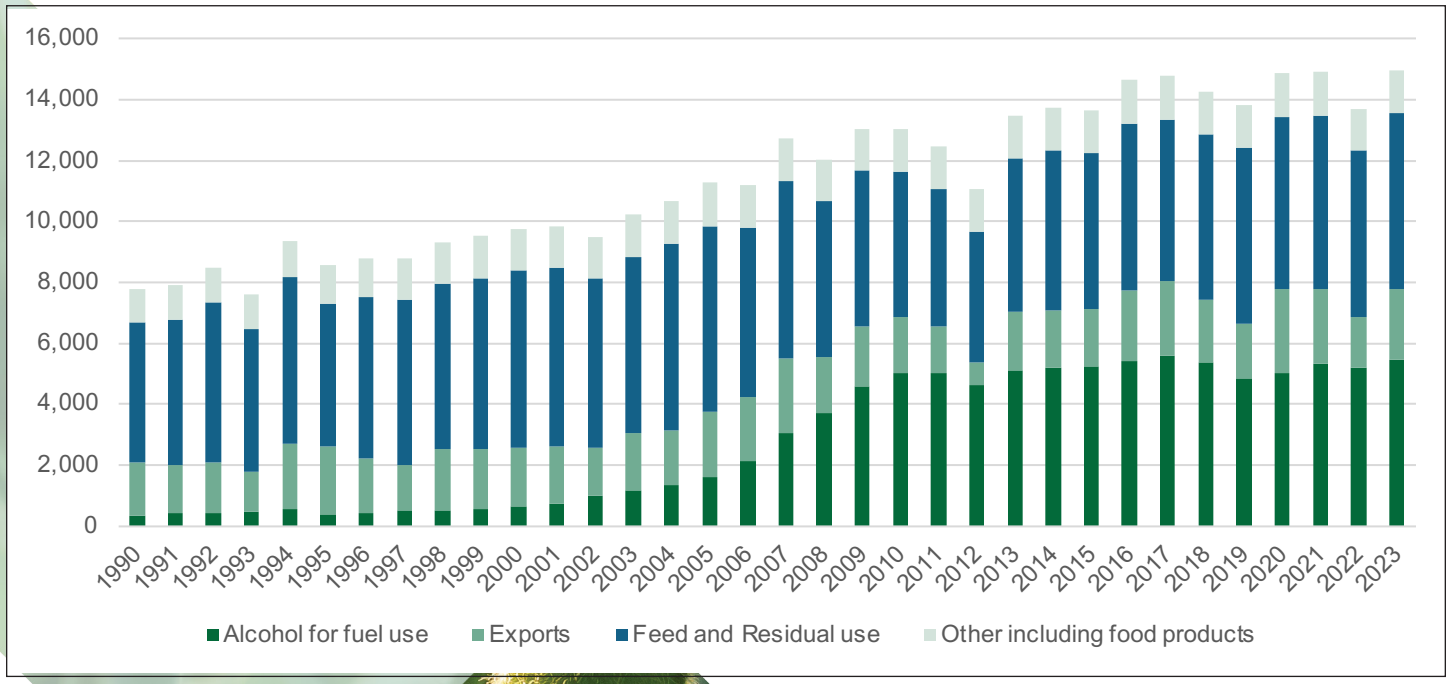
End Use	Corn	Soybeans
Animal Feed	44%	50%
Human Consumption	12%	8%
Biofuels	44%	42%

Sources: USDA Feed Grains Section at a Glance and USDA Oil Crops Yearbook



Though the vast majority of corn and soybean production in the U.S. was used for animal feed as recently as twenty years ago, a large amount of both these crops is now allocated to biofuels. In 2001, 707 million bushels of corn were converted into alcohol for fuel (primarily ethanol), but by 2017 that number had grown to 5,605 million bushels — greater than the 5,303 million bushels used for feed and residual use combined. Figure 3.5 shows the change in end uses for corn since 1990.

Figure 3.5 – End Uses for Corn in Millions of Bushels



Source: USDA Feed Grains Database

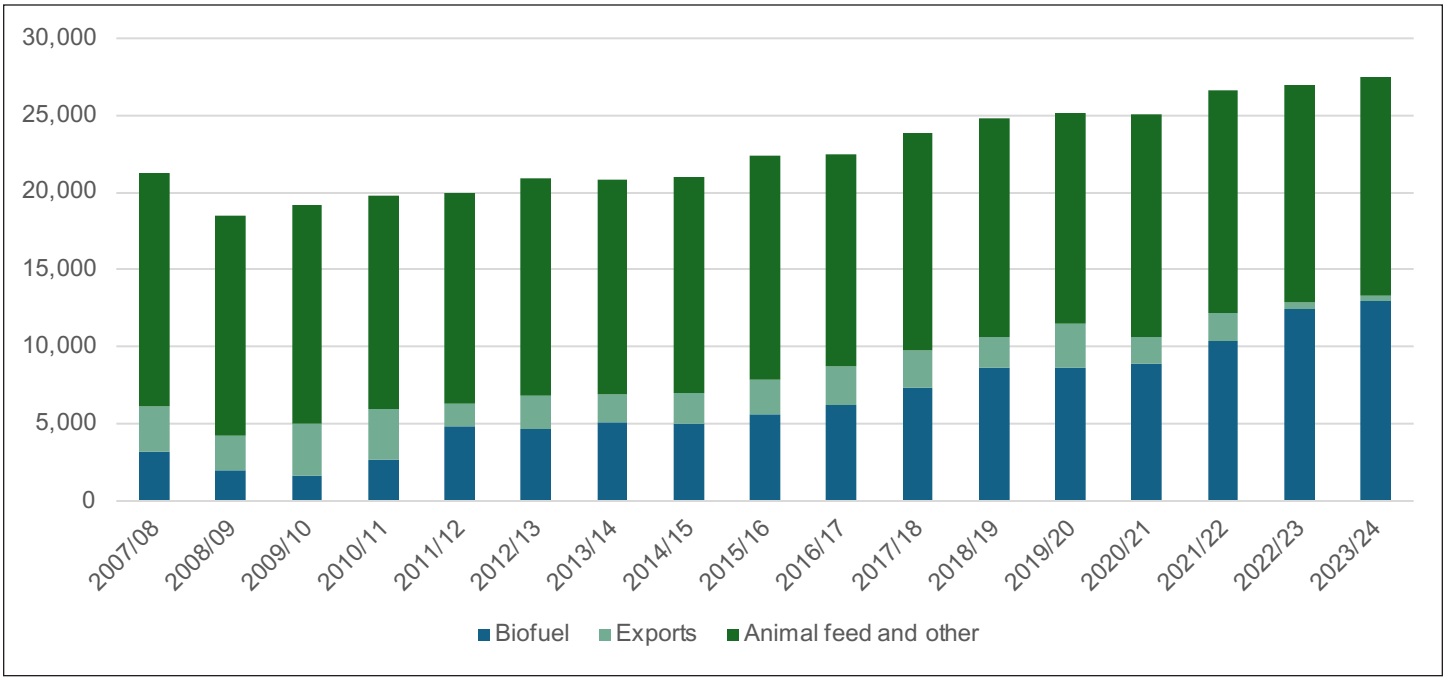


As shown in the figure above, the amount of corn exported internationally for food product and residual use has stayed mostly constant since 1990. It is important to recognize that the corn produced for human consumption is not just the sweet corn sold in grocery stores (approximately 1% of nationwide corn production), but also the field corn used for high fructose corn syrup, corn oil, beverage alcohol, cereal, corn meal, etc.

Solar is a much more efficient use of land than corn that is produced for ethanol. Research has shown that "when compared on an energy equivalent basis... solar PV generates the same amount of energy as corn ethanol in just 3.2% of the land-use footprint" (Sturchio et al., 2025).

More recently, the amount of soybeans used for biofuels has also increased substantially. Figure 3.6 shows the end uses for soybeans in the US since 2007, with biofuels driving the increased demand for soybeans while other end uses, like exports and animal feed, stay mostly constant.

Figure 3.6 – End Uses for Soybeans in Millions of Pounds

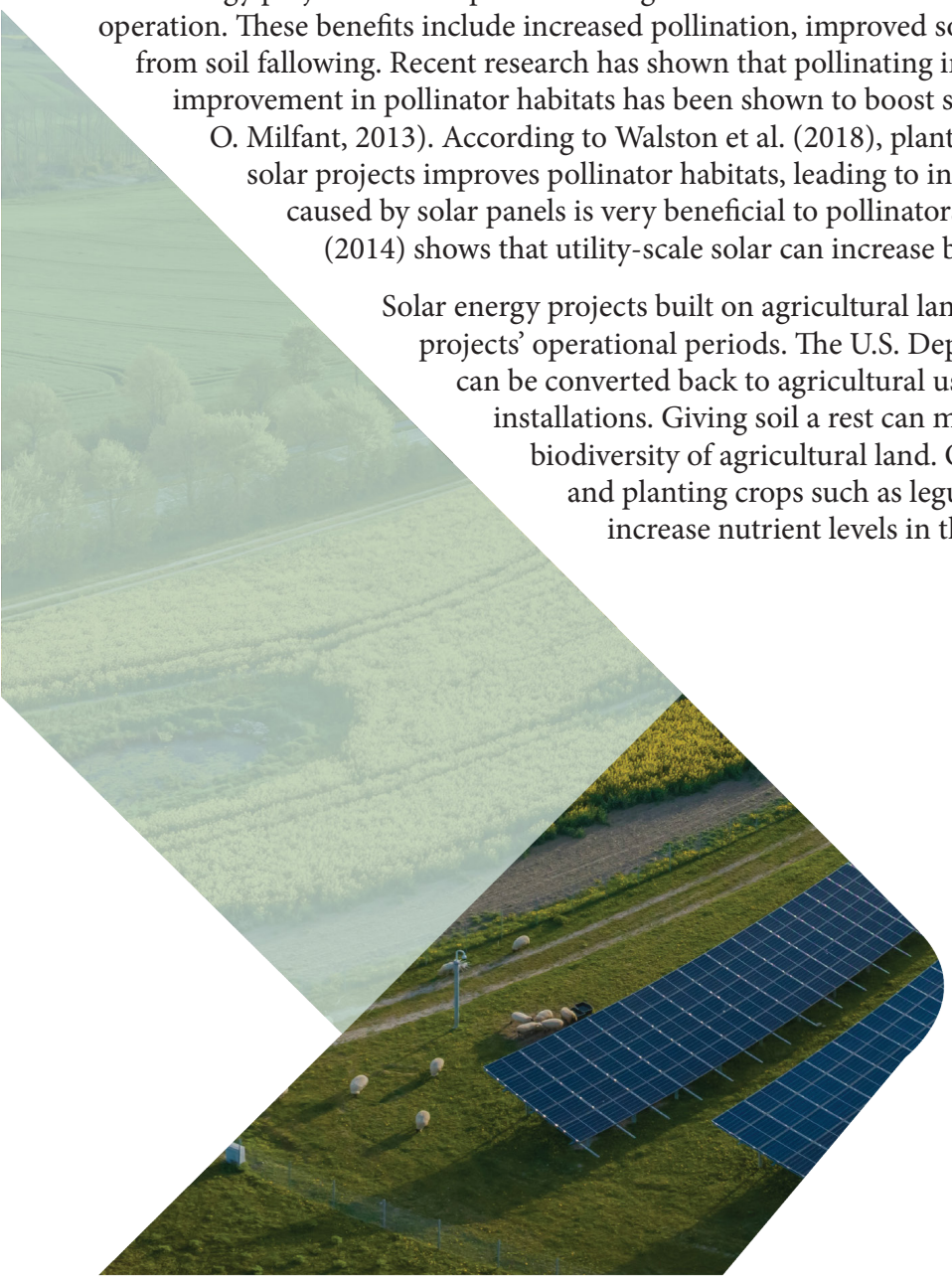


Source: USDA Oil Crops Yearbook

One final, relevant agricultural trend is the practice of allowing land to lie fallow for an extended period of time. Several studies have shown that this practice increases the productivity of the land when it is returned to crop production. Cusimano et al. (2014) found that land fallowing induced significant improvements to the soil quality and future crop production in parts of California. Kozak and Pudelko (2021) studied abandoned land in Poland and determined that fallowed land can be restored to agricultural production.

Solar energy projects are compatible with agricultural land use and benefit the land while solar farms are in operation. These benefits include increased pollination, improved soil quality, and increased future production from soil fallowing. Recent research has shown that pollinating insects can help soybean yields, and improvement in pollinator habitats has been shown to boost soybean production (Garibaldi et al., 2021; de O. Milfant, 2013). According to Walston et al. (2018), planting native species in the land surrounding solar projects improves pollinator habitats, leading to increased yields, while the partial shading caused by solar panels is very beneficial to pollinators (Graham et al., 2021). Additionally, BRE (2014) shows that utility-scale solar can increase biodiversity.

Solar energy projects built on agricultural lands will allow the soil to rest during the projects' operational periods. The U.S. Department of Energy (2022) states that "land can be converted back to agricultural uses at the end of the operational life for solar installations. Giving soil a rest can maintain soil quality and contribute to the biodiversity of agricultural land. On the other hand, implementing agrivoltaics and planting crops such as legumes underneath the solar installation can increase nutrient levels in the soil."



IV. Landowner Profits

To analyze the specific economic land use decision for a solar energy facility, this section uses a methodology first proposed by Gazheli and Di Corato (2013). A "real options" model is used to look at the critical factors affecting the decision to lease agricultural land to a company desiring to install a solar-powered electric generating facility. According to their model, the landowner factors in their expected returns from the land, which include the price they can get for the crop (typically corn or soybeans), the average yields from the land (which will depend on the amount and timing of rainfall, temperature, and farming practices), and their input costs (money spent on seed, fuel, herbicide, pesticide, and fertilizer). Not considered is the fact that the landowner faces annual uncertainty in all these areas and must be compensated for the risk involved in the event that any of these parameters change in the future. In a competitive world with perfect information, the returns to the land for its productivity should relate to the cash rent for the land.

For the landowner, the key analysis will be comparing the net present value of the annual solar lease payments to expected profits from farming. The farmer will choose the solar farm lease if:

$$NPV(Solar\ Lease\ Payment_t) > NPV(P_t * Yield_t - Cost_t)$$

In this equation, *NPV* is the net present value, $Solar\ Lease\ Payment_t$ is the lease payment the owner receives in year t, P_t is the price that the farmer receives for the crop (corn or soybeans) in year t, $Yield_t$ is the yield based on the number of acres and historical average of county-specific productivity in year t, and $Cost_t$ is the total cost of farming in year t and will include the cost of seed, fertilizer, and the opportunity cost of the farmer's time. Farming profit is the difference between revenue (price times yield) and cost.

The model will use historical agricultural data from the county (or state when the county data is not available). The standard net present value calculation shown above uses the expected value of several stochastic variables (variables that have some randomness to them). To forecast returns from agriculture in future years, we apply a linear regression using an intercept and time trend on historical data to predict future profits.

$$\pi_t = \propto + \beta * time$$

In this equation, π_t is the farming profit in year t; α is intercept; β is the trend; time is a simple time trend starting at 1 and increasing by 1 each time period.

To analyze future returns from farming the land, this analysis factors in historical data from Muskegon County for local context. NASS publishes county-level statistics every five years. Table 4.1 shows the historical data from 1992 to 2022 for Muskegon County's total farm income, production expenses, average farm size, net cash income, and average market value of machinery per farm.

Table 4.1 – Agricultural Statistics for Muskegon County, Michigan

	1992	1997	2002	2007	2012	2017	2022
Total Farm Income Per Farm	N/A	$841	$1,721	$4,941	$9,049	$6,574	$8,561
Total Farm Production Expenses (average/farm)	$60,557	$83,911	$77,755	$152,034	$122,171	$142,965	$238,725
Average Farm Size (acres)	177	178	136	152	144	133	166
Net Cash Income Per Farm	$5,907	$23,025	$13,037	$28,080	$36,019	$20,855	$53,421
Average Market Value of Machinery Per Farm	$51,872	$68,752	$63,674	$100,785	$95,333	$112,539	$161,543

Source: USDA National Agricultural Statistics Service, Census of Agriculture, 1992-2022



The production expenses listed in Table 4.1 include all direct expenses like seed, fertilizer, fuel, etc. but do not include the depreciation of equipment or the opportunity cost of the farmer's own time in farming. To estimate these last two items, we use the average market value of machinery per farm and straight-line depreciation for 30 years with no salvage value. This is a very conservative estimate of the depreciation since the machinery will likely qualify for a shorter life and accelerated, or bonus, depreciation. To calculate the opportunity cost of the farmer's time, we obtained the mean hourly wage for farming from 1992 through 2022 from the Bureau of Labor Statistics. To be conservative, we estimate that the farmer spends a total of 16 weeks at 40 hours/week farming in a year. In actuality, a farmer likely works much longer hours while tending to the direct and administrative needs of the farm. These statistics and calculations are shown in Table 4.2.

Table 4.2 – Machinery Depreciation and Opportunity Cost of Farmer's Time for Muskegon County, Michigan

	1992	1997	2002	2007	2012	2017	2022
Average Market Value Machinery Per Farm	$51,872	$68,752	$63,674	$100,785	$95,333	$112,539	$161,543
Annual Machinery Depreciation over 30 years - Straight Line (Market Value divided by 30)	$1,729	$2,292	$2,122	$3,360	$3,178	$3,751	$5,385
Mean Hourly Wage in Michigan for Farming (Bureau of Labor Statistics)	N/A	N/A	$7.31	$10.05	$10.60	$11.71	$16.63
Annual Opportunity Cost of Farmer's Time (Wage times 16 weeks times 40 Hours/Week)	N/A	N/A	$4,678	$6,432	$6,784	$7,494	$10,643

To find the total profitability of the land, we take the mean net cash income per farm and subtract depreciation expenses and the opportunity cost of the farmer's time. We then divide that number by the average farm size, which leads to the total profit per acre. Finally, to account for inflation, we use the Consumer Price Index (CPI) to convert all profit into 2022 dollars (i.e. current dollars). These calculations and results are shown in Table 4.3.

Table 4.3 – Profit Per Farm Calculations for Muskegon County, Michigan

	1992	1997	2002	2007	2012	2017	2022
Net Cash Income Per Farm	$5,907	$23,025	$13,037	$28,080	$36,019	$20,855	$53,421
Machinery Depreciation	($1,729)	($2,292)	($2,122)	($3,360)	($3,178)	($3,751)	($5,385)
Opportunity Cost of Farmer's Time	N/A	N/A	($4,678)	($6,432)	($6,784)	($7,494)	($10,643)
Profit	$4,178	$20,733	$6,236	$18,289	$26,057	$9,609	$37,393
Average Farm Size (Acres)	177	178	136	152	144	133	166
Profit Per Acre	$23.60	$116.48	$45.85	$120.32	$180.95	$72.25	$225.26
CPI	142	161	181	210	230	247	297
Profit Per Acre in 2022 Dollars	$49.37	$214.33	$75.23	$170.02	$233.91	$86.98	$225.26

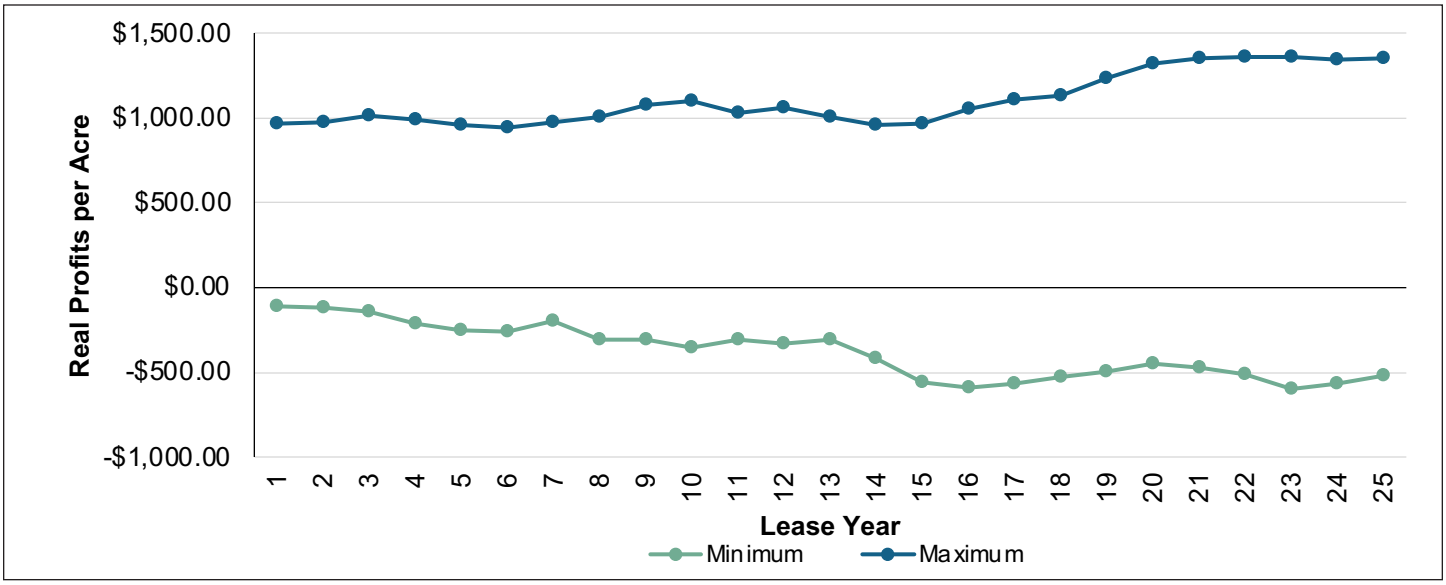
According to an unsophisticated static analysis, the farmer would be better off using his land for solar if the solar lease rental per acre exceeds the 2022 profit per acre of $225.26 in Muskegon County, which adjusts to $245.95 after accounting for inflation. Yet this static analysis fails to capture agricultural market dynamics or the farmer's hope that future prices and crop yields will exceed the current level. To account for these dynamics, we use the real options model discussed in the methodology section of this report. Recall that the net returns from agriculture fluctuate according to the following equation:

$$\pi_t = \propto + \beta * time$$

Where π_t is the farming profit in year t; α is intercept; β is the trend; time is a simple time trend starting at 1 and increasing by 1 each time period.

Using the Census of Agriculture data from 1992 to the present, the intercept is $101.40 with a standard error of $55.49. The time trend is $3.08 with a standard error of $2.94. This means that agricultural profits are expected to rise by $3.08. Both the intercept and the coefficient on the time trend have a wide variation as measured by the standard error. The wide variation means that there will be significant variability in agricultural profits from year to year.

Figure 4.1 – Simulations of Real Profits Per Acre Based on Data from 1992



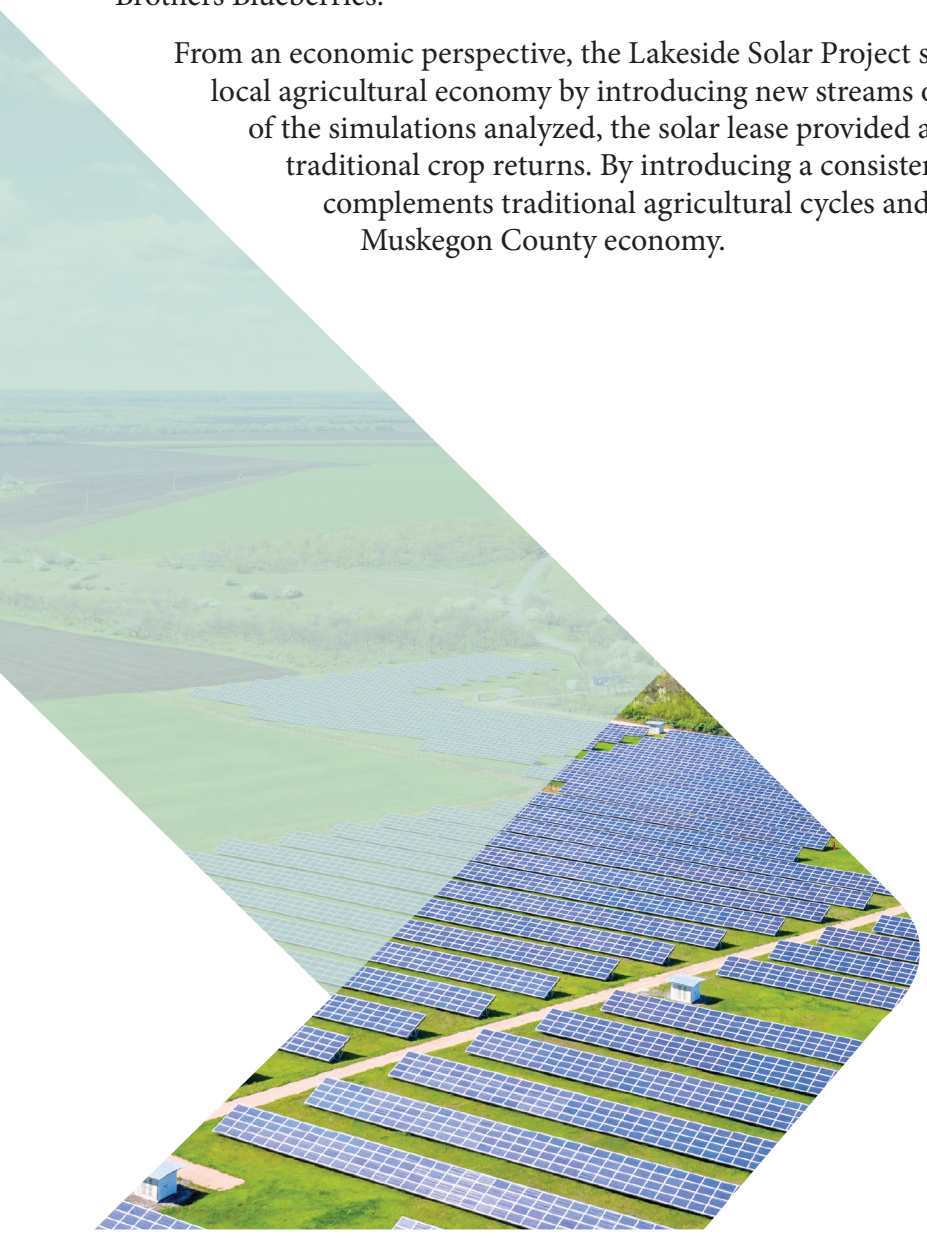
For the length of the lease, we assume that the profit per acre follows the equation above while still allowing for those random fluctuations. Because of this randomness, we can simulate multiple futures using a Monte Carlo simulation. We assume that the solar farm will begin operation in 2029 and operate through the end of the lease. Using 500 different simulations, the real profit per acre never exceeds $1,917 in any single year. Overall, the maximum average annual profit over the 25 years is $1,009, and the maximum average annual loss is $286. Figure 4.1 is a graph of the highest and lowest real profit per acre simulations. When comparing the average annual payment projected in the maximum simulation to the solar lease per acre payment, the solar lease provides higher returns than farming in 500 of the 500 simulations. This means the farmer is financially better off under the solar lease in 100% of the 500 scenarios analyzed.

Calculating how high agricultural prices or yields would need to rise to make farming more profitable than the solar lease is another useful comparison to aid the landowner in the land use decision. If yields stayed constant, the price of soybeans would need to rise from its 2024 price of $10.50 per bushel to $30.82 per bushel in the Project's first year of operations to match the solar lease. If prices stayed constant, soybean yields would need to rise from 50.1 bushels per acre to 147 bushels per acre by the first year of operations. For corn, if yields stayed constant, prices would either need to rise from $4.16 in 2024 to $10.26 in the first year of operations or yields would need to rise from 166.8 bushels per acre to 411.5 bushels per acre. In addition, either a combination of increasing prices and yields or a huge spike in agricultural profits during the proposed lease period term would make agriculture more profitable than solar, but as seen in the agricultural profit simulations above, these scenarios are very unlikely.

V. Conclusion

The Lakeside Solar Project represents a strategic transition of land use that balances agricultural preservation with significant economic growth. While the Project will temporarily remove some cropland from production, it will not unreasonably diminish Muskegon County's farmland given that the majority of affected crops are considered to be standard, non-specialty crops. This is further supported by the fact that nearly half of the Project footprint is classified as 'Not prime farmland' or 'Prime farmland if drained,' indicating lower-than-average productivity. Additionally, the handful of specialty crop farms within 1,000 feet of the Project footprint will not be negatively impacted by the Project, including the Degen Sunflower Farm, Scholl Farms, and Jawor Brothers Blueberries.

From an economic perspective, the Lakeside Solar Project serves as a valuable supplement to the local agricultural economy by introducing new streams of employment and labor income. In 100% of the simulations analyzed, the solar lease provided a more consistent and higher profit than traditional crop returns. By introducing a consistent and predictable income source, the Project complements traditional agricultural cycles and enhances the overall fiscal durability of the Muskegon County economy.



VI. Glossary

Cc

Cropland Data Layer (CDL)

A database of geographical information across the contiguous United States that shows, among other items, the crops being grown in particular areas on an annual basis.

Consumer Price Index (CPI)

An index of the changes in the cost of goods and services to a typical consumer, based on the costs of the same goods and services at a base period.

Dd

Direct impacts

During the construction period: the changes that occur in the on-site construction industries in which the direct final demand change is made.

During operating years: the final demand changes that occur in the on-site spending for the solar operations and maintenance workers.

Ff

Farming profit

The difference between total revenue (price multiplied by yield) and total cost regarding farmland.

Gg

Global Horizontal Irradiance (GHI)

The total amount of radiation a horizontal surface receives. This is often measured in kWh/m^2/Day, or the amount of energy (kWh) the area (m^2) receives each day.

Ii

IMPLAN (IMpact analysis for PLANning)

A business that is the leading provider of economic impact data and analytic applications. IMPLAN data is collected at the federal, state, and local levels and used to create state-specific and county-specific industry multipliers.

Indirect impacts

Impacts that occur in industries that make up the supply chain for that industry.

During the construction period: the changes in inter-industry purchases resulting from the direct final demand changes, including construction spending on materials and equipment and other purchases of good and off-site services.

During operating years: the changes in inter-industry purchases resulting from the direct final demand changes.

Induced impacts

The changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes.

Inflation

A persistent rise in the general level of prices related to an increase in the volume of money and resulting in the loss of value of currency. Inflation is typically measured by the CPI.

Mm

Multiplier

A factor of proportionality that measures how much a variable changes in response to a change in another variable.

Nn

Net Present Value (NPV)

Cash flow determined by calculating the costs and benefits for each period of investment.

NREL's Jobs and Economic Development Impacts (JEDI) Model

An input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output.

Oo

Output

Economic output measures the value of goods and services produced in a given area. Gross Domestic Product is the economic output of the United States as a whole.

Pp

Prime farmland

A classification used by the USDA to denote land with a combination of specific characteristics that make it useful for producing food, feed, oilseed crops, and other uses.

Rr

Real options analysis

A model used to look at the critical factors affecting the decision to lease agricultural land to a company installing a solar powered electric generating facility.

Ss

Solar Irradiance

The amount of solar energy that arrives at a specific area of a surface during a specific time interval (NREL).

Stochastic

To have some randomness.

Tt

Total economic impact

The quantity of goods or services produced in a given time period by a firm, industry, county, or country.

Uu

Utility-scale solar

Solar-powered electric generation facilities intended for wholesale distribution typically over 5MW in capacity.

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VIII. Curriculum Vitae (Abbreviated)

DAVID G. LOOMIS

Strategic Economic Research, LLC

President

Education

Doctor of Philosophy (PhD), Economics, Temple University, Philadelphia, Pennsylvania, May 1995

Bachelor of Arts (BA), Mathematics and Honors Economics, Temple University, Magna Cum Laude, May 1985

Experience

2011 – present, Strategic Economic Research, LLC

- Supervises all aspects of analysis and report creation
- Performed over 500 economic impact analyses on policy initiatives and energy projects such as wind energy, solar energy, natural gas plants and transmission lines at the county and state level
- Provided expert testimony over 100 times in formal proceedings before state legislative bodies, state public utility commissions, and county boards regarding wind, solar and transmission projects
- Grew the company from a single employee to over 25 team members

1996 – 2023, Department of Economics at Illinois State University, Normal, IL

Professor Emeritus – (2023-present)

Full Professor –2010-2023)

Associate Professor – (2002-2009)

Assistant Professor – (1996-2002)

- Taught Regulatory Economics; Telecommunications Economics and Public Policy; Industrial Organization and Pricing; Individual and Social Choice; Economics of Energy and Public Policy; and a Graduate Seminar Course in Electricity, Natural Gas, and Telecommunications Issues
- Supervised as many as five graduate students in research projects each semester
- Served on numerous departmental committees

1997 – 2023, Institute for Regulatory Policy Studies, Normal, IL

Executive Director (2005-2023)

Co-Director (1997-2005)

- Grew contributing membership from five companies to 16 organizations
- Doubled the number of workshop/training events annually
- Supervised two directors, administrative staff and internship program
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries

2006 – 2018, Illinois Wind Working Group, Normal, IL

Director

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders
- Organized annual wind energy conference with over 400 attendees
- Organized strategic conferences to address critical wind energy issues
- Initiated monthly conference calls to stakeholders
- Devised organizational structure and bylaws



2007 – 2018, Center for Renewable Energy, Normal, IL

Director

- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education
- Secured over $150,000 in funding from private companies
- Hired and supervised four professional staff members and supervised three faculty members as Associate Directors
- Reviewed renewable energy manufacturing grant applications for Illinois Department of Commerce and Economic Opportunity for a $30 million program
- Created technical "Due Diligence" documents for the Illinois Finance Authority loan program for wind farm projects in Illinois
- Published 40 articles in leading journals such as AIMS Energy, Renewable Energy, National Renewable Energy Laboratory Technical Report, Electricity Journal, Energy Economics, Energy Policy, and many others
- Raised over $7.7 million in grants and over $2.7 million in external funding

BRYAN A. LOOMIS

Strategic Economic Research, LLC

Vice President

Education

Master of Business Administration (MBA), Belmont University, Nashville, Tennessee, 2017

Experience

2019 – present, Strategic Economic Research, LLC

- Serve as lead analyst on economic impact reports, overseeing all aspects of analysis and report creation
- Communicate with developers about economic impact, property tax, and land use analyses
- Provide third-party expert testimony on behalf of developers for special-use permitting hearings
- Conduct non-standard analyses and memos for unique energy-related projects, such as statewide legislation, property tax impacts on school district state aid, and analyzing eligibility for energy community bonus adders to tax credits
- Oversee improvements to both reports and team processes

Expert Testimony

- Provided expert testimony in formal proceedings before county boards and board of zoning appeals in Kansas, Illinois, Indiana, Missouri, Iowa, Kentucky, and Colorado

Property Tax Analysis and Land Use Director (2019-2021)

- Directed the property tax analysis by training other associates on the methodology and overseeing the process for over twenty states
- Improved the property tax analysis methodology by researching various state taxing laws and implementing depreciation, taxing jurisdiction millage rates, and other factors into the tax analysis tool
- Executed land use analyses by running Monte Carlo simulations of expected future profits from farming and comparing that to the solar lease
- Performed economic impact modeling using JEDI and IMPLAN tools
- Improved workflow processes by capturing all tasks associated with economic modeling and report-writing, and created automated templates in Asana workplace management software

2019 – 2021, Viral Healthcare Founders LLC, Nashville, TN

CEO and Founder

- Founded and directed marketing agency for healthcare startups
- Managed three employees
- Mentored and worked with over 30 startups to help them grow their businesses
- Grew an email list to more than 2,000 and LinkedIn following to 3,500

SAWYER KEITHLEY

Strategic Economic Research, LLC

Manager of Research & Analysis
Front Matter Team Lead

Education

Master of Science (MS) in Applied Economics, Sequence in Electricity, Natural Gas, and Telecommunications, Illinois State University, Normal, IL, 2024

Bachelor of Science (BS) in Managerial Economics, Minor in Business Administration, Magna Cum Laude, Illinois State University, Normal, IL, 2022

Experience

2021 – present Strategic Economic Research, LLC

- Use cost inputs from customers to forecast potential new employment, output, and earnings impacts created by the proposed energy project
- Lead a team to gather data, write, and edit narratives for county- or state-specific
- tables and graphs
- Compile project-specific information and research property tax information for the county of interest
- Designed and implemented a standardized land use reporting framework for project analysis, successfully quantifying and highlighting the net land use impacts of solar projects across agricultural and forestry sectors (cropland, pastureland, and timberland)

Expert Testimony

- Provided expert testimony in formal proceedings before county board and board of zoning appeals in Iroquois County, Illinois (July 2025)

June 2023 – August 2023 Nicor Gas, Rates Department

Rates Intern

- Conducted independent research to update the cost factors used by the company for feasibility studies
- Gathered historical and current information about the natural gas industry and analyzed patterns in legislation surrounding the future of natural gas
- Wrote a summary report for project findings



Strategic Economic Research, LLC

by Dr. David G. Loomis,
Bryan Loomis, and Sawyer Keithley

Strategic Economic Research, LLC

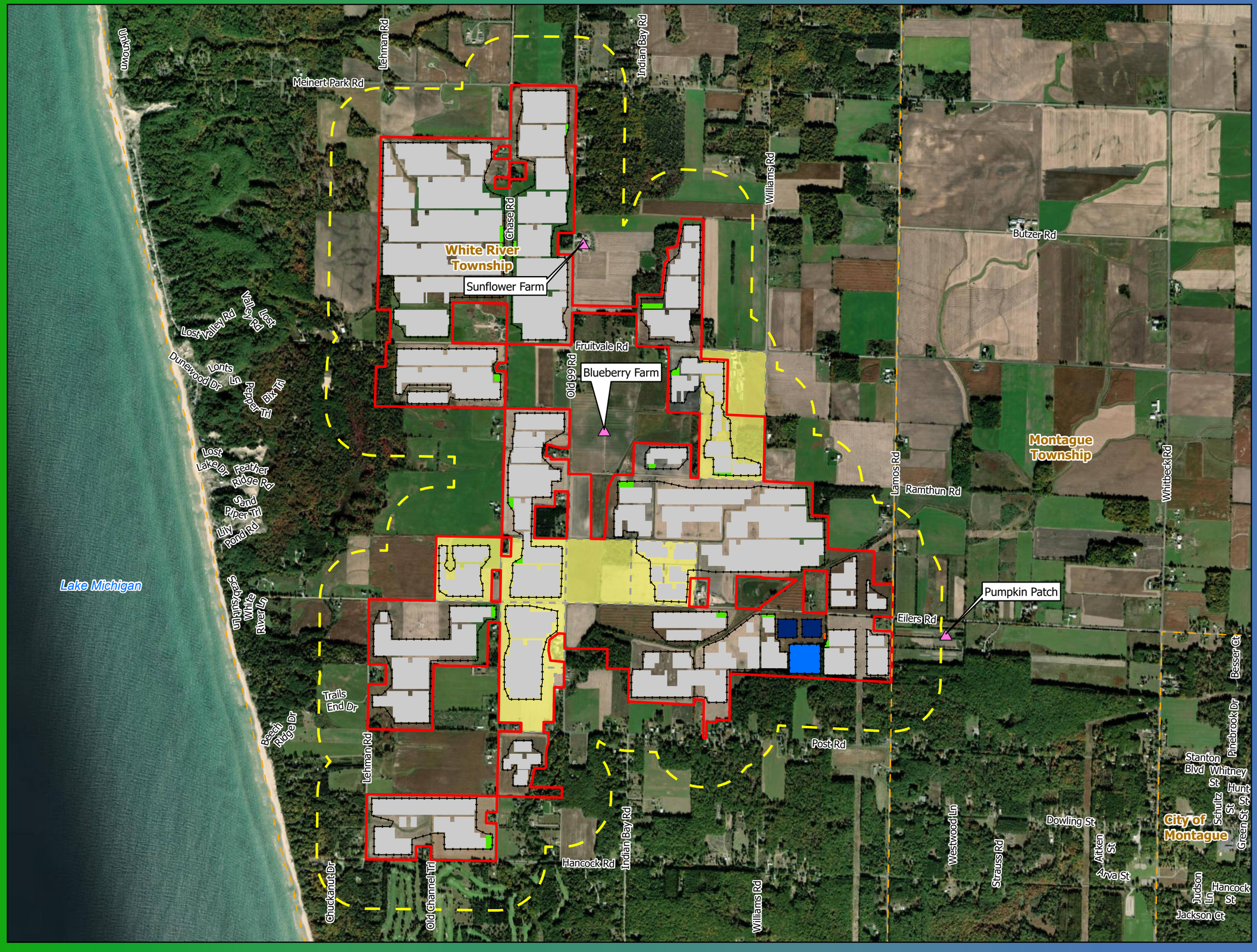
1604 Visa Drive Suite #1
Normal, IL 61761

strategiceconomic.com

815-905-2750

Attachment A-9 B

Farmland Protection





0 1,000 2,000 Feet

1 inch = 1,833 feet

N W E S

- Specialty Farm/Crop
- PA 116 Enrolled Parcel
- Land Control Area
- Security Fence
- BESS Facility
- Laydown Yard
- O&M Facility
- Solar Array
- Project Substation
- Municipal Boundary
- Land Control Area Buffer (1000 ft)

Figure A-9-1
Farmland Protection
Lakeside Solar and BESS Project
Muskegon County, Michigan

LAKESIDE SOLAR

For Environmental Review Purposes Only

Source: Z:\Clients\M_P\National_Grid\Lakeside_Solar\ArcGIS\Permitting\Lakeside Solar\Lakeside Solar.aprx

Date: (4/21/2026)

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-10
Public Health and Safety

8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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11. EXHIBIT A-10: PUBLIC HEALTH AND SAFETY 1

Public health and safety impacts of the project are considered acceptable if the design criteria for the proposed facility are met. The following sections outline the applicable standards required for each type of proposed facility. 1

(a) Solar Facility – Describe how the proposed facility will meet the following standards: 1

(b) Wind Facility – Describe how the facility will meet the following standards: 4

(c) Energy Storage Facility – Describe how the facility will meet the following standards: 4

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11. EXHIBIT A-10: PUBLIC HEALTH AND SAFETY

Lakeside Solar, LLC (Lakeside), a wholly owned subsidiary of Geronimo Power, LLC (Geronimo Power) proposes to develop the Lakeside Solar Facility (Solar Facility) and Battery Energy Storage System (BESS), collectively the Project, in White River Township, Muskegon County, Michigan. This exhibit was prepared following the requirements outlined in the Application Filing Instructions and Procedures.

Public health and safety impacts of the project are considered acceptable if the design criteria for the proposed facility are met. The following sections outline the applicable standards required for each type of proposed facility.

(a) Solar Facility – Describe how the proposed facility will meet the following standards:

1. Setbacks

i. Occupied community buildings and dwellings on non-participating properties – 300 feet from nearest point on the outer wall.

ii. Public road right of way – 50 feet measured from the nearest edge of a public road right-of-way.

iii. Non-participating parties – 50 feet measured from the nearest shared property line.

Lakeside selected the Land Control Area based on several factors including transmission and interconnection suitability and an optimal solar resource. The Project's final design will optimize electrical generation and efficiency of the solar resource and interconnection to the existing electrical grid while avoiding or minimizing potential environmental, cultural, and socioeconomic impacts to the extent practicable.

Exhibits A-1.1 and A-1.2 depict the Preliminary Development Area of the Project including the locations of all facilities. Facility locations are subject to change following final design and engineering. A final site plan compliant with Public Act 233 setback requirements will be provided to the MPSC when available.

Section 226(8) of Public Act 233 setback requirements and Lakeside's proposed setbacks for the proposed Solar Facility are provided in Table A-10-1.

Table A-10-1 Summary of Setback Requirements for Solar Facility		
Utility-Scale Solar Energy System Setback Requirement	**Public Act 233 Requirements**	**Project Design**
Maximum Height: Solar Array, collection device, and energy system components (excluding substation and electrical transmission equipment)	25 feet	15 feet
Occupied Community Buildings and Dwellings on Nonparticipating Properties	300 feet [a]	300 feet
Public Road Right of Way	50 feet [b]	50 feet
Non-participating parties	x	x
[a] From the nearest point on the outer wall [b] Measured from nearest edge of public road right of way		

The preliminary design complies with the setback requirements in Section 226(8) of Application for Certification MCL 460.1222. The setbacks utilized are adequate to address potential impacts to neighboring properties and adjacent roadways while minimizing the production impacts to the Project. Efficient utilization of the Land Control Area will maximize production of tax revenue for White River Township. Lakeside is coordinating with White River Township to address concerns about the Project design and setbacks.

2. Fencing – National Electric Code, most recent version.

Permanent security fencing will be installed along the perimeter of the solar arrays within the Solar Facility. The fencing surrounding the Solar Facility will be comprised of woven wire fencing or wildlife fencing with smooth wire placed atop the fencing to extend 7 feet or 8 feet in height and will comply with NEC and NESC requirements. Gates to the Solar Facility will be locked, however, contact information for the site manager will be posted at the gates. An electronic security system or Knox boxes with keys will be utilized at Project entrances for emergency services, and signage will meet NEC requirements. Security cameras will be located throughout the Project. Fencing will meet all grounding and bonding requirements in Article 250.194, Section (A) – Metal Fences of the NEC.

3. Maximum height – Solar array may not exceed 25 feet above ground at full tilt.

The Solar Facility will utilize photovoltaic panels with tempered glass that may vary in size but are generally four to seven feet long by two to four feet wide and one to two inches thick. The panels will be installed north to south on a tracking rack system that utilizes steel for the foundations and aluminum for the frame. Motors allow the racking to rotate from east to west throughout the day. Each tracking rack will contain multiple panels. On the tracking rack system, panels will be approximately 15 feet in height from the ground to the top of the panels when at a 45-degree angle (see Figure A-10-1). Height may vary due to manufacturer, topography, and vegetation constraints, but will not exceed 25 feet above ground. The photovoltaic panels will have a silicon and weatherized plastic backing or a side-mount or under-mount aluminum frame, heat strengthened front glass, and laminate material encapsulation for weather protection. The main protection built into the module is from light, wind, dust, sand, and precipitation. Tracker

technology helps prevent hail and wind damage to the modules by safely stowing the modules in a way that limits/reduces the risk of damage to the modules.



Figure A-10-1: Tracking Rack System

4. Sound - Must not generate >55 decibel (dB); (average hourly) at nearest wall of nonparticipating property.

Noise is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more weight. The A--weighted decibels scale (dBA) is used to reflect the selective sensitivity of human hearing. This

scale puts more weight on the range of frequencies that the average human ear perceives, and less weight on those that we do not hear as well, such as very high and very low frequencies.

Section 226(8)(a)(iv) of PA 233 requires that the Project must not generate sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Exhibit A-1.2 and the Sound Study in Exhibit A-1.7 provide modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.

The Solar Facility will comply with the noise requirements listed in Section 226(8)(a)(iv) of PA 233. The main source of noise from the Solar Facility during operation will come from the inverters, which include air conditioners housed in each inverter, and, to a lesser extent, from the transformers and rotation of the tracking system. The maximum Project-related sound level at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property is 54.7 dBA. Further information can be found in Exhibit A-1.7: Sound Report and Modeling Protocol.

(b) Wind Facility – Describe how the facility will meet the following standards:

The Project is not a wind facility; therefore, the requirements under Exhibit A-10(b) do not apply.

(c) Energy Storage Facility – Describe how the facility will meet the following standards:

1. Setbacks

i. Occupied community buildings and dwellings on nonparticipating properties – 300 feet from nearest point on the outer wall.

ii. Public road right of way – 50 feet measured from the nearest edge of a public road right-of-way.

iii. Nonparticipating parties – 50 feet measured from the nearest shared property line.

The final layout for the battery energy storage system (BESS) portion of the Project will optimize electrical generation, efficiency, and storage while avoiding and minimizing impacts on environmental and cultural resources, and existing infrastructure. To the extent that they apply to the Project, the layout of the BESS will comply with local, state, and federal regulatory standards. In addition, all PA 233 buffer requirements under Section 226(8)(c)(i) will be met.

Section 226.8)(c)(i) of Public Act 233 describes setback standards for energy storage facilities seeking approval. Setback requirements for a BESS are provided in Table A-10-3 and displayed in Exhibit A-1.1.

Table A-10-3 Summary of Setback Requirements for the BESS		
Utility-Scale Solar Energy System Setback Requirement	**Public Act 233 Requirements**	**Project Design**
Any component of the BESS from property line of an adjacent Non-participating Residential Use [a]	50 feet [a]	100 feet
Front Property Line without an Adjacent Residential Use	50 feet [a]	50 feet
Rear Property Line without an Adjacent Residential Use	50 feet [a]	50 feet
Side Property Line without an Adjacent Residential Use	50 feet [a]	50 feet
Residential Structure on a Participating Parcel	50 feet [a]	50 feet
Occupied Community Buildings and Dwellings on Nonparticipating Properties	300 feet [b]	300 feet
Public Road Right of Way	50 feet [c]	50 feet
[a] Measured from nearest shared property line [b] From the nearest point on the outer wall [c] Measured from nearest edge of public road right of way		

The preliminary design of the Project avoids and/or minimizes impacts on environmental and cultural resources and existing infrastructure. The preliminary design complies with setback requirements in Section 226(8)(c)(i) of PA 233. The setbacks utilized are adequate to address potential impacts to neighboring properties and adjacent roadways while minimizing the production impacts to the Project. Lakeside Solar is coordinating with White River Township and will work to address any concerns it may have about the Project design and setbacks.

2. Fire Protection – Facility complies with the latest version of NFPA 855 "Standard for the Installation of Station Energy Storage Systems."

Lakeside is proposing to construct an alternating current (AC)-coupled BESS as part of the Project. This type of system allows for efficient access, monitoring, and maintenance; has flexible energy and power capacity sizing; and has flexible dispatch capabilities. The BESS will be a modular system comprised of lithium-ion batteries encased in standalone enclosures. Standalone enclosures are necessary, as opposed to a large warehouse or storage building, to ensure unauthorized persons are not able to enter into the battery enclosures for safety reasons. The enclosure dimensions are anticipated to be 40 feet long by 10 feet wide by 9.5 feet tall. Multiple enclosures will be utilized in tandem, and the enclosures will have a Battery Management System for automated monitoring and managing of the batteries to ensure design performance, provide control for the charging/discharging of the batteries, monitor temperature monitoring, and control temperature of the individual battery cells with an integrated cooling system. While standalone enclosures will require a larger footprint than a single combined structure, stand-alone enclosures minimize potential fire risk to the BESS as a whole. If one battery in a stand-alone structure were to catch fire, the fire would be contained within that enclosure and would not impact adjacent enclosures. In addition, standalone enclosures only allow external access, which avoids the risk of personnel getting trapped inside of a structure if a fire occurs.

Lakeside used the following specifications for this design:

- Container based battery storage system with on-board heating, ventilation, and air conditioning (HVAC) and fire detection systems;
- Container dimensions: 40 feet long by 10 feet wide by 9.5 feet high; and
- Operating temperature between -20°C to 50°C.

Lakeside is committed to safety in all aspects of construction and operation of the BESS and plans to construct and operate the BESS in accordance with relevant safety codes, regulations, and industry best management practices (BMPs).

Advances in technology, safety standards, and fire/building codes have and will continue to be implemented to further mitigate BESS fire risks. Strict adherence to National Fire Protection Association (NFPA) standard NFPA 855 "Standard for the Installation of Station Energy Storage Systems" shall be followed. Hazard mitigation systems that will be used for the Project include the following:

- remote monitoring (down to the cell level);
- heating, ventilation, and air conditioning for temperature control;
- heat and smoke detection;
- automatic shutdown and personnel warnings;
- gas detection system;
- deflagration venting;
- system-specific training for local fire departments and emergency response teams; and
- a fire break between the BESS enclosures and vegetation surrounding the fenced facility.

Lakeside proposes procurement and installation of BESS modules for the Project from a manufacturer that has incorporated all reasonable safety precautions into the design of the equipment. The lithium-ion batteries will be stored in weather-proof enclosures, and each enclosure will include a fully integrated heating, ventilation, and air conditioning system for temperature control, sensors and controls for remote monitoring, and built-in fire detection. No off-gassing or air emissions are produced in day-to-day operations.

Lakeside is committed to partnering with equipment suppliers that manufacture with stringent quality standards, and all equipment that would be used for the Project will be tested and certified by third party professionals. Standards, certifications, and code requirements from multiple nationally recognized organizations will be required for the engineering, design, manufacture, and testing of the enclosures and equipment included in the BESS. All BESS equipment used for the Project will be tested for compliance with prominent safety standards, including International Electrotechnical Commission 62619, International Electrotechnical Commission 6244-1, Underwriters Laboratories 1973, and Underwriters Laboratories 9540A. BESS design shall comply with International Fire Code 2018, NFPA 855, and National Electrical Code (NEC) (NFPA 70).

The BESS will have a Battery Management System that will allow automated monitoring in the Collector Substation control or supervisory control and data acquisition (SCADA) room and battery management to ensure design performance. This system will also provide control for the charging/discharging of the batteries, access to temperature monitoring, and control of the individual battery cell temperature with an integrated cooling system.

Each lithium-ion battery is equipped with cell-level, module-level, rack-level, and system-level monitoring. Real-time data is collected and provided to an automatic control logic housed in the Battery Management System and site controller. The Battery Management System and site controller ensure the BESS is operating within the original equipment manufacturer's operating parameters and warranty requirements. If any operating limit is exceeded, the batteries will automatically disconnect from the system. In addition, in the event of a fire safety warning, the control system will automatically contact a fire monitoring service who will contact the local fire department. Current battery technology has also advanced so that fire risk is less prevalent. The batteries are more thermally stable and less prone to thermal runaway than batteries comprised of older battery chemistry that will not be used for the BESS.

3. Sound – Facility does not generate >55 decibel (dB; (average hourly) at nearest wall of nonparticipating property.

Section 226(8)(c)(iii) of PA 233 requires that the BESS must not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Exhibit A-1.2 and the Sound Study in Exhibit A-1.7 provide modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.

The BESS will comply with the noise requirements listed in Section 226(8)(c)(iii) of PA 233. For the BESS units, the cooling fans will generate the main source of noise. The maximum Project-related sound level at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property is 54.7 dBA. Further information can be found in Exhibit A-1.7: Sound Report and Modeling Protocol.

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-11
Dark Skies

8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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Provide plans to comply with dark sky-friendly lighting solutions for solar or storage facilities and light-mitigation plans for wind facilities as submitted to the Federal Aviation Administration, including exemptions requested for during the construction period..... 1

REFERENCES 1

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Attachment A-11 A Dark Skies Plan

EXHIBIT A-11: DARK SKIES (SOLAR AND/OR STORAGE FACILITIES ONLY)

Provide plans to comply with dark sky-friendly lighting solutions for solar or storage facilities and light-mitigation plans for wind facilities as submitted to the Federal Aviation Administration, including exemptions requested for during the construction period.

Lakeside Solar, LLC (Lakeside) will implement a dark sky-friendly lighting plan for the Project and has created a Dark Skies Plan to guide the selection, placement, installation, and operation of all new and replacement lights serving the Project; the full plan is provided in Attachment A-11 A. The goal of the Dark Skies Plan is to regulate the use of artificial light at night in the Project boundaries in a way that prioritizes the safety of visitors and employees while minimizing impact on adjacent properties and wildlife. All lights added for the operation of the Project shall comply with consideration for The Five Principles for Responsible Outdoor Lighting published by DarkSky International (DarkSky International, 2026).

REFERENCES

DarkSky International. 2026. Five Principles for Responsible Outdoor Lighting. Available online at: https://darksky.org/resources/guides-and-how-tos/lighting-principles/. Accessed February 2026.

Attachment A-11 A

Dark Skies Plan

Dark Skies Plan
for the
Lakeside Solar and BESS Project
in White River Township, Muskegon County, Michigan



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

May 2026

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1.2.1 Substation and BESS 2
1.2.2 Inverter Skids 2
1.2.3 Operations and Management Building 3
1.2.4 Project Entrance Locations 3
1.2.5 Temporary Construction Lighting 3
1.2.6 Lighting Specifications 3
2 REFERENCES 4

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Table A-11-1 Site Lighting Specifications Table 3

1 DARK SKIES PLAN

Lakeside Solar, LLC (Lakeside) will implement a dark sky-friendly lighting plan for the Lakeside Solar and battery energy and storage system (BESS) Project (Project) and has created this Dark Skies Plan to guide the selection, placement, installation, and operation of all new and replacement lights serving the Project. The goal of the Dark Skies Plan is to regulate the use of artificial light at night in the Project boundaries in a way that prioritizes the safety of visitors and employees while minimizing impact on adjacent properties and wildlife. All lights added for the operation of the Project shall comply with White River Township Zoning Ordinance with consideration for The Five Lighting Principles for Responsible Outdoor Lighting published by DarkSky International, (2025) as shown in Figure A-11-1. Lakeside will use light emitting diode (LED) lighting with a maximum nominal color temperature of 4000K to minimize impacts upon the behaviors and activities of local wildlife.

Figure A-11-1: Five Lighting Principles for Responsible Outdoor Lighting (DarkSky International, 2025)



1.1 APPLICABILITY AND EXEMPTIONS

This Dark Skies Plan provides guidance and recommendations that shall not be used to circumvent or otherwise supersede any relevant local, regional, and national jurisdictional requirements. Other types of lighting that may be used on site and are not subject to the Dark Skies Plan include:

- Lighting required by local, regional, or national legal jurisdiction.

- Temporary lighting utilized for the safe operation of nighttime tasks or events such as construction, equipment replacement, and emergent public safety events. The Lakeside site manager shall be notified of temporary lighting as soon as practicable, and all temporary lighting shall be removed promptly following completion of the task or event.

1.2 PERMANENT FIXTURE LOCATION AND OPERATION

Permanent lighting fixtures will be located in the Project Collector Substation, at each inverter skid, adjacent to the operations and maintenance (O&M) building and around the BESS. Additional parking lot and security lighting is not expected for the Project.

In accordance with the White River Township Zoning Ordinance 16.06MM and 16.06NN, Lakeside will install dark sky-friendly solutions for all exterior lighting. Lakeside will direct all exterior lighting in a downward fashion away from adjacent properties. All lighting on the Project will be manually activated for maintenance and operations on an as needed basis. Lights shall be switched off if no personnel are actively working on site and when nighttime activities are completed.

1.2.1 Substation and BESS

The Project Collector Substation and the BESS will be in operation 24 hours a day and will require several manually activated lighting fixtures. Lighting shall be directed at equipment that requires routine maintenance or may require emergency operations such as transformers, breakers, and BESS control panels. Lighting installed for routine maintenance activities will use shielding to avoid unnecessary light spillage to other areas of the substation and BESS. Flood lighting may be used to illuminate a path for personnel and maintenance vehicles to safely access equipment that may require maintenance or emergency operation. In accordance with the White River Township Zoning Resolution No. 75-2024 (White River Township, 2024), lighting of the BESS will be limited to the minimum light necessary for safe operation. Illumination from any lighting from the BESS will not extend beyond the perimeter of the lot used for the BESS. The BESS will not produce any glare that is visible to neighboring lots or to persons traveling on public or private roads. Flashing or intermittent lights will not be used.

1.2.2 Inverter Skids

Each inverter skid will have manually-activated lighting fixtures for the purpose of maintenance and emergency operations. Lighting shall be directed towards areas where personnel are likely to work on equipment such as inverter controls and transformer openings where switching operations may be required. Inverter skid lighting will be shielded in such a manner that prevents disturbance to adjacent residential properties and roadways. General methods may include positioning lights directly above equipment with downward lighting or positioning lights such that the directed light angle is facing away from adjacent properties and roadways.

1.2.3 Operations and Management Building

The O&M building will have manually activated lighting fixtures for personnel access and equipment storage. Lighting shall be directed towards entryways and equipment storage locations that may require nighttime access. All lighting shall be directed downward and away from adjacent properties and shielded to prevent spillage.

1.2.4 Project Entrance Locations

There are 23 entrance locations that provide access to the solar equipment, the substation, and the BESS from public roadways. Each of these entrances will have a single downward-facing light emitting diode (LED) flood light to allow for maintenance personnel and emergency responders to see the security gate location. These lights will have dusk-to-dawn operation and shall be pointed towards the gate. The lights will be directed away from adjacent properties and avoid spillage onto public roadways to the extent possible.

1.2.5 Temporary Construction Lighting

Temporary construction lighting may be required during construction of the Project. All temporary lighting shall be limited to locations where construction is in progress during nighttime hours. Temporary light fixtures shall be switched off when no personnel are actively working and when night-time construction activities are completed. Construction lighting will be directed and shielded, to the extent possible, to prevent disturbance to adjacent residential properties and roadways.

1.2.6 Lighting Specifications

Exterior lighting for the Project components and Project entrances is described below in Table A-11-1 with respect to quantity, power, type, illuminance, and color.

Table A-11-1 Site Lighting Specifications Table

Application	Quantity	Power (W)	Type	Illuminance (fc)	Color (K)
Substation	20	25	LED Flood	1	4000
BESS	45	25	LED Flood	1	4000
Inverter Skid	44	25	LED Flood	2	4000
O&M Building	1	20	LED Flood	1	4000
Project Entrance	23	20	LED Flood	1	4000

2 REFERENCES

DarkSky International. 2025. Five Lighting Principles for Responsible Outdoor Lighting. Available online: https://darksky.org/resources/guides-and-how-tos/lighting-principles/. Accessed November 2025.

White River Township. 2024. White River Township, Township Board, Resolution No. 75-2024. Available online at: https://www.whiterivertwp.com/wp-content/uploads/2024/09/75-2024%20Resolution%20signed%20%26%20ordinance%2063-2024%20Wind_20240913_165021.pdf. Accessed July 2025.

Application to the Michigan Public Service Commission for a Renewable Energy or Storage Siting Certificate for the Lakeside Solar and BESS Project in White River Township, Muskegon County, Michigan

Exhibit A-12
Transmission and Interconnection Agreements



8400 Normandale Lake Blvd., Suite 1200
Bloomington, MN 55437

July 2026

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(a) Provide the following information related to power transmission and interconnection. 1

LIST OF ATTACHMENTS

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EXHIBIT A-12: TRANSMSSION AND INTERCONNECTION AGREEMENTS

(a) Provide the following information related to power transmission and interconnection.

1. Queue number or other information providing the ability to identify the proposed facility within the interconnection queue.

The queue numbers for the Project are J1375 and J1587. The Project also holds surplus interconnection queue positions of S1081 and S1082.

2. Copies of all studies completed by the regional transmission organization including feasibility studies and system impact studies.

i. If a generator interconnection agreement has been executed, the executed generator interconnection agreement may be submitted in lieu of the studies.

ii. The generator interconnection agreement and/or studies may be filed subject to a protective order and non-disclosure agreement.

Copies of the executed generator interconnection agreements are included in Attachment A-12 A.

Attachment A-12 A

Generator Interconnection Agreements

SA 3949 METC-LAKESIDE SOLAR GIA

EFFECTIVE 11/30/2022

ORIGINAL SERVICE AGREEMENT NO. 3949

PUBLIC VERSION

J1375

GENERATOR INTERCONNECTION AGREEMENT

entered into by the

Midcontinent Independent System Operator, Inc.,

And

Lakeside Solar, LLC,

And

Michigan Electric Transmission Company, LLC

Original Sheet Number. 1

GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT ("GIA") is made and entered into this 30th day of November, 2022, by and between **Lakeside Solar, LLC,**, a limited liability company organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), and **Michigan Electric Transmission Company, LLC** , a limited liability company organized and existing under the laws of the State of Michigan ("Transmission Owner"), and the **Midcontinent Independent System Operator, Inc**., a non-profit, non-stock corporation organized and existing under the laws of the State of Delaware ("Transmission Provider"). Interconnection Customer, Transmission Owner and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Transmission Provider has functional control of the operations of the Transmission System, as defined herein, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, Transmission Owner owns or operates the Transmission System, whose operations are subject to the functional control of Transmission Provider, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer, Transmission Owner and Transmission Provider have agreed to enter into this GIA, and where applicable subject to Appendix H for a Provisional Generator Interconnection Agreement, for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System shall mean an electric transmission or distribution system or the electric system associated with an Existing Generating Facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Owner's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Operator shall mean the entity that operates an Affected System.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the Parties, their respective facilities and/or the respective services they provide.

Applicable Reliability Council shall mean the Regional Entity of NERC applicable to the Local Balancing Authority of the Transmission System to which the Generating Facility is directly interconnected.

Applicable Reliability Standards shall mean Reliability Standards approved by the Federal Energy Regulatory Commission (FERC) under section 215 of the Federal Power Act, as applicable.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System, not classified under Attachment FF as a Baseline Reliability Project, Market Efficiency Project, or Multi-Value Project, that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Definitive Planning Phase Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, in the Definitive Planning Phase. The Definitive Planning Phase Queue Position is established based upon the date Interconnection Customer satisfies all of the requirements of Section 7.2 to enter the Definitive Planning Phase.

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one of the enumerated conditions or situations identified in this definition also exists.

Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an Existing Generating Facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Surplus Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation).

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq*.

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. A Generating Facility consists of one or more generating unit(s) and/or storage device(s) which usually can operate independently and be brought online or taken offline individually.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

Generating Facility Modification shall mean modification to an Existing Generating Facility, including comparable replacement of only a portion of its equipment at the Existing Generating Facility.

Generating Facility Replacement shall mean replacement of one or more generating units and/or storage devices at the Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection as the generating units and/or storage devices that is/are being decommissioned and electrically disconnected.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in Attachment X of the Tariff.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an Existing Generating Facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Study(ies) shall mean the process whereby more than one Interconnection Request is studied together, instead of serially, for the purpose of conducting one or more of the required Studies.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

HVDC Facilities shall mean the high voltage direct current transmission facilities, including associated alternating current facilities, if any, that are subject to Section 27A of the Tariff and that are specifically identified in (i) any Agency Agreement pertaining to such facilities between Transmission Provider and Transmission Owner that owns or operates such facilities, or (ii) in any other arrangement that permits or will permit Transmission Provider to provide HVDC Service over such facilities as set forth in Section 27A of the Tariff.

HVDC Service shall mean Firm and Non-Firm Point-To-Point Transmission Service provided by Transmission Provider on HVDC Facilities pursuant to Section 27A of the Tariff.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A of this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study shall mean a study conducted by Transmission Provider, or its agent, for Interconnection Customer to determine a list of facilities (including Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and upgrades on Affected Systems, as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission System.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an Existing Generating Facility that is interconnected with the Transmission System.

Interconnection Service shall mean the service provided by Transmission Provider associated with interconnecting the Generating Facility to the Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of this GIA and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean: (1) modification to an Interconnection Request in the queue, that has a material adverse impact on the cost or timing of any other Interconnection

Request with a later queue priority date; or (2) planned modification to an Existing Generating Facility, that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Surplus Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Surplus Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA.

NERC shall mean the North American Electric Reliability Corporation or its successor organization.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to integrate its Generating Facility with the Transmission System in the same manner as for any Generating Facility being designated as a Network Resource. Network Resource Interconnection Service does not convey transmission service. Network Resource Interconnection Service shall include any network resource interconnection service established under an agreement with, or the tariff of, a Transmission Owner prior to integration into MISO, that is determined to be deliverable through the integration deliverability study process.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the interconnection of the Generating Facility to the Transmission System. Network Upgrade shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Operating Horizon Study shall mean an Interconnection System Impact Study that includes in service transmission and generation for an identified timeframe to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service**.**

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Planning Horizon Study shall mean an Interconnection System Impact Study that includes a future year study to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A of the GIA, where the Interconnection Facilities connect to the Transmission System.

Provisional Generator Interconnection Agreement shall mean the interconnection agreement for Provisional Interconnection Service established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 7.9 of this Attachment X. This agreement shall take the form of the Generator Interconnection Agreement modified for provisional purposes. Unless otherwise provided in the GIP, all requirements applicable to the Generator Interconnection Agreement shall apply to the Provisional Generator Interconnection Agreement.

Provisional Interconnection Service shall mean interconnection service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling that Transmission System to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Provisional Generator Interconnection Agreement and the Tariff.

Provisional Interconnection Study shall mean an engineering study, performed at Interconnection Customer's request, as a condition to entering into a Provisional Generator Interconnection Agreement, that evaluates the impact of the proposed interconnection on the

safety and reliability of the Transmission System and, if applicable, any Affected System. The study shall identify and detail the impacts on the Transmission System and, if applicable, an Affected System, from stability, short circuit, and voltage issues that would result if the Generating Facility were interconnected without project modifications or system modifications.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests. The Queue Position is established based upon the date and time of receipt of the valid Interconnection Request by Transmission Provider.

Reasonable Efforts shall have that meaning as provided in the Tariff.

Replacement Generating Facility shall mean a Generating Facility that replaces an Existing Generating Facility, or a portion thereof, at the same electrical Point of Interconnection pursuant to Section 3.7 of this Attachment X.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System Operator(s) and Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s), including when the Transmission Owner elects to fund the capital cost of such a Network Upgrade or Common Use Upgrade under Section 11.3 of the GIA, and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable (*i.e.*, when the Interconnection Customer is providing the site for such facilities), the Transmission Owner's Interconnection Facilities and Network Upgrades at the POI that the Interconnection Customer will develop. Such documented right shall be one of the following: (1) ownership of a site; (2) a leasehold interest in a site; or (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site.

Small Generating Facility shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than five MW and meets the requirements of Section 14 and Appendix 3 of the GIP.

Special Protection System (SPS) shall mean an automatic protection system or remedial action scheme designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components, to maintain system reliability. Such action may include changes in demand (MW and MVar), energy (MWh and MVarh), or system configuration to maintain system stability, acceptable

voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding, (b) fault conditions that must be isolated, (c) out-of-step relaying not designed as an integral part of an SPS, or (d) Transmission Control Devices.

Stand Alone Network Upgrades shall mean Network Upgrades, that are not part of an Affected System that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA. If the Transmission Provider or Transmission Owner and Interconnection Customer disagree about whether a particular Network Upgrade is a Stand Alone Network Upgrade, the Transmission Provider or Transmission Owner that disagrees with the Interconnection Customer must provide the Interconnection Customer a written technical explanation outlining why the Transmission Provider or Transmission Owner does not consider the Network Upgrade to be a Stand Alone Network Upgrade within 15 days of its determination.

Surplus Interconnection Service shall mean any Interconnection Service that is derived from the unneeded portion of Interconnection Service established in a GIA or in agreement with, or under the tariff of, a Transmission Owner prior to integration into MISO, such that if Surplus Interconnection Service is utilized the total amount of Interconnection Service at the Point of Interconnection would remain the same.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Owner shall mean that Transmission Owner as defined in the Tariff, which includes an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include

any Independent Transmission Company that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean the Midcontinent Independent System Operator, Inc. ("MISO"), the Regional Transmission Organization that controls or operates the transmission facilities of its transmission-owning members used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service (including HVDC Service) or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of 30 years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice. This GIA shall be terminated by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, Transmission Provider shall only terminate that portion of the GIA. Notwithstanding the foregoing, in the limited circumstance that the Interconnection Request is served by a contingent Network Upgrade with an in-service date that is farther out than the Commercial Operation Date permitted under Section 4.4.4 of Attachment X, Transmission Provider shall only terminate this GIA for failure to achieve Commercial Operation by that later in-service date of the contingent Network Upgrade. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.1.1 Surplus Interconnection Service. Where this GIA provides for Surplus Interconnection Service and the Energy Displacement Agreement or the Monitoring and Consent Agreement required for Surplus Interconnection Service are no longer in effect, Interconnection Customer shall immediately cease Commercial Operation of the Generating Facility and this GIA shall be deemed terminated. In the event that the Existing Generating Facility retires and/or permanently ceases commercial

operation, the Surplus Interconnection Service provided under this GIA shall terminate except as provided in Section 3.3.1.3 of the GIP.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Parties, as of the date of the other Parties' receipt of such notice of termination, under this GIA. In the event that this GIA is terminated by Interconnection Customer, Interconnection Customer is responsible for all financial impact that is caused as a result of this termination or the termination of Interconnection Customer's FCA(s) or MPFCA(s), such financial impact being determined through the financial impact analysis performed in accordance with Section 7.8 of Attachment X. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer or upgrades not yet constructed, Transmission Owner shall promptly transfer such amounts to Transmission Provider, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts. Transmission Provider will perform a financial impact analysis in accordance with Section 7.8 of Attachment X to determine the amount that should be refunded to Interconnection Customer. Transmission Provider shall

refund such remaining amounts to Interconnection Customer, less any financial impact caused by the termination of this GIA or Interconnection Customer's FCA(s) or MPFCA(s), as determined through the analysis performed in accordance with Section 7.8 of Attachment X. If Interconnection Customer made its payment(s) through a letter of credit, surety bond, or parental guarantee, Transmission Owner will draw against that letter of credit, surety bond, or parental guarantee in an amount determined through the analysis performed in accordance with Section 7.8 of Attachment X, and transfer that amount to Transmission Provider, unless Interconnection Customer funds the financial impact through another means.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs associated with procuring such materials, equipment, or facilities. If Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 **Disconnection**. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 **Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other

Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 Filing. Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 Interconnection Product Options. Interconnection Customer has selected the following (checked) type of Interconnection Service:

Check: _____ NZ or ____ ER and/or X NR (See Appendix A for details)

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product. ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, Transmission Owner shall construct facilities consistent with the studies identified in Appendix A.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis up to the amount of MW identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. After that date FERC makes effective MISO's Energy Market Tariff filed in Docket No. ER04-691-000, Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the Interconnection Service approval, and the Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission or other delivery service from the Generating Facility is assured, but Interconnection Customer may obtain Point-To-Point Transmission Service, Network Integration Transmission Service or be used for secondary network transmission service, pursuant to the Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection or to improve its ability to do so, transmission delivery service must be obtained pursuant to the provisions of the Tariff. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network or Distribution Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service).

4.1.2.1 The Product. Transmission Provider must conduct the necessary studies and Transmission Owner shall construct the facilities identified in Appendix A of this GIA, subject to the approval of Governmental Authorities, needed to integrate the Generating Facility in the same manner as for any Generating Facility being designated as a Network Resource.

4.1.2.2 Transmission Delivery Service Implications. NR Interconnection Service allows the Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources that are interconnected to the Transmission or Distribution System, as applicable, and to be studied as

a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of Transmission Service, any Network Customer can utilize Network Integration Transmission Service under the Tariff to obtain delivery of energy from the Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

NR Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission or distribution constraints on the Transmission or Distribution System, as applicable, the Generating Facility shall be subject to the applicable congestion management procedures in the Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future Transmission Service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether such Generating Facility is

ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service, such request may require additional studies and upgrades in order for Transmission Provider to grant such request. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

4.1.2.3 Conditional NR Interconnection Service. An Interconnection Customer seeking NR Interconnection Service for new or added capacity at a Generating Facility may be granted conditional NR Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional NR Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional NR Interconnection Service status may be converted to ER Interconnection Service if either of the following occurs:

1) Interconnection Customer fails to fund necessary studies and Network Upgrades required to allow the Interconnection Customer's Generating Facility to receive NR Interconnection Service upon the completion of higher queued projects involving the same common elements; or

2) The higher queued project(s) or planned and required Network Upgrades are placed in service and the Network Upgrades required to provide NR Interconnection Service status to the Interconnection Customer's Generating Facility are not in service.

In the event Interconnection Customer fails to fund the necessary studies and Network Upgrades for NR Interconnection Service, the Interconnection Customer's conditional NR Interconnection Service status shall be converted to ER Interconnection Service status unless Interconnection Customer makes a new Interconnection Request. Such

new Interconnection Request shall be evaluated in accordance with the GIP and its new queue position.

Some or all of the conditional NR Interconnection Service status may be temporarily revoked if the Network Upgrades are not in service when the higher queued project(s) are placed in service. The availability of conditional NR Interconnection Service status will be determined by Transmission Provider's studies. Upon funding and completion of the Network Upgrades required to establish the Generating Facility's NR Interconnection Service status, the Generating Facility will be granted NR Interconnection Service status.

The Parties agree that the portion of the Generating Facility classified as NR Interconnection Service is the first portion of the output of the combined output of all the units at the Generating Facility except in circumstances where Interconnection Customer otherwise elects this GIA, as amended, to allocate that portion to the output of specific unit(s) at the Generating Facility, the total of which will not exceed the output eligible for NR Interconnection Service as shown by the additional studies. To the extent Interconnection Customer desires to obtain NR Interconnection Service for any portion of the Generating Facility in addition to that supported by such additional studies, Interconnection Customer will be required to request such additional NR Interconnection Service through a separate Interconnection Request in accordance with the GIP.

4.1.3 Surplus Interconnection Service.

4.1.3.1 The Product. Surplus Interconnection Service is restricted Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an Existing Generating Facility without increasing the total amount of Interconnection Service at the Point of Interconnection.

4.1.3.2 Transmission Delivery Service Implications. Surplus Interconnection Service does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.2 Provision of Service. Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards. Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of any Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that

Party shall not be deemed to be in Breach of this GIA for its compliance therewith. The Party so limited shall notify the other Parties whereupon Transmission Provider shall amend this GIA in concurrence with the other Parties and submit the amendment to the Commission for approval.

4.4 No Transmission Delivery Service. The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.5 Interconnection Customer Provided Services. The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.7.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select: 1) the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, and permit acquisition of Transmission System equipment or right-of-way; and 2) either the Standard Option or Alternate Option set forth below and such dates and selected option shall be set forth in Appendix B. If the dates designated by Interconnection Customer are not acceptable to Transmission Owner, Transmission Owner shall so notify Interconnection Customer within thirty (30) Calendar Days. Upon receipt of the notification that Interconnection Customer's designated dates are not acceptable to Transmission Owner, the Interconnection Customer shall notify Transmission Owner within thirty (30) Calendar Days whether it elects to exercise the Option to Build if it has not already elected to exercise the Option to Build.

5.1.1 Standard Option. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System

Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option. If the dates designated by Interconnection Customer are acceptable to Transmission Provider and Transmission Owner, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities by the designated dates.

If Transmission Owner subsequently fails to complete the Transmission Owner's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Owner shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each Calendar Day that Transmission Provider refuses to grant clearances to install equipment.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.1.3 Option to Build. Pursuant to Section 7.3.2.5 & 7.3.3.5 of the GIP, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by the dates originally designated by Interconnection Customer under Article 5.1.2. The Parties must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option. If the dates designated by Interconnection Customer pursuant to Article 5.1 are not acceptable to Transmission Owner, the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives, or the procurement and construction of all facilities other than Transmission Owner's

Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build under Article 5.1.3). If the Parties are unable to reach agreement on such terms and conditions, then, pursuant to Article 5.1.1 (Standard Option), Transmission Owner shall assume responsibility for the design, procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer has elected to exercise the Option to Build.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.2 General Conditions Applicable to Option to Build. If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades after receipt of all required approvals from Governmental Authorities necessary to commence construction,

(1) Interconnection Customer shall engineer, procure equipment, and construct the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner, or as required by any Governmental Authority;

(2) Interconnection Customer's engineering, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law or Governmental Authority to which Transmission Owner would be subject in the engineering, procurement or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall be entitled to review and approve the engineering design, equipment acceptance tests(including witnessing of acceptance tests), and the construction (including monitoring of construction) of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall have the right to reject any design, procurement, construction or acceptance test of any equipment that does not meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of the Transmission Owner's Interconnection Facilities and Stand

Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;

(5) at any time during construction, Transmission Provider and Transmission Owner shall have unrestricted access to the construction site for the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to meet the standards and specifications provided by Transmission Provider and Transmission Owner;

(7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from the Interconnection Customer's construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1, Indemnity;

(8) Interconnection Customer shall transfer control of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner in accordance with Appendix B;

(10) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall approve and accept for operation and maintenance the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2 only if the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority.

(11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Owner.

(12) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, Interconnection Customer shall pay Transmission Owner the agreed upon amount of [$ PLACEHOLDER] for Transmission Owner to execute the responsibilities enumerated to Transmission Owner under Article 5.2. Transmission Owner shall invoice Interconnection Customer for this total amount to be divided on a monthly basis pursuant to Article 12.

(13) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, and the Transmission Owner has elected to fund the costs of Network Upgrades pursuant to Article 11.3, then prior to Interconnection Customer incurring any construction costs relating to the Option to Build and by the date specified in Appendix B, Interconnection Customer shall invoice the Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build in accordance with Appendix B. The Transmission Owner shall be required to reimburse Interconnection Customer for the full amount of such invoiced costs by the date specified in Appendix B, which shall be prior to the date by which Interconnection Customer must make any construction payment for such Stand Alone Network Upgrades. After completion of the construction of Stand Alone Network Upgrades by the Interconnection Customer and by the date specified in Appendix B for the Interconnection Customer to transfer such Stand Alone Network Upgrades to the Transmission Owner, Interconnection Customer shall provide an invoice of the final cost of the construction of Stand Alone Upgrades and shall set forth such costs in sufficient detail to enable the Transmission Owner to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. In the event that the actual costs exceed the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Transmission Owner shall pay to Interconnection Customer the difference between the amount previously paid and the actual costs within thirty (30) Calendar Days after receipt of a final construction invoice from Interconnection Customer. In the event that the actual costs are less than the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Interconnection Customer shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Transmission Owner any amount by which the actual payment by Transmission Owner for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice. Following the transfer of the Stand Alone Network Upgrades from the Interconnection Customer to the Transmission Owner, the Interconnection Customer shall make payments for such facilities to the Transmission Owner pursuant to an agreement between and among the Parties.

5.3 Liquidated Damages. The actual damages to Interconnection Customer, in the event the Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission

Provider and Transmission Owner pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of the Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct. The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) the Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Transmission Provider, Interconnection Customer or any other earlier queued Interconnection Customer who has entered into an earlier GIA with Transmission Provider and/or a Transmission Owner or with an Affected System Operator, or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure;
(3) Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; (4) the delay is due to the inability of Transmission Owner to obtain all required approvals from Governmental Authorities in a timely manner for the construction of any element of the Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, or any other permit or authorization required, or any land rights or other private authorizations that may be required, and Transmission Owner has exercised Reasonable Efforts in procuring such approvals, permits, rights or authorizations; or (5) the Parties have otherwise agreed.

5.4 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures

established by the Applicable Reliability Council. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.5 Equipment Procurement. If responsibility for construction of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.5.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.5.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.6.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.6.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.7 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other, with a copy to be provided to the other Parties. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network

Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.8 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.9 Other Interconnection Options.

5.9.1 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

The maximum permissible output of the Generating Facility will be updated on a quarterly basis if the Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are not in service within six (6) months following the Commercial Operation Date of the Generating Facility as specified in Appendix B of this GIA. These quarterly studies will be performed using the same methodology set forth in Section 11.5 of the GIP. These quarterly updates will end when all Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are in service.

5.9.2 Provisional Interconnection Service.
Upon the request of Interconnection Customer, and prior to completion of requisite Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities Transmission Provider may execute a Provisional Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the

discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of NERC, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for Provisional Interconnection Service. The maximum permissible output of the Generating Facility in the Provisional Generator Interconnection Agreement shall be studied and updated on a quarterly basis. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Generator Interconnection Agreement and the Generator Interconnection Agreement, including changes in output limits and Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities cost responsibilities.

5.10 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A.

5.10.1 Interconnection Customer's Interconnection Facility Specifications. Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing

a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.10.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer's specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.11 Transmission Owner's Interconnection Facilities Construction. The Transmission Owner's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the "as-built" drawings, information and documents for the Transmission Owner's Interconnection Facilities specified in Appendix C to this GIA.

Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.12 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish *at no cost* to the other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the

Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.13 Lands of Other Property Owners. If any part of the Transmission Owner's Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.14 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.15 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements).Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.16 Suspension.

5.16.1 Interconnection Customer's Right to Suspend for Force Majeure Event; Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the higher of $5 million or the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A of this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this

Article 5.16, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.16.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.16, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and effectiveness of the cure pursuant to Article 17, the Transmission Owners' Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.16.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.16, no construction duration, timelines and schedules set forth in Appendix B shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.16, Interconnection Customer shall be responsible for only those costs specified in this Article 5.16.

5.17 Taxes.

5.17.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. To the extent that Transmission Owner is a limited liability company and not a corporation, and has elected to be taxed as a partnership, then the following shall apply: Transmission

Owner represents, and the Parties acknowledge, that Transmission Owner is a limited liability company and is treated as a partnership for federal income tax purposes. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35. It is anticipated by the parties that any amounts paid by Interconnection Customer to Transmission Owner for Network Upgrades will be reimbursed to Interconnection Customer in accordance with the terms of this GIA, provided Interconnection Customer fulfills its obligations under this GIA.

5.17.2 Representations and Covenants. In accordance with IRS Notice 2016-36, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 2016-36, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 2016-36. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.17.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

5.17.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as

a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.17.5 Private Letter Ruling or Change or Clarification of Law. At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

5.17.6 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

5.17.7 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole

expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.17.8 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA,

Transmission Owner shall promptly refund to Interconnection Customer the following:

any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.17.9 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are

assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.18 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.19 Modification.

5.19.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.19.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to

facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

ARTICLE 6. TESTING AND INSPECTION

6.1 **Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities, including control equipment to limit injection at the POI to the level of Interconnection Service set forth in Appendix A and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

6.2 **Post-Commercial Operation Date Testing and Modifications**. Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 **Right to Observe Testing.** Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.

6.4 **Right to Inspect**. Each Party shall have the right, but shall have no obligation to: (i) observe Transmission Owner's and Interconnection Customer's tests and/or inspection of any of their respective System Protection Facilities and other protective equipment, including power system stabilizers and control equipment; (ii) review the settings of the System Protection Facilities and other protective equipment; and (iii) review the maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to

time as it deems necessary upon reasonable notice to the other Parties. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Unless the Interconnection Customer is utilizing shared Interconnection Customer Interconnection Facilities, or unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the "Metering Party") at the Point of Interconnection prior to any operation of the Generating Facility. Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party's option, compensated to, the Point of Interconnection. If Interconnection Customer will share Interconnection Facilities with any other projects, Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities sufficient to measure the output of such Interconnection Customer's Generating Facility separately from any other Generating Facilities with which it will share Interconnection Facilities. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Parties upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 Check Meters. Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check the Metering Equipment owned by the Metering Party. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider, Transmission Owner or their designees. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.

7.3 Standards. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 Testing of Metering Equipment. The Metering Party shall inspect and test Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently than every two (2) years. The Metering Party

shall give reasonable notice to the other Parties of the time when any inspection or test shall take place, and the other Parties may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent (2%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the previous test of the Metering Equipment.

7.5 **Metering Data**. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 **Interconnection Customer Obligations**. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind or solar as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals while operating under the Tariff. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the Generating Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner.

Each Party will promptly advise the other Parties if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. The Interconnection Customer whose Generating Facility is a Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. The Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. The Transmission Provider and Interconnection Customer whose Generating Facility is a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. The Interconnection Customer whose Generating Facility is a Variable Energy Resource also shall submit data to the Transmission Provider regarding all forced outages to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by the Interconnection Customer to the Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting

employed by the Transmission Provider. Data requirements for meteorological and forced outage data will be negotiated by the Transmission Provider and the Interconnection Customer, and will be set forth in Appendix C, Interconnection Details, of this GIA.

ARTICLE 9. OPERATIONS

9.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to any Party all information that may reasonably be required by that Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 Local Balancing Authority Notification. At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.

9.3 Transmission Provider and Transmission Owner Obligations. Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 Interconnection Customer Obligations. Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C of this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

9.5 Start-Up and Synchronization. Consistent with the Parties' mutually acceptable procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power and Primary Frequency Response.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Non-Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all non-synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting non-synchronous generators that have not yet completed a System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements apply to existing non-synchronous generators making upgrades that require a new Generator

Interconnection Agreement only where the Transmission Provider's System Impact Study shows the need for reactive power as a result of an upgrade. If applicable, these requirements will be memorialized in Appendix C to this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Voltage Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Payments for reactive power shall be pursuant to any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

9.6.4 Primary Frequency Response. This Section 9.6.4 shall only apply in the event that the Interconnection Request for the Generating Facility completed Definitive Planning Phase Interconnection Customer Decision Point 2 after May 15, 2018.

Interconnection Customer shall ensure the primary frequency response capability of its Generating Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Generating Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved NERC Reliability Standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Generating Facility, and shall be linear in the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based on an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Generating Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Generating Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Generating Facility has been tested and confirmed during commissioning. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Interconnection Customer shall operate the Generating Facility consistent with the provisions specified in Sections 9.6.4.1 and 9.6.4.2 of this GIA. The primary frequency response requirements contained herein shall apply to both synchronous and non-synchronous Generating Facilities.

9.6.4.1 Governor or Equivalent Controls. Whenever the Generating Facility is operated in parallel with the Transmission System, Interconnection Customer shall operate the Generating Facility with its governor or equivalent controls in service and responsive to frequency. Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband

parameter to: (a) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (b) implement the relevant droop and deadband settings from an approved NERC Reliability Standard that provides for equivalent or more stringent parameters. Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Interconnection Customer needs to operate the Generating Facility with its governor or equivalent controls not in service, Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Interconnection Customer shall make Reasonable Efforts to keep outages of the Generating Facility's governor or equivalent controls to a minimum whenever the Generating Facility is operated in parallel with the Transmission System.

9.6.4.2 Timely and Sustained Response. Interconnection Customer shall ensure that the Generating Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Generating Facility has operating capability in the direction needed to correct the frequency deviation. Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Generating Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved Reliability Standard with equivalent or more stringent requirements shall supersede the above requirements.

9.6.4.3 Exemptions. Generating Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from Sections 9.6.4, 9.6.4.1, and 9.6.4.2 of this GIA. Generating Facilities that are behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements

of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in Section 9.6.4, but shall be otherwise exempt from the operating requirements in Sections 9.6.4, 9.6.4.1, 9.6.4.2, and 9.6.4.4 of this GIA.

9.6.4.4 Electric Storage Resources. Interconnection Customer interconnecting an electric storage resource shall establish an operating range in Appendix C that specifies a minimum state of charge and a maximum state of charge between which the electric storage resource will be required to provide primary frequency response consistent with the conditions set forth in Sections 9.6.4, 9.6.4.1, 9.6.4.2 and 9.6.4.3 of this GIA. Appendix C shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the electric storage resource; (5) operational limitations of the electric storage resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Appendix C must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Interconnection Customer's electric storage resource is required to provide timely and sustained primary frequency response consistent with Section 9.6.4.2 of this GIA when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the electric storage resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System. If Interconnection Customer's electric storage resource is charging at the time of a frequency deviation outside of its deadband parameter, it is to increase (for over-frequency deviations) or decrease (for under-frequency deviations) the rate at which it is charging in accordance with its droop parameter. Interconnection Customer's electric storage resource is not required to change from charging to discharging, or vice versa, unless the response necessitated by the droop and deadband settings requires it to do so and it is technically capable of making such a transition.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Interconnection Customer and Transmission Owner may each in accordance with Good Utility Practice in coordination with the other Party and Transmission Provider remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify one another and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Parties of such removal.

9.7.1.2 Outage Schedules. Transmission Provider shall post scheduled outages of transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

Transmission Provider shall compensate, pursuant to applicable Transmission Provider tariff or rate schedule, Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent the Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

Costs shall be determined by negotiation between Transmission Provider and Interconnection Customer prior to implementation of the voluntary change in outage schedules, or if such request is made by or on behalf of a Transmission Customer requesting firm service, costs and recovery of costs shall be determined through a bilateral agreement between the Transmission Customer and Interconnection Customer. Voluntary

changes to outage schedules under this Article 9.7.1.2 are separate from actions and compensation required under Article 13 and for which costs are recovered in accordance with Transmission Provider's applicable tariff or rate schedule.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects a Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Parties, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Parties explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission

Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Under-Frequency, Over-Frequency, Under-Voltage, and Over-Voltage Conditions. The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency or under-voltage system disturbance. Interconnection Customer shall implement under-frequency, over-frequency, under-voltage, and over-voltage relay set points for the Generating Facility as required by the Applicable Reliability Council to ensure "ride through" capability of the Transmission System. Generating Facility response to frequency and/or voltage deviations of pre-determined magnitudes, including under-frequency, over-frequency, under-voltage, and over-voltage, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Owner shall install at Interconnection Customer's expense any Transmission Owner's System Protection Facilities that may be required on the Transmission Owner's Interconnection Facilities or the Transmission Owner's transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer's Interconnection Facilities.

9.7.4.2 Interconnection Customer's and Transmission Owner's System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1-1989, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict

between ANSI Standard C84.1-1989, and any applicable superseding electric industry standard, the applicable superseding electric industry standard shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Parties a copy of its switching and tagging rules that are applicable to the other Parties' activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution System, as applicable, and shall be used for no other purpose.

9.9.2 Other Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more Parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any non-Party users based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to Section 12 of the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Owner Obligations. Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.2 Interconnection Customer Obligations. Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.3 Coordination. The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems. Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses. Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall design, procure, construct, install, own and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A at its sole expense.

11.2 Transmission Owner's Interconnection Facilities. Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Owner's Interconnection Facilities described in Appendix A at the sole expense of Interconnection Customer.

11.3 Network Upgrades, System Protection Facilities and Distribution Upgrades. Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades

described in Appendix A. Interconnection Customer shall be responsible for all costs related to Distribution Upgrades and/or Generator Upgrades. As required by Section 7.3.2.1 and 7.3.3.1 of Attachment X, Transmission Owner shall have provided Transmission Provider with written notice if Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer. In the event that the Transmission Owner elects to fund the capital costs of the Network Upgrades and/or Transmission Owner's System Protection Facilities, then the Parties shall enter into a Facilities Service Agreement. The Facilities Service Agreement shall take the form of the *pro forma* Facilities Service Agreement that is included as Appendix 14 of Attachment X to the MISO Tariff.

11.3.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades**.** Network Upgrades, System Protection Facilities and Distribution Upgrades that are required to accommodate the Generating Facility may be modified because (1) a higher queued interconnection request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued interconnection request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued interconnection request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued interconnection request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification pursuant to Section 4.4 of the GIP, (7) a GIA with an effective date prior to this GIA is terminated, (8) when ordered to restudy by FERC, or (9) the Network Upgrade Facilities Study for a Network Upgrade, which is to be included in this GIA, is completed after execution of this GIA. The higher queued Interconnection Requests that could impact the Network Upgrades, System Protection Facilities and Distribution Upgrades required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A.

11.3.2 Agreement to Restudy and Cost Reallocation**.** In the event that one of the contingencies listed in Article 11.3.1 occurs, at any time before the Network Upgrades, Common Use Upgrades, Shared Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine, in its discretion, that a restudy is required. If a restudy is required, Transmission Provider will provide notice to

Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.3.2.

11.3.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider. Where applicable, payments to fund Shared Network Upgrade(s) that are made to Transmission Provider by Interconnection Customer will be disbursed by Transmission Provider to the appropriate entities that funded the Shared Network Upgrades in accordance with Attachment X and Attachment FF of the Tariff. In the event that Interconnection Customer fails to meet its obligation to fund Shared Network Upgrades, Transmission Owner and Transmission Provider shall not be responsible for the Interconnection Customer's funding obligation.

11.4 Transmission Credits.

11.4.1 Repayment of Amounts Advanced for Network Upgrades. Interconnection Customer shall be entitled to a cash repayment by Transmission Owner(s) and the Affected System Owner(s) that own the Network Upgrades, of the amount paid respectively to Transmission Owner and Affected System Operator, if any, for the Network Upgrades, as provided under Attachment FF of this Tariff and including any tax gross-up or other tax-related payments associated with the repayable portion of the Network Upgrades, and not repaid to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under the Tariff and Affected System's Tariff for Transmission Services with respect to the Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. § 35.19 (a)(2)(iii) from the date of any payment for Network Upgrades through the date on which Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interest shall not accrue during periods in which Interconnection Customer has suspended construction pursuant to Article 11 or the Network Upgrades have been determined not to be needed pursuant to this Article 11.4.1. Interconnection Customer may assign such repayment rights to any person.

If the Generating Facility is designated a Network Resource under the Tariff, or if there are otherwise no incremental payments for Transmission Service resulting from the use of the Generating Facility by Transmission Customer, and

in the absence of another mutually agreeable payment schedule any repayments provided under Attachment FF shall be established equal to the applicable rate for Firm Point-To-Point Transmission Service for the pricing zone where the Network Load is located multiplied by the portion of the demonstrated output of the Generating Facility designated as a Network Resource by the Network Customer(s) or in the absence of such designation, equal to the monthly firm single system-wide rate defined under Schedule 7 of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to Network Customer(s) and consistent with studies pursuant to Section 3.2.2.2 of the GIP.

Notwithstanding the foregoing, as applicable and consistent with the provisions of Attachment FF of this Tariff, Interconnection Customer, Transmission Provider, Transmission Owner, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Owner and Affected System Operator take one of the following actions no later than five (5) years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Owner or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

If the Generating Facility is installed in phases, the amount eligible for refund as each phase achieves Commercial Operation will be reduced by the proportional amount of generation capacity not yet installed. However, all facilities in Appendix A other than the Generating Facility shall be built without consideration for the phasing of the Generating Facility as though the entire Generating Facility will be placed in Commercial Operation for the full output or increased output of the Generating Facility constructed by Interconnection Customer under this GIA.

If the Generating Facility fails to achieve Commercial Operation, but it or another generating facility is later constructed and makes use of the Network Upgrades, Transmission Owner and Affected System Operator shall at that time reimburse Interconnection Customer for the remaining applicable amounts that may be refundable pursuant to Attachment FF of this Tariff that were advanced for the Network Upgrades on their respective systems as described above. Before any such reimbursement can occur, Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which the reimbursement must be made.

11.4.2 Special Provisions for Transmission Provider as an Affected System to be covered under Separate Agreements. When the Transmission Owner's Transmission or Distribution System (including for this Article 11.4.2 independent distribution systems connected to the Transmission System) is an Affected System for an interconnection in another electric system, Transmission Provider will coordinate the performance of Interconnection Studies with the other system. Transmission Provider will determine if any Network Upgrades or Distribution Upgrades, which may be required on the Transmission System as a result of the interconnection, would not have been needed but for the interconnection. Unless Transmission Owner provides, under the interconnection agreement between Interconnection Customer and the other system, for the repayment of amounts advanced to Transmission Provider or an impacted Transmission Owner for Network Upgrades, Interconnection Customer, Transmission Provider, and the impacted Transmission Owner(s) shall enter into an agreement that provides for such repayment by Transmission Owner(s) as directed by Transmission Provider. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the Affected System Operator as well as the payment of refunds by the Affected System Operator.

11.4.3 Notwithstanding any other provision of this GIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades, including the right to obtain cash reimbursement or transmission credits for transmission service that is not associated with the Generating Facility.

11.5 Initial Payment. Interconnection Customer shall elect (and provide its election to the Transmission Provider within five days of the commencement of negotiation of the GIA pursuant to Section 11.2 of the GIP) to make either 1) an initial payment equal to twenty (20) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date is less than or equal to five (5) years of the initial payment date); or 2) an initial payment equal to ten (10) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date exceeds the initial payment date by more than five (5) years); or 3) the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades in the form of security pursuant to Article 11.6. The initial payment shall be provided to Transmission Owner by Interconnection Customer pursuant to this Article 11.5 within the later of a) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or b) forty-five (45) Calendar Days of acceptance by FERC if the GIA

is filed unexecuted and the payment is being protested by Interconnection Customer, or c) forty-five (45) Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer. If the Interconnection Customer made its milestone payments in the form of cash and the Interconnection Customer elects a cash initial payment, then the Transmission Provider shall transfer those funds to the Transmission Owner on the Interconnection Customer's behalf.

11.6 Provision of Security. Unless otherwise provided in Appendix B, at least forty-five (45) Calendar Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of an element, not otherwise funded under Article 11.5, of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades, or at the request of Transmission Owner if regulatory approvals are required for the construction of such facilities, Interconnection Customer shall provide Transmission Owner, at Interconnection Customer's selection, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Owner and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment shall be in an amount sufficient to cover the applicable costs and cost commitments, in addition to those funded under Article 11.5, required of the Party responsible for building the facilities pursuant to the construction schedule developed in Appendix B for designing, engineering, seeking regulatory approval from any Governmental Authority, constructing, procuring and installing the applicable portion of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Owner for these purposes.

In addition:

11.6.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.6.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.4 If the Shared Network Upgrade is not in service, Interconnection Customer will not be required to make a payment under Schedule 26-B until the Shared Network Upgrade is in service, but Interconnection Customer will provide, as applicable, an Irrevocable Letter of Credit to fund any Shared Network Upgrade pursuant to Attachment FF of the Tariff. The Irrevocable Letter of Credit shall

be in an amount sufficient to cover the Interconnection Customer's share of the applicable costs and cost commitments associated with the Shared Network Upgrades. Transmission Provider may periodically adjust the Interconnection Customer's share of the applicable costs and cost commitment of Shared Network Upgrades and may require Interconnection Customer to adjust the amount of the Irrevocable Letter of Credit accordingly.

11.7 Interconnection Customer Compensation. If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Article 13.4 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

ARTICLE 12. INVOICE

12.1 General. Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice. Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Owner shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.

12.3 Payment. Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.

12.4 Disputes. In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow

account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, NERC, the Applicable Reliability Council, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the other Parties promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Parties, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 **General**. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 **Interconnection Customer Authority**. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with

regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.6 of this GIA, no Party shall be liable to any other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978.

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other Parties and any instrument required or

permitted to be tendered or delivered by a Party in writing to the other Parties shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by any Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Parties in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 A Party shall not be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of another Party. Upon a Breach, the non-Breaching Party or Parties shall give written notice of such Breach to the Breaching Party with a copy to the other Party if one Party gives notice of such Breach. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Breach notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete such cure within ninety (90) Calendar Days from receipt of the Breach notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Termination. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party or Parties shall terminate this GIA, subject to Article 2.3.2 of this GIA, by written notice to the Breaching Party, with a copy to the other Party if one Party gives notice of termination, and be relieved of any further obligation hereunder and, whether or not that Party(ies) terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is (they are) entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

17.1.3 Cross-Default. Pursuant to Article 11.3 of this GIA, the Parties shall enter into a Facilities Service Agreement if the Transmission Owner has elected to fund the capital for the Network Upgrades and/or Transmission Owner's System Protection Facilities. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the Facilities Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA. If a default under this GIA results from the Interconnection Customer's breach of the Facilities Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the Facilities Service Agreement and this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to another Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of Interconnection Service, except as provided in this Tariff. The provisions set forth in

the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Parties harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such Indemnified Party may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential

imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate.

18.4.5 The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Parties, their parents, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days' advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.

18.4.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

18.4.7 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.

18.4.8 The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by any Party only with the written consent of the other Parties; provided that a Party may assign this GIA without the consent of the other Parties to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.5 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 **Severability**. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if Interconnection Customer (or any non-Party, but only if such non-Party is not acting at the direction of either Transmission Provider or Transmission Owner) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 **Comparability**. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 **Confidentiality.** Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by a Party to another Party prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by the receiving Party, the disclosing Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term**.** During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. No Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

22.1.4 Rights. Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by a Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties. By providing Confidential Information, no Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Party obligates itself to provide any particular information or Confidential Information to another Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care. Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or

dissemination. Each Party may use Confidential Information solely to fulfill its obligations to another Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure. If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires any Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies**.** The Parties agree that monetary damages would be inadequate to compensate a Party for another Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State**.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to FERC or its staff,

within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Parties to this GIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Parties to this GIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information that Party claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect another Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Parties copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 Information Acquisition. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 Information Submission by Transmission Provider and Transmission Owner The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 Updated Information Submission by Interconnection Customer. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission Owner a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with

any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice, such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the "disclosing Party") shall make available to the other Parties information that is in the possession of the disclosing Party and is necessary in order for the other Parties to: (i) verify the costs incurred by the disclosing Party for which another Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. A Party (the "notifying Party") shall notify the other Parties when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under

this Article shall not entitle any Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Parties, to audit at its own expense the other Parties' accounts and records pertaining to the Parties' performance or the Parties' satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Parties' costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records. Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to a Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the Party or from whom the overpayment or underpayment is owed together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided,

however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event any Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "disputing Party") shall provide the other Parties with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the non-disputing Parties. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the non-disputing Parties' receipt of the Notice of Dispute, such claim or dispute shall be submitted for resolution in accordance with the dispute resolution procedures of the Tariff.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority**.** Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is

a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. {RESERVED}

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect. This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.1.1 Reversion. If offered pursuant to an Agency Agreement under which this GIA is executed by Transmission Provider as agent for the relevant Transmission Owner, in the event that the relevant Agency Agreement terminates, any HVDC Service offered by Transmission Provider under this GIA shall revert to the relevant Transmission Owner and Transmission Provider shall be released from all obligations and responsibilities under this GIA.

30.2 Conflicts. In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation. This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if

applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including."

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by any Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts. This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by all of the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by all of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Parties.

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IN WITNESS WHEREOF, the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

Transmission Provider
Midcontinent Independent System Operator, Inc.

By: _____ November 30, 2022 kkh

Name: Aubrey Johnson

Title: VP, System Planning & Competitive Development

Transmission Owner
Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

By: _____
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Interconnection Customer
Lakeside Solar, LLC

By: _____
Name: Randall W. Porter, PE
Title: Vice President, Transmission

Original Sheet Number. 84

APPENDICES TO GIA

Appendix A Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrade

Appendix B Milestones

Appendix B-1 Pre-Certification Generation Test Notification Form

Appendix C Interconnection Details

Appendix D Security Arrangements Details

Appendix E Commercial Operation Date

Appendix F Addresses for Delivery of Notices and Billings

Appendix G Interconnection Requirements for a Non-synchronous Generating Facility

Appendix H Interconnection Requirements for Provisional GIA

Appendix I Requirements Applicable to Surplus Interconnection Service

Appendix A To GIA

Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrade

1. Description of Generating Facility

Interconnection Customer shall install a 112 MVA facility, rated at 109.2 MW gross and 100 MW net, with all studies performed at or below these outputs. The Generating Facility is composed of twenty-six (26) TMEIC PVU-L0840GR inverter units in a solar farm, rated at 4.2 MW each. Interconnection Service provided under this agreement is 100 MW of conditional ERIS that will become 100 MW of NRIS upon completion of all Network Upgrades under this GIA and transmission assumptions listed in Table A10-1 of Exhibit A10.

Interconnection Customer shall install a switchyard with the appropriate protection equipment coordinated per Appendix C to this GIA. The Switchyard shall contain one (1) generator step-up transformer 138/34.5 kV 72/96/120 MVA, one (1) 138 kV, 1200 A circuit breaker connected in series fashion as described in Exhibit A1.

The Generating Facility shall provide reactive compensation as necessary to meet the FERC Order 827.

2. Interconnection Facilities

(a) Point of Interconnection.

i. The Point of Interconnection will be at the tie point between the 138 kV disconnect switches 8M6 and 8W4 at Position WM8 in the Transmission Owner's Lamos switching station.

ii. The Point of Change of Ownership will be at the dead-end on the entrance structure in the Transmission Owner's Lamos switching station.

iii. The Metering Point will be at J1375 collector station, compensated to the POI.

(b) Interconnection Facilities (including metering equipment) to be constructed by Interconnection Customer. Interconnection Customer shall construct Interconnection Customer Interconnection Facilities and are detailed in Exhibit A1. These facilities shall include:

- Approximately 0.1 miles of 138 kV transmission line, 795 Condor
- Interconnection Customer shall install one bundle of OPGW from the New J1375 Interconnection Station to the J1375 Collector Substation.
- Interconnection Customer shall install provide 138 kV and 34.5 kV breaker statuses via ICCP connection.
- Interconnection Customer shall install two (2) SEL-411L dual line differential relaying compatible with SEL-411L relays at J1375 Collector Substation. Coordination will be made with the Transmission Owner relay department to ensure relay compatibility.

- Interconnection Customer is responsible for coordinating and obtaining station service supply for the Interconnection Customer Interconnection Facilities and the Generating Facility. The Interconnection Customer will coordinate station supply with the local service territory provider to address normal and emergency back-up station power needs for Interconnection Customer Interconnection Facilities and for Generating Facility during construction and operation of those facilities. Net metering of Station Service power may be obtained per the requirements of Transmission Provider's Schedule 20.

(c) Transmission Owner Interconnection Facilities to be constructed by Transmission Owner. Transmission Owner will install a new 138 kV line entrance structure with disconnect switch at the J1375 POI in Transmission Owner's Lamos switching station. These upgrades are detailed in Exhibit A2.

Major Items:

- One (1) 138 kV Disconnect
- Conductor to extend the incoming transmission line from the PCO to the POI
- Three (3) surge arresters

Transmission Owner will utilize the Tariff's Schedule 50 for the recovery of ongoing maintenance costs for the TOIF.

This TOIF is estimated to cost $206,484 with an intended accuracy of ± 20% and is detailed in Exhibit A6.

3. Network Upgrades

(a) Stand-Alone Network Upgrades to be installed by Transmission Owner. Transmission Owner will install a new 138 kV, 3-breaker ring bus laid out in a breaker-and-half configuration at the J1375 POI to be located near Transmission Owner Structure #100E5754 in Muskegon County, MI.

New switching stations or new substations constructed for the purpose of providing a POI for a generating facility will be sited on real property owned by Transmission Owner. Estimated costs associated with property acquisition are included in this study. It is assumed that the Interconnection Customer will acquire and convey, in fee simple absolute, property suitable for construction of Transmission Owner facilities to Transmission Owner. Suitability in this context is determined by, but is not limited to, current zoning of the property, presence of wetlands or floodplain and other environmental factors, existing encumbrances on the property, topography, and practical permanent access to the property. Land transfers from Interconnection Customer to Transmission Owner are required to occur prior to commencement of Transmission Owner construction of Transmission Owner facilities. Delays in property transfers from Interconnection Customer to Transmission Owner will affect the project schedule and In Service Date of Transmission Owner's facilities. In cases where Interconnection

Customer and Transmission Owner facilities are located on adjacent properties, the cost of land transferred from Interconnection Customer to Transmission Owner will be pro rata based on the area of parcel owned by each of the Parties If Interconnection Customer provides rough grading of the land, per Transmission Owner specification, prior to transfer of a portion of the property from Interconnection Customer to Transmission Owner, the cost of the rough grading will also be prorated based on the area of each Party's parcel.

Major Items:

- 5" SPS Aluminum bus (approximate length - 1847 ft)
- Three (3) 138 kV, 40kA circuit breakers
- Eight (8) 138 kV, 3000A disconnect switches
- Two (2) single phase, 50kVA SSVTs
- Two (2) lightning masts
- One (1) large control center (24'X50')
- Nine (9) surge arresters
- Nine (9) 138 kV CCVTs
- Cable trench and control ducts.
- Control cables and conduits.
- One (1) 1500 - RTU Cabinet
- One (1) Communication Cabinet with Nokia SAR-8
- One (1) 2002 – Digital Fault Recorder
- Three (3) 2100 – Breaker control and Failure with SEL-351S-6
- Three (3) 2205 – Line Current Differential with SEL-411L's

This Network Upgrade is estimated to cost $6,115,758 with an intended accuracy of ± 20% and is detailed in Exhibit A6.

(b) **Network Upgrades to be installed by Transmission Owner.** Transmission Owner shall loop in the existing METC DuPont - Cobb 138 kV circuit into the new Lamos switching station by installing two sets of approximately 0.25 miles each, of new single-circuit construction. Transmission Owner shall install approximately 3.1 miles of underground fiber from the J1375 interconnection station to White Lake. Transmission Owner shall upgrade White Lake station by installing Bus 2, 500 bus-tie breaker, and new control house. Transmission Owner shall loop in the existing DuPont - Cobb 138 kV circuit into the White Lake Station by installing two sets, of approximately 0.15 miles each, of new single-circuit construction.

i. DuPont - Cobb 138 kV Circuit Cut-In to New Lamos Switching Station Upgrade

Transmission Owner will cut-in the existing DuPont - Cobb 138 kV Circuit into the new Lamos switching station by extending each line into the new station. Each line will be brought into the station using single-circuit construction. approximately 3.1 miles of underground fiber from the Lamos station to White Lake.

Major Items

- 3.1 miles of underground fiber
- 0.3 miles of 795 ACSR
- 0.3 miles of 7/16" shield wire
- Removal of 500 feet of shield wire

ii. White Lake Station Upgrade

Transmission Owner shall upgrade White Lake station by installing Bus 2, 500 tie breaker, 777 and 677 line breakers. Transmission owner will install a new control house and remove existing dog-house style control houses. Transmission Owner will disconnect CE Trans 2 from Bus 1 and reconnect to the new Bus 2.

Major Items

- Three (3) 138 kV, 40kA circuit breakers
- 5" SPS Aluminum bus (approximate length - 2154 ft)
- Six (6) 138 kV, 3000A disconnect switches
- Two (2) single phase, 50kVA SSVTs
- One (1) large control center (24'X50')
- Six (6) surge arresters
- Five (5) 138 kV CCVTs
- Cable trench and control ducts.
- Control cables and conduits.
- One (1) 1500 - RTU Cabinet
- One (1) Communication Cabinet with Nokia SAR-8
- Two (2) Fiber optic patch panel
- One (1) 2100 – Breaker control and Failure with SEL-351S-6
- Five (5) 2205 – Line Current Differential with SEL-411L's
- One (1) 2404 - Bus Relaying with SEL-551
- One (1) 2900 – Sync
- Removal of existing dog house enclosures
- Removal of three (3)2205 – Line Current Differential with SEL-411L's
- Removal of existing RTU and communication

iii. DuPont - Cobb 138 kV Circuit Cut-In to White Lake

Transmission Owner will cut-in the existing DuPont - Cobb 138 kV Circuit into the White Lake Station by extending each line into White Lake. Each line will be brought into the station using single-circuit construction.

Major Items

- 0.3 miles of 795 ACSR
- 0.3 miles of 7/16" shield wire
- Removal of 500 feet of shield wire

These facilities are estimated to cost $8,882,749 with ± 20% intended accuracy and are detailed in Exhibit A6.

Interconnection Customer is responsible to amend this GIA for the following upgrades upon release of final Interconnection Facilities Study(ies):

iv. Cobb - Peterson Tap

Raise the sag limit of the 336 ACSR to 125 MVA

(c) Shared Network Upgrade(s) to be funded by Interconnection Customer. None.

4. System Protection Facilities

(a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer. None.

(b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner. None.

5. Distribution Upgrades

(a) Distribution Upgrades to be constructed by Transmission Owner. None.

6. Contingency List See Exhibit A10.

7. Affected System Upgrades List Interconnection Customer is responsible to enter into applicable agreement with Affected Systems Owner for Interconnection Customer's share of following upgrades:

- Consumers Energy
  - White Lake Substation protection upgrade

8. Common Use Upgrades List None.

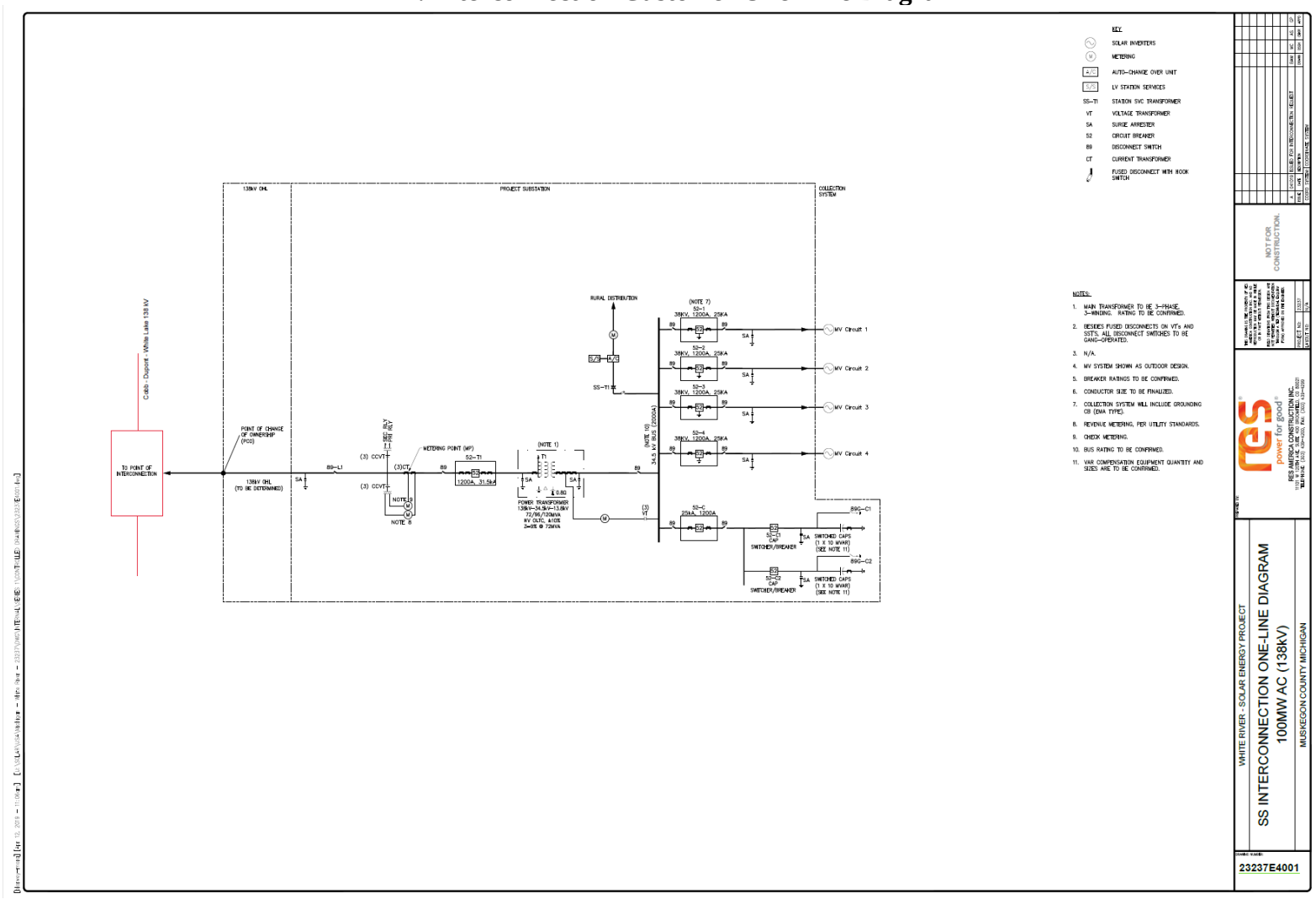
9. **Exhibits** – The following exhibits are included:

A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram
A1-2: Interconnection Project Site Map
A2. Transmission Owner One-Line
A2-1: Interconnection Substation One-Line
A3. Transmission Owner Substation General Arrangement
A4. Transmission Owner Plan and Profile
A5. Facilities to be Constructed by Transmission Owner
A6. Detailed Costs of Facilities to be Constructed by Transmission Owner
A7. Facilities to be Constructed by Interconnection Customer
A8. Detailed Cost of Facilities to be Constructed by Interconnection Customer
A9. Facilities Subject to Transmission Owner Reimbursement
A10. Contingent Facilities
A11. Interconnection Customer Milestones
A12. Construction and Coordination Schedules
A13. Permits, Licenses, Regulatory Approvals and Authorization
A14. Interconnection and Operating Guidelines

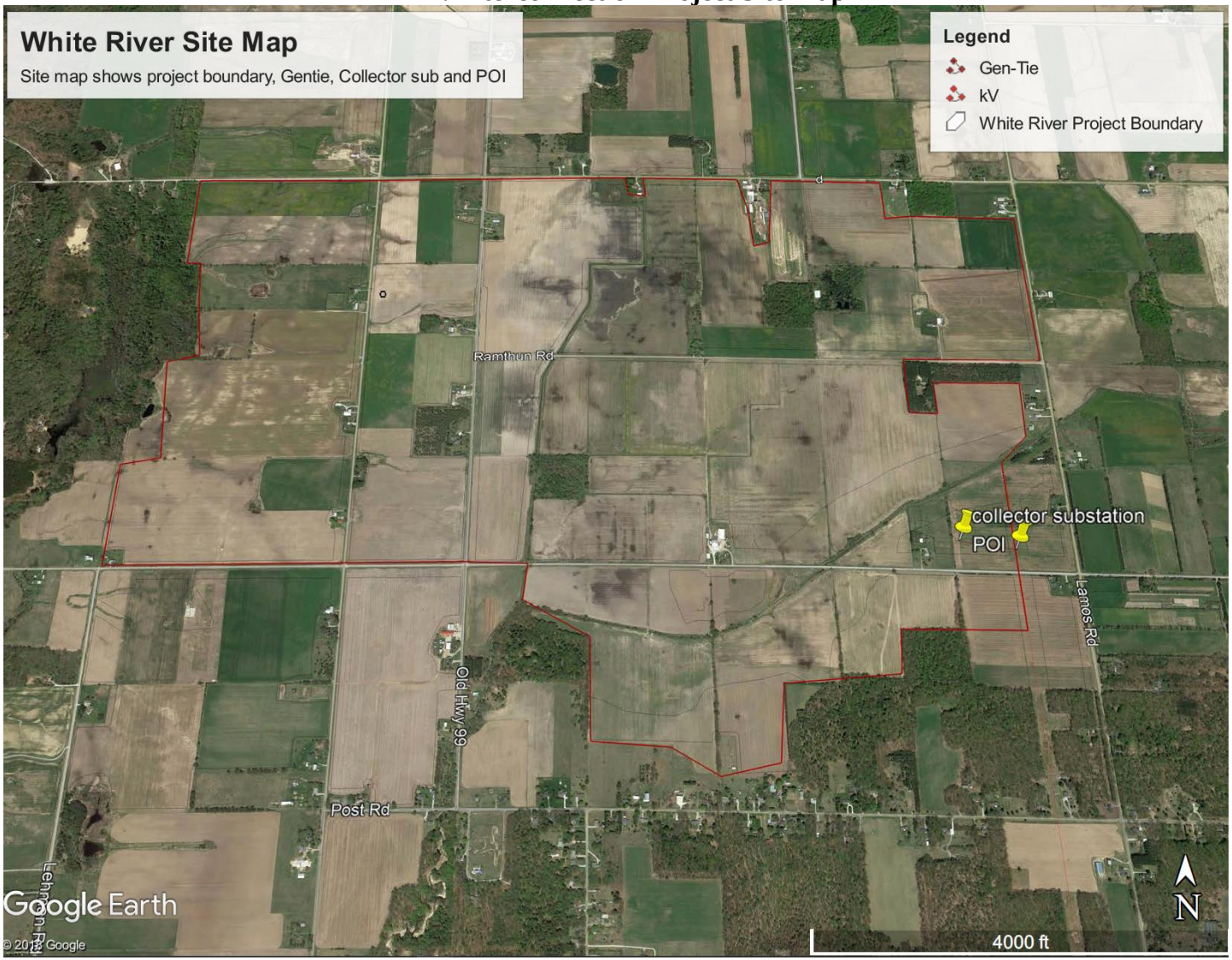
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Exhibit A1. Interconnection Customer One-Line and Site Map

A1-1: Interconnection Customer One-Line Diagram



A1-2: Interconnection Project Site Map



Original Sheet Number. 93

Exhibit A2. Transmission Owner One-Line
A2-1: Interconnection Substation One-Line

CUI//CEII MATERIAL – DO NOT RELEASE

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet Number. 95

Exhibit A3. Transmission Owner Substation General Arrangement

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet Number. 96

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A4. Transmission Owner Plan and Profile

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A5. Facilities to be Constructed by Transmission Owner

Type	Facilities to be Constructed by the Transmission Owner	Cost Estimate
New 138 kV line entrance structure with disconnect switch Transmission Owner Interconnection Facility	New 138 kV line entrance structure with disconnect switch	$206,484
New Lamos Switching Station Network Upgrade	Install 3 breaker ring bus switching station	$6,115,758
DuPont - Cobb 138 kV Circuit Cut-In to New Lamos Switching Station Network Upgrade	Extend the DuPont - Cobb 138 kV line to Cut-In to loop in the Lamos POI station	$2,716,800
White Lake Station Network Upgrade	Install White Lake Bus 2 and 500 tie breaker, install positions 677 & 777. Relocate CE Trans 2 to Bus 2.	$5,622,349
DuPont – Cobb 138 kV Circuit Cut-In to White Lake Station Network Upgrade	Extend the DuPont – Cobb 138 kV line to loop in the White Lake station	$543,600
	TOTAL	**$15,204,991**

Exhibit A6. Detailed Costs of Facilities to be Constructed by Transmission Owner

Table A6-1 New Lamos Switching Station Network Upgrade

Engineering, Drafting, & Project Management	$500,000
Material	$2,434,403
Construction & Construction Oversight	$2,062,062
Land Acquisition	$100,000
Indirect Overheads	$1,019,293
Total	**$6,115,758**

Table A6-2 DuPont - Cobb 138 kV Circuit Cut-In to New Lamos Switching Station Network Upgrade

Engineering, Drafting, & Project Management	$361,000
Material	$632,000
Construction & Construction Oversight	$1,271,000
Indirect Overheads	$452,800
Total	**$2,716,800**

Table A6-3 White Lake Station Network Upgrade

Engineering, Drafting, & Project Management	$530,333
Material	$2,159,180
Construction & Construction Oversight	$1,970,778
Land Acquisition	$25,000
Indirect Overheads	$937,058
Total	**$5,622,349**

Table A6-4 DuPont - Cobb 138 kV Circuit Cut-In to White Lake Station Network Upgrade

Engineering, Drafting, & Project Management	$86,000
Material	$111,000
Construction & Construction Oversight	$256,000
Indirect Overheads	$90,600
Total	**$543,600**

Table A6-5 Transmission Owner Interconnection Facilities

Engineering, Drafting, & Project Management	$27,000
Material	$66,200
Construction & Construction Oversight	$78,870
Indirect Overheads	$34,414
Total	**$206,484**

Exhibit A7. Facilities to be Constructed by Interconnection Customer

No Network Upgrades or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Exhibit A8. Detailed Cost of Facilities to be Constructed by Interconnection Customer

No Network Upgrades or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Exhibit A9. Facilities Subject to Transmission Owner Reimbursement

Interconnection Customer funding of $ 206,484 in Transmission Owner Interconnection Facilities costs are not eligible for reimbursement. Network Upgrades' funding is eligible for up to 100% reimbursement per requirements of Attachment FF of the Tariff. Total Interconnection Customer funding for Network Upgrades is **$14,998,507.**

If Interconnection Customer fails to achieve Commercial Operation of the Generating Facility by the Commercial Operation Date indicated in Appendix B Milestones of this GIA for reasons other than Transmission Owner delay of the In-Service Date, interest due to Interconnection Customer, under Article 11.4 of the GIA, for funding of Network Upgrade costs will not accrue for dates beyond that Commercial Operation Date.

Type	**Facilities to be Constructed by the Transmission Owner**	**Cost Estimate**
New Lamos. Switching Station. Network Upgrade.	Install 3 breaker ring bus switching station.	$6,115,758
DuPont - Cobb 138 kV Circuit Cut-In to New Lamos. Switching Station. Network Upgrade.	Extend the DuPont - Cobb 138 kV line to Cut-In to loop in the Lamos POI station.	$2,716,800
White Lake Station. Network Upgrade.	Install White Lake Bus 2 and 500 tie breaker, install positions 677 & 777. Relocate CE Trans 2 to Bus 2.	$5,622,349
DuPont – Cobb 138 kV Circuit Cut-In to White Lake Station Network Upgrade.	Extend the DuPont – Cobb 138 kV line to loop in the White Lake station.	$543,600
	TOTAL	**$14,998,507**

Exhibit A10. Contingent Facilities

Higher queue and/or same DPP group study Interconnection Requests that may create contingencies pursuant to Article 11.3.1 are listed in tables below. Table A10-1 describes transmission assumptions modeled in the studies that were deemed necessary to allow for the Interconnection Service as described in Appendix A of this GIA and is not related to Article 11.3.1, i.e., does not describe projects associated with a higher queued and/or same DPP group study Interconnection Request. Nevertheless, if the transmission assumptions are not completed or significantly modified, the Interconnection Service granted under this GIA may be restricted until such time as the Interconnection Customer funds a study to determine the applicable ERIS and NRIS level that results due to the changes in Table A10-1.

The list of higher-queued and/or same DPP group study projects in Tables A10-2 and A10-3, not yet in service, were included in the interconnection study for this project. However, a project's inclusion in the System Impact Study does not necessarily mean that these facilities would be contingencies for the Interconnection Customer's Generating Facility. In the event that any of the higher queued and/or same DPP group study generators were to drop out, then the Interconnection Customer may be subject to restudy pursuant to Article 11.3.2.

Table A10-1: Transmission Assumptions

MTEP ID	Project Name	Facility ID	Facility Description	ISD	Status
15738	Brooks Industrial	23853	Interconnection request from the City of Marshall for transmission service. Transmission Owner will build Brooks Industrial 138 kV station as a breaker and half station with 5 breakers in a ring bus configuration. Brooks Industrial 138 kV will be fed by installing 3.5 miles of new line to loop in the Verona - Marshall 138 kV line.	12/31/2022	M3_Long Lead Materials.

Table A10-2: Higher Queued Projects

MISO Higher Queued Project	Service Type	TO	County, State	Point of Interconnection	Summer MW (Net)	Fuel Type	Status
J466	NRIS	ITCT	Huron, MI	Stein 345 kV Substation	30	Battery Storage	Under Construction
J758	NRIS	METC	Calhoun, MI	Verona-Foundry 138 kV	200	Solar	2017-FEB-East (ITC)
J799	NRIS	ITC Transmission	Washtenaw , MI	Milan - Pioneer 120 kV Line Tap	149	Solar	2017--AUG-EAST (ITC)
J806	NRIS	Consumers Energy	Calhoun , MI	Rice Creek - Vrooman 138 kV Line Tap	91	Solar	2017--AUG-EAST (ITC)
J857	NRIS	METC	Calhoun , MI	Verona - Foundry 138 kV Line Tap	150	Solar	2017--AUG-EAST (ITC)
J875	NRIS	METC	Lenawee , MI	Par - Raisin Road 138 kV Line	535	Solar	2017--AUG-EAST (ITC)
J984	NRIS	METC	Gratiot County, MI	Nelson Rd. 345 kV Substation	200	Wind	DPP 2018 East (ITC)
J996	NRIS	METC	Lenawee County, MI	Beecher - Moraco 138 kV Line	80	Solar	DPP 2018 East (ITC)

MISO Higher Queued Project	Service Type	TO	County, State	Point of Interconnection	Summer MW (Net)	Fuel Type	Status
J1043	NRIS	METC	Montcalm County, MI	Vergennes - Nelson Rd 345 kV Line Tap	374.4	Wind	DPP 2018 East (ITC)
J1062	NRIS	ITC Transmission	Washtenaw County, MI	Majestic - Lemoyne 345 kV Line Tap	150	Solar	DPP 2018 East (ITC)
J1071	NRIS	METC	Oceana County, MI	Donaldson 138 kV Substation	100	Solar	DPP 2018 East (ITC)
J1172	NRIS	METC	Genesee County, MI	Dort - Garfield 138 kV Line Tap	50	Solar	DPP 2018 East (ITC)
J1178	NRIS	METC	Eaton County, MI	Oneida 138 kV Substation	65	Solar	Withdrawn

Table A10-3: Similar Queued Projects

Project #	Fuel	Transmission Owner	POI Name	County	State	Service Type	ERIS	NRIS
J1192	Solar	METC	Oneida 138 kV Substation	Eaton County	MI	NRIS	35	35
J1194	Wind	METC	Murphy 138 kV Substation	Midland County,Saginaw County	MI	NRIS	225.2	225.2
J1196	Solar	ITC	Greenwood - Rapson (Banner) 345 kV Line Tap	Sanilac County	MI	NRIS	200	200
J1203	Solar	METC	Thetford 345 kV Substation	Genesee County	MI	NRIS	125	125
J1207	Gas	METC	Newton 138 kV Substation	Branch County	MI	NRIS	50	49.5
J1210	Solar	METC	Whittemore - Twining 138 kV Line	Iosco County	MI	NRIS	50	50
J1224	Solar	ITC	Majestic - Milan 345 kV Line Tap	Washtenaw County	MI	NRIS	153	153
J1226	Solar	METC	Morocco 345 kV Substation	Lenawee County	MI	NRIS	200	200

Project #	Fuel	Transmission Owner	POI Name	County	State	Service Type	ERIS	NRIS
J1248	Solar	METC	Marshall - Black Stone 138 kV line	Calhoun County	MI	NRIS	100	100
J1255	Solar	METC	Marquette - Vergennes 138 kV Line Tap	Ionia County	MI	NRIS	200	200
J1262	Gas	ITC	Waterman 120 kV Substation	Wayne County	MI	ERIS	25	0
J1292	Wind	METC	Thompson Road 138 kV Substation	Ionia County	MI	ERIS	198	0
J1297	Solar	METC	Cornell - Bell Road 138 kV Line	Shiawassee County	MI	NRIS	170	170
J1310	Solar	METC	Blackstone - Marshall 138 kV Line	Jackson County	MI	NRIS	125	125
J1319	Wind	ITC	Rapson 120kV Substation	Huron County	MI	NRIS	112	112
J1320	Solar	METC	Coldwater - Batavia 138 kV Line	Branch County	MI	NRIS	150	150
J1329	Battery Storage	ITC	Majestic - Milan 345 kV Line Tap	Washtenaw County	MI	NRIS	20	20

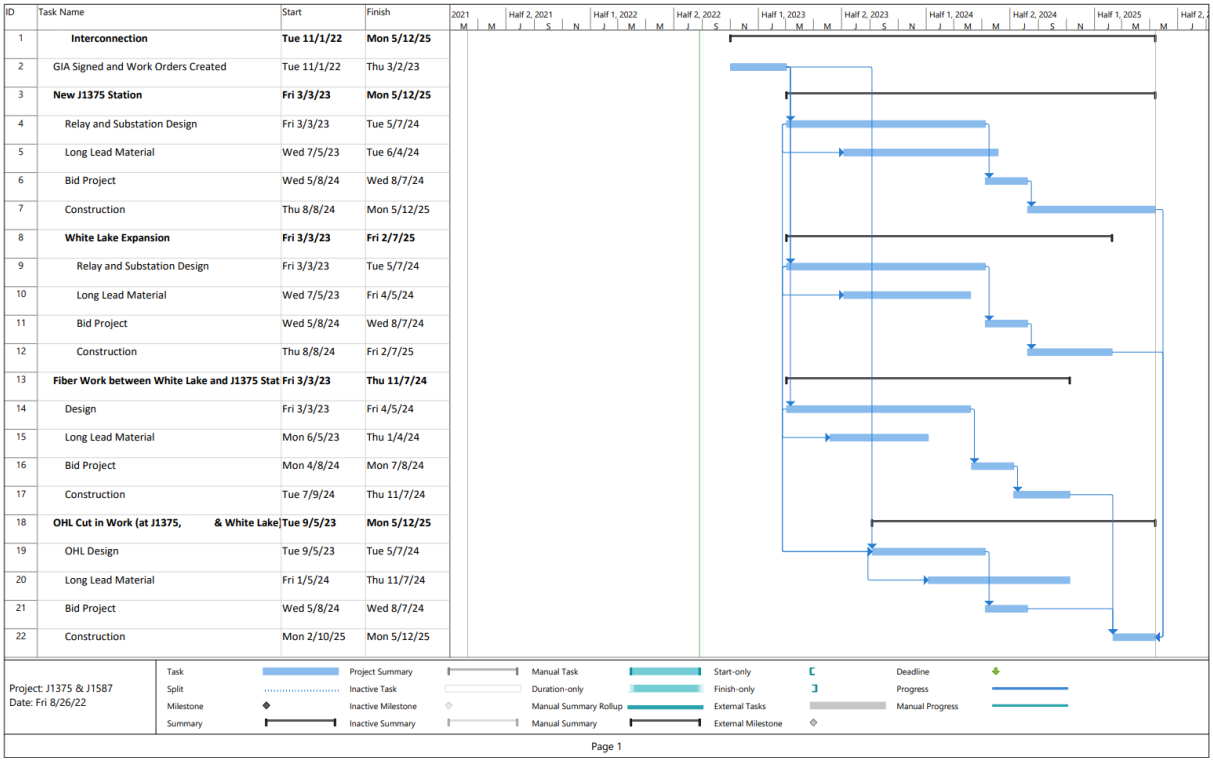
Project #	Fuel	Transmission Owner	POI Name	County	State	Service Type	ERIS	NRIS
J1331	Solar	ITC	Greenwood 120 kV Substation	St. Clair County	MI	NRIS	100	100
J1350	Solar	METC	Milan - Monroe - Morocco 345 kV Point	Monroe County	MI	NRIS	150	150
J1379	Solar	METC	Eureka - Vestaburg 138 kV Line Tap	Montcalm County	MI	NRIS	200	200
J1389	Solar	METC	Murphy Station - Nelson Road 345 kV Line tap	Saginaw County	MI	NRIS	120	120
J1399	Solar	METC	Delhi - Churchill - Tompkins 138 kV Line	Ingham County	MI	NRIS	90	90
J1401	Solar	METC	Batavia - Wagner 138 kV Line	Branch County	MI	NRIS	150	150
J1430	Solar	METC	Verona - Foundary 138 kV Line	Calhoun County	MI	NRIS	100	100
J1472	Solar	METC	Leoni - Parr Raod 138 kV line	Jackson County	MI	NRIS	100	100

Exhibit A11. Interconnection Customer Milestones

{Reserved}

Exhibit A12. Construction & Coordination Schedules

Transmission Owner estimates that a minimum of 31 months will be required for construction of TOIF and Network Upgrades for project J1375. The indicative construction schedule below is for general reference only. The specific construction schedules will be subject to resources' availability and the availability of outages to perform the work.



ID	Task Name	Start	Finish
1	**Interconnection**	**Tue 11/1/22**	**Mon 5/12/25**
2	GIA Signed and Work Orders Created	Tue 11/1/22	Thu 3/2/23
3	**New J1375 Station**	**Fri 3/3/23**	**Mon 5/12/25**
4	Relay and Substation Design	Fri 3/3/23	Tue 5/7/24
5	Long Lead Material	Wed 7/5/23	Tue 6/4/24
6	Bid Project	Wed 5/8/24	Wed 8/7/24
7	Construction	Thu 8/8/24	Mon 5/12/25
8	**White Lake Expansion**	**Fri 3/3/23**	**Fri 2/7/25**
9	Relay and Substation Design	Fri 3/3/23	Tue 5/7/24
10	Long Lead Material	Wed 7/5/23	Fri 4/5/24
11	Bid Project	Wed 5/8/24	Wed 8/7/24
12	Construction	Thu 8/8/24	Fri 2/7/25
13	**Fiber Work between White Lake and J1375 Stat**	**Fri 3/3/23**	**Thu 11/7/24**
14	Design	Fri 3/3/23	Fri 4/5/24
15	Long Lead Material	Mon 6/5/23	Thu 1/4/24
16	Bid Project	Mon 4/8/24	Mon 7/8/24
17	Construction	Tue 7/9/24	Thu 11/7/24
18	**OHL Cut in Work (at J1375, & White Lake**	**Tue 9/5/23**	**Mon 5/12/25**
19	OHL Design	Tue 9/5/23	Tue 5/7/24
20	Long Lead Material	Fri 1/5/24	Thu 11/7/24
21	Bid Project	Wed 5/8/24	Wed 8/7/24
22	Construction	Mon 2/10/25	Mon 5/12/25

Exhibit A13. Permits, Licenses, Regulatory Approvals and Authorization

The Transmission Owner will be responsible for obtaining all required permits and community approvals for station projects on fee owned property. Planning approvals and permitting typically take between four and ten months. The process could take longer if unforeseen obstacles are encountered. Since field surveys and design has not begun it is unclear what permits will be required for the project.

Permits/Approvals that may be required for the project include, but are not limited to, the following:

	Permit Description
1	Building Permit
2	Driveway Permit
3	EGLE Wetland Permit
4	EGLE NPDES Permit
5	EGLE Floodplain Permit
6	MDOT Permit
7	County Road Permit
8	Vegetation Removal Permit (local and/or state)
9	Soil Erosion and Sedimentation Control Permit
10	Drain Permit
11	Township Planning Commission Approval
12	SHPO Approval
13	US Fish & Wildlife Threatened & Endangered Species
14	MDNR Threatened & Endangered Species

Notes:

1. These permits are applicable to construction of switch stations, substations and transmission lines only. Interconnection Customer shall provide all required permits for the Interconnection Customer Interconnection Facilities and the Generating Facility.
2. These permits are not all inclusive.
3. Unless otherwise agreed upon by the Parties, Transmission Owner will acquire necessary approvals and permits for construction of Transmission Owner's facilities.

Exhibit A14. Interconnection and Operating Guidelines

A14-1 Interruption of Service

If required by Good Utility Practice to do so, Transmission Owner or Transmission Operator may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Owner's or Transmission Operator's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Appendix:

1. The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

2. Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

3. When the interruption or reduction must be made under circumstances which do not allow for advance notice, the Transmission Owner or Transmission Operator shall notify the Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

4. Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, the Transmission Owner or Transmission Operator shall notify the Interconnection Customer in advance regarding the timing of such scheduling and further notify the Interconnection Customer of the expected duration. The Transmission Owner or Transmission Operator shall coordinate with the Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to the Interconnection Customer, Transmission Owner, Transmission Operator and the Transmission Provider;

5. The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

A14-2 Voltage Guidelines

Reactive power, voltage regulation and operating requirements will be per Transmission Operator (TOP) and Transmission Provider directives. Interconnection Customer will operate the Generating Facility to a voltage schedule target of 141 kV (1.0217 pu) within a bandwidth of +/- 3 kV (0.0217 pu) at the Point of Interconnection (POI). The Interconnection Customer will regulate the Generating Facility's voltage to the specified voltage set-point within the defined bandwidth stated above using an automatic voltage controller. The Generating Facility shall be designed to eliminate reactive power injection into or withdrawal from the system, measured at the high side of the generator substation, when the Generating Facility is not producing real power. This includes reactive power injection caused by collector systems.

The above voltage schedule is subject to change. If the need for a change is identified, it will be done within the limits of the GIA provisions stated in Section 9.6 and the Generating Facility's power factor design criteria. If a schedule change is needed, appropriate written documentation of the change will be provided to the Interconnection Customer.

The Generating Facility shall not cause voltage flicker in accordance with Section 9.7.6. In addition to the standards outlined in Section 9.7., the perception of light flicker in the short-term index (Pst) shall not exceed 1, per IEEE Standard 1453 measurements.

The Interconnection Customer is required to have a generator operator available for 24/7 communication with the TOP. The TOP may, at any time request a variance from the schedule in response to system operating/security requirements.

Appendix B To GIA
Milestones

1. Selected Option pursuant to Article 5.1: Interconnection Customer selects the Standard Option as described in Article 5.1.1. Articles 5.1.2, 5.1.3 and 5.1.4 shall not apply to this GIA.

2. Milestones: The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP.

A. Interconnection Customer Milestones

No.	Description	Date
1a.	Provide initial payment to Transmission Owner (GIA 11.5) in form of security for $ 15,204,991 (100% of total Network Upgrade and Transmission Owner Interconnection Facilities cost). Coordinate Initial Payment confirmation with Transmission Owner and notify Transmission Provider.	Within the later of a) 45 Calendar Days of the execution of the GIA by all Parties, or b) 45 Calendar Days of acceptance by FERC if the GIA is filed unexecuted and the payment is being protested by Interconnection Customer, or c) 45 Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer.
1b.	Provide security, *i.e.*, a guarantee, surety bond, letter of credit or other reasonably acceptable form of security to Transmission Owner (GIA 11.6).	Not Applicable.
1c.	Enter into a Facilities Service Agreement ("FSA") with Transmission Owner for the Network Upgrades associated with this GIA.	Not Applicable.
1d.	Enter into amendment of this GIA, if required, for Interconnection Requests that did not elect optional negotiation period adjustment for Interconnection Facilities Study pursuant to GIA Section 11.3.1.	Within 90 Business Days of the posting of the final Interconnection Facilities report.
2.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; thereafter, within 90 Calendar Days of end of fiscal year or insurance renewal date.

3.	i) Provide to Transmission Provider evidence of continued Site Control after execution of this GIA (GIP 7.2.2). ii) Provide evidence of one or more of the following milestones being achieved: (1) execution of contract for (a) fuel supply or transport; (b) cooling water supply; (c) engineering procurement of major equipment or construction; (d) execution of a contract for the sale of electric energy or capacity from the Generating Facility, or a statement signed by an officer or authorized agent of Interconnection Customer attesting that the Generating Facility is included in an applicable state resource adequacy plan; or other information that Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource; or (2) documentation of application for state or local air, water, land, or federal nuclear or hydroelectric permits and that the application is proceeding per regulations (GIP 11.3).	As may be agreed to by the Parties. Within 180 Calendar Days of Effective Date.
4a.	Provide Transmission Owner with cash payment in the amount of $ 82,594 (40% of TOIF estimated cost) for Transmission Owner to begin detailed design of TOIF (GIA 5.5 and 5.6).	1/24/2023
4b.	Provide Transmission Owner with cash payment in the amount of $ 41,296 (20% of TOIF estimated cost) for Transmission Owner to commence procurement of long-lead materials for TOIF	4/18/2023
4c.	Provide Transmission Owner with cash payment in the amount of $ 82,594 (40% of the estimated TOIF cost) for Transmission Owner to begin construction activities for the TOIF.	7/9/2024
5.	Invoice Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	As may be agreed to by the Parties, but in no event later than 45 Calendar Days prior to the date the Interconnection Customer must make any construction payment.
6.	Pre-construction meeting.	As may be agreed to by the Parties.
7.	Provide initial design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for	180 Calendar Days prior to initial synchronization date.

	comment (GIA 5.10.1).	
8.	Provide final design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	90 Calendar Days prior to initial synchronization date.
9.	Deliver to Transmission Owner and Transmission Provider "as-built" drawings, information and documents regarding Interconnection Customer's Interconnection Facilities (GIA 5.10.3).	Within 120 Calendar Days of Commercial Operation Date.
10.	Provide Transmission Owner final cost invoices to construct Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
11.	Notify Transmission Provider and Transmission Owner in writing of Local Balancing Authority where Generating Facility is located (GIA 9.2).	Three months prior to Initial Synchronization Date.
12.	Pre-energization meeting.	As may be agreed to by the Parties.
13.	Initial Synchronization Date.	August 15, 2025
14.	Commercial Operation Date.	December 31, 2025*
15.	Interconnection Customer shall provide the Parties with notice on the status of the Generating Facility, including COD, under Article 15 of this GIA and shall also send such notice by email to ResourceIntegration@misoenergy.org. Notification shall include Interconnection Customer's name, and as applicable Market Participant(s) name(s), and project number.	6 months prior to Initial Synchronization Date.
16.	Interconnection Customer shall provide notice to the Parties of a test plan in advance of conducting tests for the Generating Facility. The notice shall be in the form below and should be provided under Article 15 of this GIA, and a copy of such notice should be emailed to ResourceIntegration@misoenergy.org**.**	5 Business Days prior to testing.

17.	In the event the Interconnection Customer makes any modifications to the design of the site layouts or interconnection facility routes after execution of this GIA, Interconnection Customer shall notify the Parties of such changes immediately upon identifying the need for such changes. After providing such notification, the Interconnection Customer shall provide to Transmission Provider evidence of continued Site Control for land sufficient to accommodate the changes in site layouts and/or interconnection facility routes (GIP 7.2.2).	90 Calendar Days after Interconnection Customer provides notice to Parties.
18.	Interconnection Customer to complete Generator Modeling form and provide to Transmission Owner.	60 days prior to the In Service Date.
19.	Interconnection Customer to provide Transmission Owner and Transmission Provider with completed Appendix E Commercial Operation declaration.	As of Commercial Operation.

* Modified from the original Commercial Operation Date of December 31, 2023, contained in the Interconnection Request.

B. Transmission Owner Milestones

No.	**Description**	**Date**
0.	Transmission Owner to enter Network Upgrade information into Transmission Provider's MTEP database and model on demand.	As required by MTEP.
1.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; within 90 Calendar Days of end of fiscal year or insurance renewal date.
2.	• Commence design, equipment procurement and construction of Network Upgrades in effort to achieve the In Service Date of Interconnection Facilities (GIA 5.5 et seq.).	Upon Interconnection Customer satisfaction of Milestone 1
3a.	Commence design of TOIF.	Upon Interconnection Customer satisfaction of Milestone 4a.
3b.	Commence TOIF equipment procurement.	Upon Interconnection Customer satisfaction of Appendix B, Table A, Milestone 4b.
3c,	Commence construction activities for TOIF.	Upon Interconnection Customer satisfaction of

		Appendix B, Table A, Milestone 4c.
3d.	Continue construction of TOIF.	Upon Interconnection Customer satisfaction of Appendix B, Table A, Milestone 4d.
4.	Comment on Interconnection Customer's final design and specifications.	Within 30 Calendar Days of Interconnection Customer's submission of final design and specifications.
5.	Upon request, deliver to Interconnection Customer and Transmission Provider "as-built" drawings, information and documents regarding Transmission Owner's Interconnection Facilities (GIA 5.11).	Within 120 Calendar Days of Commercial Operation Date.
6.	Provide payment for invoiced estimated costs to construct for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
7.	Provide Interconnection Customer final cost invoices (GIA 12.2 *et seq.*).	Within (6) six months of completion.
8.	Refund overpayment of estimated costs (GIA 12.2).	90 Calendar Days prior to initial synchronization date. Refunds within 30 Calendar Days.
9.	Provide Interconnection Customer with Generator Modeling Form.	Prior to GIA execution – complete.
10.	In-Service Date/Backfeed Date.	5/12/2025

C. Affected System Owner Milestones

Task	**Date Due**
Interconnection Customer is responsible to enter into applicable agreement with Affected Systems Owner for Interconnection Customer's share of following upgrades: ▪ Consumers Energy. ▪ White Lake Substation protection upgrade.	Prior to Commercial Operation Date.

D. Transmission Provider Milestones

No.	**Description**	**Date**
1.	Transmission Provider to determine conditional limit for interconnection service.	Prior to Commercial Operation.

Appendix B-1 To GIA

Pre-Certification Generation Test Notification Form

The following form would need to be submitted to MISO Real Time Operations at least five (5) Business Days prior to the first date of testing.

Project Number:

Project Name:

Point of Interconnection:

Dispatcher Contact Information:

Date	Start Time (in EST)	End Time (in EST)	Expected MW Output	Expected MVAR Output (Only needed if beyond normal power factor)

Appendix C To GIA
Interconnection Details

1. GENERAL INTERCONNECTION AND OPERATING GUIDELINES

1.1 Applicability. Unless specifically stated otherwise, these guidelines are applicable for all generation types.

1.2 Applicable Standards. In addition to applicable design standards identified in the GIA, Interconnection Customer agrees to comply with the most recent Transmission Owner substation/transmission/protection design guides, standards, and specifications, where applicable, for the design of and procurement for this interconnection. The Transmission Owner design guides, standards, and specifications are available upon request.

In the event that Transmission Owner design guides, standards or specifications do not address a particular item or issue, Interconnection Customers shall use any other nationally or regionally recognized standard, guide or specification. In the event that there is a conflict between any other standard, guide or specification used by Interconnection Customers and Transmission Owner's design guides, standards and material/construction specifications, Transmission Owner's design guides, standards and specifications shall apply.

1.2 Communication Requirements. Interconnection Customer shall provide analog and digital signals including hardened voice communications, as requested by the Transmission Owner and/or the Transmission Provider for RTU/frame relay/or public switched telephone systems, as further defined during detailed engineering and design of the Interconnection Facilities. Interconnection Customer agrees to transmit these signals to Transmission Owner's control building or to such other location as specified by the Transmission Owner during the detailed design of the Interconnection Facilities and Network Upgrades. Transmission Owner shall provide Interconnection Customer with the necessary substation information at the Transmission Owner's signals demarcation point. Interconnection Customer will pay all costs associated with receiving such information from Transmission Owner. The specific location of the demarcation point will be established during the detailed design of the Interconnection Facilities.

1.3 Metering Requirement. Interconnection Customer shall be responsible for all interconnection metering.

1.4 Grounding Requirements. Interconnection Customer shall design, install, and maintain grounding facilities to ground the Interconnection Customer's Interconnection Facilities, in accordance Applicable Reliability Standards and Good Utility Practice. Interconnection Customer shall be responsible for detailed modeling and evaluation of the interconnected grounding system at the location of the Transmission Owner's Interconnection Facilities and Interconnection Customer's Interconnection Facilities. If Transmission Owner so chooses, Transmission Owner shall have the right to approve

the grounding system design to ensure that the grounding system properly protects the Transmission Owner's Interconnection Facilities.

1.5 Transmission Line and Substation Connection Configurations. The Parties agree that the connections between Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be as configured in Exhibit A2-2. Exact transmission line locations will be developed by Transmission Owner during the detailed design and regulatory process. Interconnection Customer shall provide the space necessary for the Transmission Owner's placement of the transmission line facilities.

1.6 Unit Stability Requirements. Interconnection Customer agrees to operate its Generating Facility in accordance with the stability requirements identified in the Interconnection Evaluation Study and Interconnection Facilities Study reports, or their equivalent, prepared for this interconnection and which have been posted on the Transmission Provider OASIS. Interconnection Customer agrees to operate its Generating Facility within the operating requirements of the Transmission System, and the rules of the NERC, Reliability Coordinator and Transmission Provider.

1.7 Equipment Ratings. Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of the facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study in order that the Interconnection Customer's Interconnection Facilities appropriately coordinate with the Transmission Owner's Interconnection Facilities.

1.8 Short Circuit Requirements. Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of such items. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study.

1.9 Synchronizing Requirements. In addition to requirements defined in Section 2 of this Appendix C, Transmission Owner will furnish Transmission System bus potentials that may be used by Interconnection Customer for synchronizing the combined Generating Facility to Transmission Owner's Transmission System. This potential will be provided to the Interconnection Customer at the Transmission Owner's signal demarcation point, as necessary.

1.10 Generation Control Requirements. In addition to the requirements set forth elsewhere in this Appendix C, the Generating Facility shall be designed and installed with voltage and var controls. These controls shall comply with any Applicable Reliability Standards, industry standards or Good Utility Practice. The

Interconnection Customer, prior to completion of the Generating Facility, shall contact Transmission Owner for the information required to properly design the phase of the Generating Facility. Interconnection Customer further agrees to comply with any control requirements as specified in the Interconnection Facilities Study and as directed by the Transmission Operator, and shall design and construct each generating unit of its Generating Facility, if more than one unit, to include the capability to install power system stabilizers if later required.

Interconnection Customer will provide Transmission Owner with Generating Facility and Interconnection Customer Interconnection Facilities operating control setpoints, prior to Commercial Operation of the Generating Facility. Generating Facility and Interconnection Customer Interconnection Facilities and those facilities' operating control setpoints shall accurately reflect the modeling data provided by the Interconnection Customer for use in the Interconnection Studies. If operating control setpoints for Interconnection Customer's facilities deviate from the control setpoints evaluated in the Interconnection Studies, Transmission Owner may request Interconnection Customer change operating control setpoints, and Interconnection Customer shall revise setpoints as requested. Additionally, after commissioning of the Interconnection Customer's facilities, Interconnection Customer shall notify Transmission Owner prior to revising its operating control setpoints. Changes to Interconnection Customer control setpoints will be subject to Transmission Planner or Planning Coordinator review and approval. Operation of the Generating Facility with operating control setpoints other than those evaluated in the Interconnection Studies or construction of the Generating Facility inconsistent with the modeling of the Generating Facility in the Interconnection Studies may have a material adverse impact on the Transmission System and may be considered a Material Modification.

1.11 Power Factor Design Criteria. Interconnection Customer's Generating Facility is designed to be capable of operating within a power factor between 0.95 leading to 0.95 lagging at the high-side of the Interconnection Customer's substation's step-up transformer. Interconnection Customer agrees to operate its Generating Facility, as directed, to produce or absorb reactive power at the Point(s) of Interconnection within the design limitations of the Generating Facility.

1.12 Inverter Based Resource ("IBR") Requirements.

1.12.1 Current Priority Operating Mode. Unless otherwise agreed upon and noted, under normal operation, IBR generating facilities shall operate in an "Active Current Priority" or an equivalent mode. During fault ride-through, IBR generating facilities shall switch to operate in a "Reactive Current Priority" or an equivalent mode. Post fault, the IBR generating facilities shall return to operating in an "Active Current Priority" or an equivalent mode.

1.12.2 Analog Measurement Window. The following is applicable to all frequency and voltage elements in section 1.12 of Appendix C of this GIA. Frequency tripping calculations shall be over a six-cycle window or

greater. Voltage and current tripping calculations shall utilize RMS measured values over a one-cycle or greater window.

1.12.3 Current Blocking. Current Blocking has also been referred to as momentary cessation throughout the utility industry. The Interconnection Customer's facilities shall continue current injection inside the "No Trip" zone of the frequency and voltage ride through curves of PRC-024. They also shall continue to inject current inside the "May Trip: zone of the frequency and voltage ride through curves of PRC-024 up to the capabilities of the Generating Facility. Current Blocking shall only be permitted if identified as necessary through Interconnection Studies.

1.12.4 Fault Ride-Through and Protection

1.12.4.1 AC Voltage Protection - Continuous. IBR plant and feeder protection shall ride through continuous voltage disturbances at the Point of Measurement ("POM") as applicable per Table 11 and Table 12 of IEEE 2800-2022.

1.12.4.2 AC Voltage Protection - Transient. The IBR plant and feeder protection shall ride through transient overvoltage disturbances and/or switching transients at the POM per Table 14 of IEEE 2800-2022.

1.12.4.3 Frequency Protection. The IBR plant frequency protection shall ride through frequency excursions as specified in Figure 12 and Table 15 of IEEE 2800-2022.

1.12.4.4 AC Overcurrent Protection. If utilized this element shall not limit the Generating Facility ride-through capabilities and as applicable shall be coordinated with the Transmission Owners protection schemes.

1.12.4.5 Rate-of-change-of-frequency. See Appendix G, Section A.v. of this GIA.

1.12.4.6 Phase lock loop (PLL). The IBR plant shall ride through phase angle differences per IEEE 2800-2022 section 7.3.24. For additional requirements see Appendix G Section A.i.4 of this GIA.

1.12.5 Active Power-Frequency Control

1.12.5.1 Droop. The control system shall have an adjustable proportional droop with a default value of 5 percent. The droop response shall include capabilities to respond to both underfrequency and over-frequency directions. Droop should be based on the difference between maximum nameplate and

zero output (Article 9.6.4).

1.12.5.2 Ramp Rates. The closed-loop dynamic response of the active power-frequency control system of the overall Generating Facility shall meet or exceed the performance criteria specified in Table C-1 as measured from the (POM).

Parameter	Description	Performance Target
For a step change in frequency at the POM of the inverter-based resource...		
Reaction Time	Time between the step change in frequency and the time when the resource active power output begins responding to the change[102]	< 500 ms
Rise Time	Time in which the resource has reached 90% of the new steady-state (target) active power output command	< 4 sec
Settling Time	Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power output command	< 10 seconds
Overshoot	Percentage of rated active power output that the resource can exceed while reaching the settling band	< 5%**
Settling Band	Percentage of rated active power output that the resource should settle to within the settling time	< 2.5%**

** Percentage based on final (expected) settling value

Figure C-1[1]

1.12.6 Reactive Power-Voltage Control

1.12.6.1 Plant Large Disturbance Voltage Performance.

1.12.6.1.1 The reactive current-voltage control should be stable for all expected and studied conditions performed throughout the interconnection process.

1.12.6.1.2 The reactive current-voltage control of the overall Generating Facility shall meet or exceed the performance criteria (up to the generator capability) in Table C-2. The controls should be tuned by default to meet these criteria unless identified in the Interconnection Studies.

[1] 2019 NERC Reliability Guideline – "Improvements to Interconnection Requirements for BPS-Connected Inverter-Based Resources: Table 2.21: Dynamic Active Power-Frequency Control

Parameter	Description	Type 3	Type 4
For a large disturbance step change in voltage, measured at the inverter terminals, where voltage falls outside the continuous operating range, the positive sequence component of the inverter reactive current response should meet the following performance specifications			
Reaction Time	Time between the step change in voltage and when the resource reactive power output begins responding to the change	< 1 cycle	< 1 cycle
Step Response Time	The time between the step change in control input voltage and when the reactive power output changes by 90% of its final value	NA	≤ 2.5 cycles
Settling Time	The time between the step change in control input voltage and when the reactive power output settles within the setting band	≤ 6 cycles	≤ 4 cycles
Settling Band	The max to min region where the reactive power output settles after a step change in control input voltage.	-2.5%/+10% of IBR unit maximum current	-2.5%/+10% of IBR unit maximum current

Figure C-2[2,3]

1.12.7 Current Injection During Ride-Through.

1.12.7.1 For balanced faults, the IBR shall inject reactive current dependent on the terminal voltage. The difference between reactive current injection during a fault and pre-fault reactive current output shall be incremental and shall not be negative. (i.e. reactive current during a fault shall be higher than pre-fault)

1.12.7.2 For unbalanced faults, the IBR shall inject both positive sequence reactive current as well as negative sequence current. The negative sequence current shall meet the below criteria:

1.12.7.2.1 Type 4 – Negative sequence terminal voltage between 90 – 100 degrees

1.12.7.2.2 Type 3 – Negative sequence terminal voltages between 90 – 150 degrees

1.12.7.3 The Interconnection Customer shall make necessary modifications to the control systems of the Generation Facility as applicable and as requested by the Transmission Owner any time and up to the capability of the equipment to inject current at the proper magnitude and/or angle for the system.

1.13 Modeling Information. The Interconnection Customer shall provide the Transmission Owner all necessary short circuit, power flow, stability dynamic, harmonic modeling information, facility ratings, and momentary current blocking utilization for the Generating Facility and Interconnection Customer Interconnection Facilities. This modeling information shall be provided prior to energization and

[2] 2019 NERC Reliability Guideline – "Improvements to Interconnection Requirements for BPS-Connected Inverter-Based Resources: Table 3.2: Large Disturbance Reactive Current-Voltage Performance

[3] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

subsequently prior to changes being made, in such time as to allow the Transmission Owner to evaluate.

1.14 Energization, Inspection and Testing Requirements. Before Notice of Commercial Operation is given per Appendix E, Interconnection Customer shall demonstrate to the Transmission Provider and Transmission Owner, if requested by Transmission Owner, through witnessed tests and/or certified test documentation, that the combined Generating Facility will not have adverse impact on the operation of the Transmission System. Such tests and inspections shall include pre-energization testing of equipment connected to the transmission bus, protection and control systems and pre-commercial testing of the governor, excitation and/or power system stabilizer controls. Specific test requirements and documentation need to be arranged with Transmission Owner prior to tests being performed. Protection and control systems include, but are not limited to, AC auxiliary, DC systems, relaying systems, potential and current circuits, and communication systems.

1.15 If applicable, the unique requirements, if any, of the Transmission Owner to which the Generating Facility will be physically interconnected. None identified.

1.16 Other. Interconnection Customer shall provide all necessary easements over all property owned, leased or otherwise controlled by Interconnection Customer, including easements for ingress/egress by Transmission Owner for access to all Transmission Owner's Interconnection Facilities and Network Upgrades that are on the property of Interconnection Customer. Specific real estate requirements will be determined during the final design. Interconnection Customer agrees to grant Transmission Owner reasonable easements in a form that is acceptable to Transmission Owner. It is expressly understood and agreed that Transmission Owner may, during the term of the GIA, make changes to its Transmission System. Interconnection Customer agrees to make any modifications, additions or changes to the Interconnection Customer's Interconnection Facilities that are reasonably necessary or required as a result of such change, modification or addition to Transmission Owner's Transmission System and at Interconnection Customer's sole cost and expense.

2. SPECIFIC SYSTEM PROTECTION REQUIREMENTS

General. The Transmission Owner will construct a protective relaying scheme to protect the Transmission System from faults occurring on the Interconnection Customer's Interconnection Facilities or the Generating Facility and from faults occurring on the Transmission Owner's Interconnection Facilities and Transmission System. Reclosing of generation to the ITC transmission system is typically not allowed. At the Interconnection Customer's request, reclosing may be considered by Transmission Owner provided the operations of the system, the protection of the system, and all other system constraints can be adjusted to accommodate the reclosing request. This will be done solely at the Interconnection Customer's liability.

Interconnection Customer will be responsible for providing protection for the Generating Facility and all associated equipment from faults occurring on its facilities and from faults or other electrical disturbances occurring on the Transmission Owner's Transmission System or any interconnected system. The Interconnection Customer will be responsible for removing any fault contribution of the Generating Facility to any short circuit occurring on the Transmission Owner's Transmission System or any interconnected system not otherwise isolated by the Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission Owner, as applicable. For example, when the only source behind a transmission line fault is the generator, the local transmission line relaying may not trip and will require the Generating Facility to clear the disturbance. The Generating Facility protection needs to be coordinated with the Transmission Owner prior to implementation and as applicable shall meet the frequency, rate of change of frequency, voltage, overcurrent, and unintentional ride through requirements of section 1.13 of Appendix C of this GIA.

In accordance with Good Utility Practice, Interconnection Customer shall design protection schemes such that no single component failure will prevent the isolation of faults and failed equipment. Meeting this requirement generally means providing redundant or backup protective schemes, with separate sensing sources, separate trip paths, dual trip coils on breakers, breaker failure, separate control power supplies, etc., provided that Interconnection Customer will provide only one battery system.

2.1 Changes to Relay Firmware. Firmware changes on interconnecting line relays shall be coordinated with and receive approval by the Transmission Owner prior to being placed into service.

3. SPECIFIC TELEMETRY REQUIREMENTS.

General: Telemetry is required for the monitoring and status of Interconnection Customer's and Transmission Owner's equipment. Details of the specific telemetry requirements will be provided during the detailed design of the facilities. Interconnection Customer shall install and pay the installation cost and monthly communication costs of all required telemetry for the Generating Facility. In general, Transmission Owner requires continuous telemetry of the following:

3.1 Appropriate relaying status of all installed relay equipment.

3.2 Status of all circuit breaker(s) capable of disconnecting the Generating Facility from the Transmission Owner's Transmission System.

3.3 Instantaneous RMS MW, MVAR, phase voltages, plant bus frequency, and as applicable inverters that trip during an event at the Generating Facility.

3.4 As applicable, each IBR shall monitor and retain plant SCADA records and digital fault recorder recordings that will include but not limited to logging of all breaker statuses, relaying trips, and control operations throughout the plant per IEEE 2800-2022 Section 11. Refer to Figure 1 of IEEE 2800-2022 for what is included as

"Plant" for this section.

3.5 Instantaneous revenue quality MW and MVAR; and cumulative revenue quality MWhr and MVARhr at all (or possibly corrected to) Points of Interconnection with Transmission Owner and from the Generating Facility.

3.6 Status of auxiliary station service circuit breaker(s).

3.7 Instantaneous bus voltage(s).

3.8 Transfer trip communication and generation site transfer trip communication status.

3.9 Changes in energy production of the Generating Facility.

3.10 Status indication of automatic voltage regulator equipment.

3.11 Other telemetry as required and mutually agreed upon by the Interconnection Customer and Transmission Owner.

4. SPECIFIC OPERATIONAL REQUIREMENTS.

4.1 System Protection Facilities (Relays As They Relate To Operations). Interconnection Customer shall notify Transmission Owner in advance of planned protection system work and immediately following discovery of protection system failures, which may affect Transmission Owner's system. Interconnection Customer shall report all generator protective relay events to the Transmission Owner system control center, immediately following Interconnection Customer's discovery of the event.

4.2 Communication Requirements. Interconnection Customer will provide any communication protocols for proper function between Interconnection Customer's operating systems and Transmission Owner's operating systems. Interconnection Customer shall pay all fees for such communication facilities and associated monthly services, as necessary, for the Generating Facility.

4.3 Data Reporting Requirements. Interconnection Customer shall supply all information regarding events and status of equipment within the Facility upon request for any event that noticeably affects the operation of the Transmission System. Interconnection Customer shall provide outage schedules, daily/hourly load profiles, and other data upon request of Transmission Owner.

4.4 Emergency Operations, Including System Restoration and Black Start Arrangements. Interconnection Customer is not able to operate as a Black Start Unit as of the effective date of this GIA. However, in accordance with Good Utility Practice, Interconnection Customer agrees to participate when called upon by Transmission Provider or Transmission Owner, in Transmission Owner's Black Start Plan for the Generating Facility and Transmission Owner's Transmission System, as well as any verification testing.

4.5 Identified Must-Run Conditions. None noted for this Generating Facility.

4.6 Specific Transmission Requirements of Nuclear Units to Abide by All NRC Requirements and Regulations. Not applicable to this interconnection.

4.7 Stability Requirements, Including Output. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or Transmission Owner in the operation of the Generating Facility.

4.8 Limitations of Operations in Support of Emergency Response. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or the Transmission Owner in the operation of the Generating Facility.

5. Transmission Owner shall provide the "as-built" drawings, information and documents regarding the Transmission Owner's Interconnection Facilities pursuant to Article 5.11 of the GIA.

6. In accordance with Section 9.4 of the GIA, the operating limits established for the Generating Facility under this GIA shall be as provided by Transmission Provider each quarter, as described in Appendix A. Any operating guides necessary following Commercial Operation will be established in accordance with Section 9.3.

7. Use of RAS or Operating Guide. Implementation of an Operating Guide will constitute an interim solution that will permit Interconnection Customer to obtain conditional Interconnection Service until planned for Network Upgrades are constructed. Any Operating Guide will be subject to the approval of the Transmission Owner and Transmission Provider. Minimum requirements for an Operating Guide are as indicated below.

- Transmission Owner will control Transmission Owner's breaker(s) protecting the Interconnection Customer Interconnection Facilities located at the Generating Facility and shall be able to trip the Interconnection Customer's Generating Facility.
- Protection schemes must be tested and operative.
- Interconnection Customer will operate its Generating Facility as directed by the Transmission Provider and the Transmission Owner.
- A termination date consistent with completion of Network Upgrades will be mutually agreed to as part of all Operating Guides accepted by the Transmission Owner and the Transmission Provider.

Transmission Owner does not allow the addition of an RAS (Remedial Action Scheme) to the Transmission Owner's system. The Transmission Owner will also not allow the addition of an RAS on a system, including the Generating Facility, where the purpose of that RAS is to mitigate a constraint on the Transmission Owner's system.

Appendix D To GIA
Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information ("CEII") as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Original Sheet No. 131

Appendix E To GIA
Commercial Operation Date

This Appendix E is a part of this GIA between Transmission Provider, Transmission Owner and Interconnection Customer.

[Date]

Midcontinent Independent System Operator, Inc.
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Re: _____ Generating Facility

Dear _____:

On **[Date] [Interconnection Customer]** has completed Trial Operation of Unit No. ___. This letter confirms that **[Interconnection Customer]** commenced commercial operation of Unit No. ___ at the Generating Facility, effective as of **[Date plus one Calendar Day]**.

Thank you.

[Signature]

[Interconnection Customer Representative]

cc: Transmission Owner

Appendix F To GIA
Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
Legal Department – Commercial Contracts
27175 Energy Way
Novi, MI 48377
General Counsel Email: Jdanna@itctransco.com

Interconnection Customer:

Lakeside Solar, LLC
Attn: Randy Porter, Vice President of Transmission
8400 Normandale Lake Blvd. Suite 1200
Bloomington, MN, 55437
randy@nationalgridrenewables.com

Billings and Payments:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
P.O. Box 673971
Detroit, MI 48267-3971

Interconnection Customer:

National Grid Renewables Accounting
Attn: Chris Morgan
8400 Normandale Lake Boulevard Suite 1200
Bloomington, MN, 55437
accounting@nationalgridrenewables.com

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

Phone: (317) 249-5700
Email: misotap@misoenergy.org or
MISOTransmissionAccessPlanning@misoenergy.org

Transmission Owner:

Michigan Electric Transmission Company
Attn: Planning Department – Vice President
27175 Energy Way
Novi, MI 48377

Interconnection Customer:

Lakeside Solar, LLC
Attn: Devon Pehrson – Electrical Engineer III
8400 Normandale Lake Blvd. Suite 1200
Bloomington, MN, 55437
dpehrson@nationalgridrenewables.com

Appendix G To GIA
Interconnection Requirements for a Non-synchronous Generating Facility

Appendix G sets forth requirements and provisions specific to a non-synchronous generating facility. All other requirements of this GIA continue to apply to non-synchronous generating facility interconnections.

A. Technical Standards Applicable to a Non-synchronous Generating Facility

i. Abnormal Voltage Ride-Through Capability

A non-synchronous generating facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below.

1. Non-synchronous generating facilities are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4-9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the non-synchronous generating facility substation location, as determined by and documented by the transmission provider. The maximum clearing time the non-synchronous generating facility shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the non-synchronous generating facility may disconnect from the transmission system. A non-synchronous generating facility shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the GSU.

2. This requirement does not apply to faults that would occur between the non-synchronous Generator terminals and the high side of the GSU.

3. Momentary cessation (ceasing to inject current into the transmission grid during a fault without mechanical isolation) is prohibited in North American Electric Reliability Corporation (NERC) reliability standard PRC-024 no trip zone.

4. Non-synchronous generating facility inverters may not trip or cease to inject current for momentary loss of synchronism. Any inverter may trip if the phase lock loop is unable to regain synchronism 150 milliseconds after loss of synchronism.

5. Non-synchronous generating facilities may be tripped after the fault period if this action is intended as part of a Special Protection System.

6. Non-synchronous generating facilities may meet the abnormal voltage ride-through requirements of this standard by the dynamic performance capability of the generators, by installing additional equipment (*e.g.* Static VAr Compensator) within the non-synchronous generating facility or by a combination of generator performance and additional equipment.

7. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G abnormal voltage ride-through Standard are exempt from meeting the Appendix G abnormal voltage ride-through Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G abnormal voltage ride-through Standard.

ii. Power Factor Design Criteria (Reactive Power)

The following reactive power requirements apply only to a newly interconnecting non-synchronous generating facility that has completed a System Impact Study as of the effective date of the Final Rule establishing the reactive power requirements for non-synchronous generators in section 9.6.1 of this GIA (Order No. 827). A non-synchronous generating facility to which this provision applies shall maintain a factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the high side of the generator substation. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by Transmission Provider, or a combination of the two. Interconnection Customer shall not disable power factor equipment while the non-synchronous generating facility is in operation. Non-synchronous generating facilities shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system.

iii. Supervisory Control and Data Acquisition (SCADA) Capability

The non-synchronous generating facility shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed non-synchronous generating facility, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

iv. Transient Data Recording Equipment for Facilities above 20 MW

Non-synchronous generating facilities with generating capacities of more than 20 MW must monitor and record data for all frequency ride-through events, transient low-voltage disturbances that initiated reactive current injection, reactive current injection or momentary cessation for transient high-voltage disturbances, and inverter trips. The data may be recorded and stored in a central plant control system. The following data must be recorded:

Plant Level

(1) Plant three-phase voltage, current and power factor
(2) Status of ancillary reactive devices
(3) Status of all plant circuit breakers
(4) Status of plant controller

(5) Plant control set points
(6) Status of main plant transformer no load taps
(7) Status of main plant transformer tap changer (if applicable)
(8) Protective relay trips (relay target data)

Inverter Level Data

(1) Frequency, current, and voltage during frequency ride-through events
(2) Voltage and current during momentary cessation for transient high-voltage events (when used)
(3) Voltage and current during reactive current injection for transient low or high-voltage events
(4) Inverter alarm and fault codes
(5) DC current
(6) DC voltage

The data must be time synchronized to a one millisecond level of resolution. All data except phase angle measuring unit data must be sampled at least every 10 milliseconds.

The non-synchronous generating facility shall store this data for a minimum of 60 calendar days. The non-synchronous generating facility, upon request from MISO or the transmission owner, shall make this data available within 10 calendar days of the request.

v. **Protection Settings**

A non-synchronous generating facility, while complying with the under-frequency and over-frequency ride through requirements, shall use accurately calculated and filtered frequency measurement over a time window to set frequency protection and should not use an instantaneously calculated value to set frequency protection.

A non-synchronous generating facility, while complying with the under-voltage and over-voltage ride through requirements should use filtered Root-Mean-Squared (RMS) voltage measurement to set voltage protection.

Inverter rate-of-change-of-frequency (ROCOF) protection shall be disabled unless an equipment limitation exists that requires the inverter to trip on high ROCOF.

Appendix H To GIA– Not Applicable
Interconnection Requirements for Provisional GIA

Provisional Agreement

This GIA is being provided in accordance with Section 11.5 of the Transmission Provider's GIP, which provides among other things, that an Interconnection Customer may request that Transmission Provider provide Interconnection Customer with a Provisional Generator Interconnection Agreement that limits the transfer of energy by Interconnection Customer commensurate with that allowed for Energy Resource Interconnection Service. Interconnection Customer requested Transmission Provider to provide a Provisional Generator Interconnection Agreement for limited operation at the discretion of Transmission Provider based upon the results of available studies (by Interconnection Customer and by Transmission Provider).

A Provisional Interconnection Study, the results of which are posted on the confidential portion of the Transmission Provider's internet website, was performed by Transmission Provider in order to confirm the facilities that are required for provisional Interconnection Service and to require them to be in place prior to commencement of service under the GIA.

Interconnection Customer represents that the Interconnection Customer facilities (including Network Upgrades, Interconnection Facilities, Distribution Upgrades, System Protection Upgrades and/or Generator Upgrades) that are necessary to commence provisional Interconnection Service and meet the requirements of NERC, or any applicable regional entity for the interconnection of a new generator are in place prior to the commencement of generation from the Generating Facility and will remain in place during the term of the service. The requisite Interconnection Studies were performed for the Generating Facility. Interconnection Customer shall meet any additional requirements (including reactive power requirements) pursuant to the results of applicable future Interconnection System Impact Studies. Until such time as the applicable Interconnection Studies and any identified facilities are completed, the output of the Generating Facility will operate within the output limit prescribed in a future, if applicable, operating guide.

The maximum permissible output of the Generating Facility under Appendix A will be updated by Transmission Provider on a quarterly basis, determined in accordance with Section 11.5 of the GIP, by finding the transfer limit of energy commensurate with the analysis for Energy Resource Interconnection Service ("ERIS"). This study shall be performed assuming the system topology represented by the base cases used to calculate Available Flowgate Capability, as described in Attachment C of the Tariff, with dispatch and optimization algorithms posted on the MISO internet site and operation above those limits will be deemed as unauthorized use of the Transmission System and subject to provisions in the Tariff surrounding that use.

Use of interim operating guide

Implementation of interim operating guide, if applicable, will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned Network Upgrades are constructed. Any interim operating

guide will be subject to the approval of Transmission Owner and Transmission Provider. Minimum requirements for an interim operating guide are as indicated below.

* Transmission Operator will have control of breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
* Protection schemes must be tested and operative
* Interconnection Customer will provide continuous communication capability with the Generator Operator
* Interconnection Customer and the owner of the Existing Generating Facility will enter into an operating agreement or similar agreement which designates, among other things, the responsibilities and authorities of each of the parties and shall be subject to the acceptance of Transmission Provider and Transmission Owner.
* A termination date consistent with completion of construction of Network Upgrades will be included as part of all operating guides accepted by Transmission Owner and Transmission Provider.

Interconnection Customer assumes all risks and liabilities with respect to changes, which may impact the Generator Interconnection Agreement including, but not limited to, change in output limits and responsibilities for future Network Upgrade and cost responsibilities that have not yet been identified on the direct connect Transmission System as well as all affected Transmission, Distribution or Generation System(s) including non-Transmission Provider Systems. Such upgrades will be determined pursuant to the Tariff and Policies in effect at the time of the Interconnection Studies.

Appendix I To GIA – Not Applicable
Requirements Applicable to Surplus Interconnection Service

Where this GIA provides for Surplus Interconnection Service, Interconnection Customer acknowledges, agrees to, and will be required to operate under the following conditions:

1) The combined Real-Time Offers, including Energy and Operating Reserves, of the Generating Facility and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement must be less than or equal to Interconnection Service limit (MW, MVAR, MVA output) provided in Exhibit I-1 (Monitoring and Consent Agreement) (hereinafter, "Interconnection Service limit"). In the event that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility exceeds such Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

   In the event that the sum of the emergency and/or economic maximum offer limits of the Generating Facility and the Existing Generating Facility exceeds the Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

2) The total MW, MVAR, MVA output at the Point of Interconnection resulting from the combined output of the Generating Facility with Surplus Interconnection Service and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement shall not at any time exceed the Interconnection Service limit.

3) The Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement is not relieved of any applicable requirements under the RAR of the Tariff.

4) The Interconnection Customer shall submit to the Transmission Provider a report by the seventh Calendar Day of each month showing the prior month's output, by 15 minute increment, the combined real-time offers and cleared energy injection. The Existing Generating Facility and the Interconnection Customer shall cooperate consistent with other provisions in the Tariff to the extent necessary to ensure accuracy of the report. Transmission Provider shall provide a template for this report.

Exhibit I-1 (Completed Monitoring and Consent Agreement - Appendix 11 of the GIP)

Exhibit I-2 (Completed Energy Displacement Agreement - Appendix 12 of the GIP)

Original Sheet No. 1

GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT ("GIA") is made and entered into this 9th day of June, 2023, by and between **Lakeside Solar, LLC**, a limited liability company organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), and **Michigan Electric Transmission Company, LLC**, a corporation organized and existing under the laws of the State of Michigan ("Transmission Owner"), and the **Midcontinent Independent System Operator, Inc**., a non-profit, non-stock corporation organized and existing under the laws of the State of Delaware ("Transmission Provider"). Interconnection Customer, Transmission Owner and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Transmission Provider has functional control of the operations of the Transmission System, as defined herein, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, Transmission Owner owns or operates the Transmission System, whose operations are subject to the functional control of Transmission Provider, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer, Transmission Owner and Transmission Provider have agreed to enter into this GIA, and where applicable subject to Appendix H for a Provisional Generator Interconnection Agreement, for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System shall mean an electric transmission or distribution system or the electric system associated with an Existing Generating Facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Owner's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Operator shall mean the entity that operates an Affected System.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the Parties, their respective facilities and/or the respective services they provide.

Applicable Reliability Council shall mean the Regional Entity of NERC applicable to the Local Balancing Authority of the Transmission System to which the Generating Facility is directly interconnected.

Applicable Reliability Standards shall mean Reliability Standards approved by the Federal Energy Regulatory Commission (FERC) under section 215 of the Federal Power Act, as applicable.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System, not classified under Attachment FF as a Baseline Reliability Project, Market Efficiency Project, or Multi-Value Project, that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Definitive Planning Phase Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, in the Definitive Planning Phase. The Definitive Planning Phase Queue Position is established based upon the date Interconnection Customer satisfies all of the requirements of Section 7.2 to enter the Definitive Planning Phase.

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one of the enumerated conditions or situations identified in this definition also exists.

Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an Existing Generating Facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Surplus Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation).

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq*.

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. A Generating Facility consists of one or more generating unit(s) and/or storage device(s) which usually can operate independently and be brought online or taken offline individually.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

Generating Facility Modification shall mean modification to an Existing Generating Facility, including comparable replacement of only a portion of its equipment at the Existing Generating Facility.

Generating Facility Replacement shall mean replacement of one or more generating units and/or storage devices at the Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection as the generating units and/or storage devices that is/are being decommissioned and electrically disconnected.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in Attachment X of the Tariff.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an Existing Generating Facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Study(ies) shall mean the process whereby more than one Interconnection Request is studied together, instead of serially, for the purpose of conducting one or more of the required Studies.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

HVDC Facilities shall mean the high voltage direct current transmission facilities, including associated alternating current facilities, if any, that are subject to Section 27A of the Tariff and that are specifically identified in (i) any Agency Agreement pertaining to such facilities between Transmission Provider and Transmission Owner that owns or operates such facilities, or (ii) in any other arrangement that permits or will permit Transmission Provider to provide HVDC Service over such facilities as set forth in Section 27A of the Tariff.

HVDC Service shall mean Firm and Non-Firm Point-To-Point Transmission Service provided by Transmission Provider on HVDC Facilities pursuant to Section 27A of the Tariff.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A of this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study shall mean a study conducted by Transmission Provider, or its agent, for Interconnection Customer to determine a list of facilities (including Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and upgrades on Affected Systems, as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission System.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an Existing Generating Facility that is interconnected with the Transmission System.

Interconnection Service shall mean the service provided by Transmission Provider associated with interconnecting the Generating Facility to the Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of this GIA and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean: (1) modification to an Interconnection Request in the queue, that has a material adverse impact on the cost or timing of any other Interconnection

Request with a later queue priority date; or (2) planned modification to an Existing Generating Facility, that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Surplus Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Surplus Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA.

NERC shall mean the North American Electric Reliability Corporation or its successor organization.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to integrate its Generating Facility with the Transmission System in the same manner as for any Generating Facility being designated as a Network Resource. Network Resource Interconnection Service does not convey transmission service. Network Resource Interconnection Service shall include any network resource interconnection service established under an agreement with, or the tariff of, a Transmission Owner prior to integration into MISO, that is determined to be deliverable through the integration deliverability study process.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the interconnection of the Generating Facility to the Transmission System. Network Upgrade shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Operating Horizon Study shall mean an Interconnection System Impact Study that includes in service transmission and generation for an identified timeframe to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service**.**

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Planning Horizon Study shall mean an Interconnection System Impact Study that includes a future year study to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A of the GIA, where the Interconnection Facilities connect to the Transmission System.

Provisional Generator Interconnection Agreement shall mean the interconnection agreement for Provisional Interconnection Service established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 7.9 of this Attachment X. This agreement shall take the form of the Generator Interconnection Agreement modified for provisional purposes. Unless otherwise provided in the GIP, all requirements applicable to the Generator Interconnection Agreement shall apply to the Provisional Generator Interconnection Agreement.

Provisional Interconnection Service shall mean interconnection service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling that Transmission System to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Provisional Generator Interconnection Agreement and the Tariff.

Provisional Interconnection Study shall mean an engineering study, performed at Interconnection Customer's request, as a condition to entering into a Provisional Generator Interconnection Agreement, that evaluates the impact of the proposed interconnection on the

safety and reliability of the Transmission System and, if applicable, any Affected System. The study shall identify and detail the impacts on the Transmission System and, if applicable, an Affected System, from stability, short circuit, and voltage issues that would result if the Generating Facility were interconnected without project modifications or system modifications.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests. The Queue Position is established based upon the date and time of receipt of the valid Interconnection Request by Transmission Provider.

Reasonable Efforts shall have that meaning as provided in the Tariff.

Replacement Generating Facility shall mean a Generating Facility that replaces an Existing Generating Facility, or a portion thereof, at the same electrical Point of Interconnection pursuant to Section 3.7 of this Attachment X.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System Operator(s) and Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s), including when the Transmission Owner elects to fund the capital cost of such a Network Upgrade or Common Use Upgrade under Section 11.3 of the GIA, and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable (*i.e.*, when the Interconnection Customer is providing the site for such facilities), the Transmission Owner's Interconnection Facilities and Network Upgrades at the POI that the Interconnection Customer will develop. Such documented right shall be one of the following: (1) ownership of a site; (2) a leasehold interest in a site; or (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site.

Small Generating Facility shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than five MW and meets the requirements of Section 14 and Appendix 3 of the GIP.

Special Protection System (SPS) shall mean an automatic protection system or remedial action scheme designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components, to maintain system reliability. Such action may include changes in demand (MW and MVar), energy (MWh and MVarh), or system configuration to maintain system stability, acceptable

voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding, (b) fault conditions that must be isolated, (c) out-of-step relaying not designed as an integral part of an SPS, or (d) Transmission Control Devices.

Stand Alone Network Upgrades shall mean Network Upgrades, that are not part of an Affected System that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA. If the Transmission Provider or Transmission Owner and Interconnection Customer disagree about whether a particular Network Upgrade is a Stand Alone Network Upgrade, the Transmission Provider or Transmission Owner that disagrees with the Interconnection Customer must provide the Interconnection Customer a written technical explanation outlining why the Transmission Provider or Transmission Owner does not consider the Network Upgrade to be a Stand Alone Network Upgrade within 15 days of its determination.

Surplus Interconnection Service shall mean any Interconnection Service that is derived from the unneeded portion of Interconnection Service established in a GIA or in agreement with, or under the tariff of, a Transmission Owner prior to integration into MISO, such that if Surplus Interconnection Service is utilized the total amount of Interconnection Service at the Point of Interconnection would remain the same.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Owner shall mean that Transmission Owner as defined in the Tariff, which includes an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include

any Independent Transmission Company that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean the Midcontinent Independent System Operator, Inc. ("MISO"), the Regional Transmission Organization that controls or operates the transmission facilities of its transmission-owning members used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service (including HVDC Service) or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of thirty (30) years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice. This GIA shall be terminated by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, Transmission Provider shall only terminate that portion of the GIA. Notwithstanding the foregoing, in the limited circumstance that the Interconnection Request is served by a contingent Network Upgrade with an in-service date that is farther out than the Commercial Operation Date permitted under Section 4.4.4 of Attachment X, Transmission Provider shall only terminate this GIA for failure to achieve Commercial Operation by that later in-service date of the contingent Network Upgrade. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.1.1 Surplus Interconnection Service. Where this GIA provides for Surplus Interconnection Service and the Energy Displacement Agreement or the Monitoring and Consent Agreement required for Surplus Interconnection Service are no longer in effect, Interconnection Customer shall immediately cease Commercial Operation of the Generating Facility and this GIA shall be deemed terminated. In the event that the Existing Generating Facility retires and/or permanently ceases commercial

operation, the Surplus Interconnection Service provided under this GIA shall terminate except as provided in Section 3.3.1.3 of the GIP.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Parties, as of the date of the other Parties' receipt of such notice of termination, under this GIA. In the event that this GIA is terminated by Interconnection Customer, Interconnection Customer is responsible for all financial impact that is caused as a result of this termination or the termination of Interconnection Customer's FCA(s) or MPFCA(s), such financial impact being determined through the financial impact analysis performed in accordance with Section 7.8 of Attachment X. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer or upgrades not yet constructed, Transmission Owner shall promptly transfer such amounts to Transmission Provider, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts. Transmission Provider will perform a financial impact analysis in accordance with Section 7.8 of Attachment X to determine the amount that should be refunded to Interconnection Customer. Transmission Provider shall

refund such remaining amounts to Interconnection Customer, less any financial impact caused by the termination of this GIA or Interconnection Customer's FCA(s) or MPFCA(s), as determined through the analysis performed in accordance with Section 7.8 of Attachment X. If Interconnection Customer made its payment(s) through a letter of credit, surety bond, or parental guarantee, Transmission Owner will draw against that letter of credit, surety bond, or parental guarantee in an amount determined through the analysis performed in accordance with Section 7.8 of Attachment X, and transfer that amount to Transmission Provider, unless Interconnection Customer funds the financial impact through another means.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs associated with procuring such materials, equipment, or facilities. If Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 **Disconnection**. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 **Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other

Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 Filing. Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 Interconnection Product Options. Interconnection Customer has selected the following (checked) type of Interconnection Service:

Check: _____ NZ or ____ ER and/or X NR (See Appendix A for details)

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product. ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, Transmission Owner shall construct facilities consistent with the studies identified in Appendix A.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis up to the amount of MW identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. After that date FERC makes effective MISO's Energy Market Tariff filed in Docket No. ER04-691-000, Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the Interconnection Service approval, and the Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission or other delivery service from the Generating Facility is assured, but Interconnection Customer may obtain Point-To-Point Transmission Service, Network Integration Transmission Service or be used for secondary network transmission service, pursuant to the Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection or to improve its ability to do so, transmission delivery service must be obtained pursuant to the provisions of the Tariff. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network or Distribution Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service).

4.1.2.1 The Product. Transmission Provider must conduct the necessary studies and Transmission Owner shall construct the facilities identified in Appendix A of this GIA, subject to the approval of Governmental Authorities, needed to integrate the Generating Facility in the same manner as for any Generating Facility being designated as a Network Resource.

4.1.2.2 Transmission Delivery Service Implications. NR Interconnection Service allows the Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources that are interconnected to the Transmission or Distribution System, as applicable, and to be studied as

a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of Transmission Service, any Network Customer can utilize Network Integration Transmission Service under the Tariff to obtain delivery of energy from the Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

NR Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission or distribution constraints on the Transmission or Distribution System, as applicable, the Generating Facility shall be subject to the applicable congestion management procedures in the Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future Transmission Service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether such Generating Facility is

ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service, such request may require additional studies and upgrades in order for Transmission Provider to grant such request. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

4.1.2.3 Conditional NR Interconnection Service. An Interconnection Customer seeking NR Interconnection Service for new or added capacity at a Generating Facility may be granted conditional NR Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional NR Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional NR Interconnection Service status may be converted to ER Interconnection Service if either of the following occurs:

1) Interconnection Customer fails to fund necessary studies and Network Upgrades required to allow the Interconnection Customer's Generating Facility to receive NR Interconnection Service upon the completion of higher queued projects involving the same common elements; or

2) The higher queued project(s) or planned and required Network Upgrades are placed in service and the Network Upgrades required to provide NR Interconnection Service status to the Interconnection Customer's Generating Facility are not in service.

In the event Interconnection Customer fails to fund the necessary studies and Network Upgrades for NR Interconnection Service, the Interconnection Customer's conditional NR Interconnection Service status shall be converted to ER Interconnection Service status unless Interconnection Customer makes a new Interconnection Request. Such

new Interconnection Request shall be evaluated in accordance with the GIP and its new queue position.

Some or all of the conditional NR Interconnection Service status may be temporarily revoked if the Network Upgrades are not in service when the higher queued project(s) are placed in service. The availability of conditional NR Interconnection Service status will be determined by Transmission Provider's studies. Upon funding and completion of the Network Upgrades required to establish the Generating Facility's NR Interconnection Service status, the Generating Facility will be granted NR Interconnection Service status.

The Parties agree that the portion of the Generating Facility classified as NR Interconnection Service is the first portion of the output of the combined output of all the units at the Generating Facility except in circumstances where Interconnection Customer otherwise elects this GIA, as amended, to allocate that portion to the output of specific unit(s) at the Generating Facility, the total of which will not exceed the output eligible for NR Interconnection Service as shown by the additional studies. To the extent Interconnection Customer desires to obtain NR Interconnection Service for any portion of the Generating Facility in addition to that supported by such additional studies, Interconnection Customer will be required to request such additional NR Interconnection Service through a separate Interconnection Request in accordance with the GIP.

4.1.3 Surplus Interconnection Service.

4.1.3.1 The Product. Surplus Interconnection Service is restricted Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an Existing Generating Facility without increasing the total amount of Interconnection Service at the Point of Interconnection.

4.1.3.2 Transmission Delivery Service Implications. Surplus Interconnection Service does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.2 Provision of Service. Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards. Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of any Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that

Party shall not be deemed to be in Breach of this GIA for its compliance therewith. The Party so limited shall notify the other Parties whereupon Transmission Provider shall amend this GIA in concurrence with the other Parties and submit the amendment to the Commission for approval.

4.4 No Transmission Delivery Service. The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.5 Interconnection Customer Provided Services. The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.7.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select: 1) the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, and permit acquisition of Transmission System equipment or right-of-way; and 2) either the Standard Option or Alternate Option set forth below and such dates and selected option shall be set forth in Appendix B. If the dates designated by Interconnection Customer are not acceptable to Transmission Owner, Transmission Owner shall so notify Interconnection Customer within thirty (30) Calendar Days. Upon receipt of the notification that Interconnection Customer's designated dates are not acceptable to Transmission Owner, the Interconnection Customer shall notify Transmission Owner within thirty (30) Calendar Days whether it elects to exercise the Option to Build if it has not already elected to exercise the Option to Build.

5.1.1 Standard Option. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System

Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option. If the dates designated by Interconnection Customer are acceptable to Transmission Provider and Transmission Owner, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities by the designated dates.

If Transmission Owner subsequently fails to complete the Transmission Owner's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Owner shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each Calendar Day that Transmission Provider refuses to grant clearances to install equipment.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.1.3 Option to Build. Pursuant to Section 7.3.2.5 & 7.3.3.5 of the GIP, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by the dates originally designated by Interconnection Customer under Article 5.1.2. The Parties must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option. If the dates designated by Interconnection Customer pursuant to Article 5.1 are not acceptable to Transmission Owner, the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives, or the procurement and construction of all facilities other than Transmission Owner's

Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build under Article 5.1.3). If the Parties are unable to reach agreement on such terms and conditions, then, pursuant to Article 5.1.1 (Standard Option), Transmission Owner shall assume responsibility for the design, procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer has elected to exercise the Option to Build.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.2 General Conditions Applicable to Option to Build. If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades after receipt of all required approvals from Governmental Authorities necessary to commence construction,

(1) Interconnection Customer shall engineer, procure equipment, and construct the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner, or as required by any Governmental Authority;

(2) Interconnection Customer's engineering, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law or Governmental Authority to which Transmission Owner would be subject in the engineering, procurement or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall be entitled to review and approve the engineering design, equipment acceptance tests(including witnessing of acceptance tests), and the construction (including monitoring of construction) of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall have the right to reject any design, procurement, construction or acceptance test of any equipment that does not meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of the Transmission Owner's Interconnection Facilities and Stand

Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;

(5) at any time during construction, Transmission Provider and Transmission Owner shall have unrestricted access to the construction site for the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to meet the standards and specifications provided by Transmission Provider and Transmission Owner;

(7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from the Interconnection Customer's construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1, Indemnity;

(8) Interconnection Customer shall transfer control of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner in accordance with Appendix B;

(10) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall approve and accept for operation and maintenance the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2 only if the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority.

(11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Owner.

(12) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, Interconnection Customer shall pay Transmission Owner the agreed upon amount of [$ PLACEHOLDER] for Transmission Owner to execute the responsibilities enumerated to Transmission Owner under Article 5.2. Transmission Owner shall invoice Interconnection Customer for this total amount to be divided on a monthly basis pursuant to Article 12.

(13) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, and the Transmission Owner has elected to fund the costs of Network Upgrades pursuant to Article 11.3, then prior to Interconnection Customer incurring any construction costs relating to the Option to Build and by the date specified in Appendix B, Interconnection Customer shall invoice the Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build in accordance with Appendix B. The Transmission Owner shall be required to reimburse Interconnection Customer for the full amount of such invoiced costs by the date specified in Appendix B, which shall be prior to the date by which Interconnection Customer must make any construction payment for such Stand Alone Network Upgrades. After completion of the construction of Stand Alone Network Upgrades by the Interconnection Customer and by the date specified in Appendix B for the Interconnection Customer to transfer such Stand Alone Network Upgrades to the Transmission Owner, Interconnection Customer shall provide an invoice of the final cost of the construction of Stand Alone Upgrades and shall set forth such costs in sufficient detail to enable the Transmission Owner to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. In the event that the actual costs exceed the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Transmission Owner shall pay to Interconnection Customer the difference between the amount previously paid and the actual costs within thirty (30) Calendar Days after receipt of a final construction invoice from Interconnection Customer. In the event that the actual costs are less than the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Interconnection Customer shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Transmission Owner any amount by which the actual payment by Transmission Owner for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice. Following the transfer of the Stand Alone Network Upgrades from the Interconnection Customer to the Transmission Owner, the Interconnection Customer shall make payments for such facilities to the Transmission Owner pursuant to an agreement between and among the Parties.

5.3 Liquidated Damages. The actual damages to Interconnection Customer, in the event the Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission

Provider and Transmission Owner pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of the Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct. The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) the Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Transmission Provider, Interconnection Customer or any other earlier queued Interconnection Customer who has entered into an earlier GIA with Transmission Provider and/or a Transmission Owner or with an Affected System Operator, or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure;
(3) Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; (4) the delay is due to the inability of Transmission Owner to obtain all required approvals from Governmental Authorities in a timely manner for the construction of any element of the Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, or any other permit or authorization required, or any land rights or other private authorizations that may be required, and Transmission Owner has exercised Reasonable Efforts in procuring such approvals, permits, rights or authorizations; or (5) the Parties have otherwise agreed.

5.4 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures

established by the Applicable Reliability Council. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.5 Equipment Procurement. If responsibility for construction of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.5.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.5.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.6.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.6.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.7 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other, with a copy to be provided to the other Parties. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network

Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.8 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.9 Other Interconnection Options.

5.9.1 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

The maximum permissible output of the Generating Facility will be updated on a quarterly basis if the Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are not in service within six (6) months following the Commercial Operation Date of the Generating Facility as specified in Appendix B of this GIA. These quarterly studies will be performed using the same methodology set forth in Section 11.5 of the GIP. These quarterly updates will end when all Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are in service.

5.9.2 Provisional Interconnection Service.
Upon the request of Interconnection Customer, and prior to completion of requisite Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities Transmission Provider may execute a Provisional Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the

discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of NERC, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for Provisional Interconnection Service. The maximum permissible output of the Generating Facility in the Provisional Generator Interconnection Agreement shall be studied and updated on a quarterly basis. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Generator Interconnection Agreement and the Generator Interconnection Agreement, including changes in output limits and Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities cost responsibilities.

5.10 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A.

5.10.1 Interconnection Customer's Interconnection Facility Specifications. Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing

a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.10.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer's specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.11 Transmission Owner's Interconnection Facilities Construction. The Transmission Owner's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the "as-built" drawings, information and documents for the Transmission Owner's Interconnection Facilities specified in Appendix C to this GIA.

Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.12 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish *at no cost* to the other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the

Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.13 Lands of Other Property Owners. If any part of the Transmission Owner's Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.14 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.15 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements).Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.16 Suspension.

5.16.1 Interconnection Customer's Right to Suspend for Force Majeure Event; Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the higher of $5 million or the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A of this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this

Article 5.16, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.16.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.16, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and effectiveness of the cure pursuant to Article 17, the Transmission Owners' Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.16.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.16, no construction duration, timelines and schedules set forth in Appendix B shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.16, Interconnection Customer shall be responsible for only those costs specified in this Article 5.16.

5.17 Taxes.

5.17.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. To the extent that Transmission Owner is a limited liability company and not a corporation, and has elected to be taxed as a partnership, then the following shall apply: Transmission

Owner represents, and the Parties acknowledge, that Transmission Owner is a limited liability company and is treated as a partnership for federal income tax purposes. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35. It is anticipated by the parties that any amounts paid by Interconnection Customer to Transmission Owner for Network Upgrades will be reimbursed to Interconnection Customer in accordance with the terms of this GIA, provided Interconnection Customer fulfills its obligations under this GIA.

5.17.2 Representations and Covenants. In accordance with IRS Notice 2016-36, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 2016-36, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 2016-36. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.17.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

5.17.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as

a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.17.5 Private Letter Ruling or Change or Clarification of Law. At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

5.17.6 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

5.17.7 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole

expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.17.8 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA,

Transmission Owner shall promptly refund to Interconnection Customer the following:

any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.17.9 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are

assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.18 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.19 Modification.

5.19.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.19.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to

facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

ARTICLE 6. TESTING AND INSPECTION

6.1 Pre-Commercial Operation Date Testing and Modifications. Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities, including control equipment to limit injection at the POI to the level of Interconnection Service set forth in Appendix A and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

6.2 Post-Commercial Operation Date Testing and Modifications. Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 Right to Observe Testing. Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.

6.4 Right to Inspect. Each Party shall have the right, but shall have no obligation to: (i) observe Transmission Owner's and Interconnection Customer's tests and/or inspection of any of their respective System Protection Facilities and other protective equipment, including power system stabilizers and control equipment; (ii) review the settings of the System Protection Facilities and other protective equipment; and (iii) review the maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to

time as it deems necessary upon reasonable notice to the other Parties. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Unless the Interconnection Customer is utilizing shared Interconnection Customer Interconnection Facilities, or unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the "Metering Party") at the Point of Interconnection prior to any operation of the Generating Facility. Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party's option, compensated to, the Point of Interconnection. If Interconnection Customer will share Interconnection Facilities with any other projects, Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities sufficient to measure the output of such Interconnection Customer's Generating Facility separately from any other Generating Facilities with which it will share Interconnection Facilities. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Parties upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 Check Meters. Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check the Metering Equipment owned by the Metering Party. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider, Transmission Owner or their designees. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.

7.3 Standards. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 Testing of Metering Equipment. The Metering Party shall inspect and test Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently than every two (2) years. The Metering Party

shall give reasonable notice to the other Parties of the time when any inspection or test shall take place, and the other Parties may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent (2%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the previous test of the Metering Equipment.

7.5 **Metering Data**. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 **Interconnection Customer Obligations**. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind or solar as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals while operating under the Tariff. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the Generating Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner.

Each Party will promptly advise the other Parties if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. The Interconnection Customer whose Generating Facility is a Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. The Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. The Transmission Provider and Interconnection Customer whose Generating Facility is a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. The Interconnection Customer whose Generating Facility is a Variable Energy Resource also shall submit data to the Transmission Provider regarding all forced outages to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by the Interconnection Customer to the Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting

employed by the Transmission Provider. Data requirements for meteorological and forced outage data will be negotiated by the Transmission Provider and the Interconnection Customer, and will be set forth in Appendix C, Interconnection Details, of this GIA.

ARTICLE 9. OPERATIONS

9.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to any Party all information that may reasonably be required by that Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 Local Balancing Authority Notification. At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.

9.3 Transmission Provider and Transmission Owner Obligations. Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 Interconnection Customer Obligations. Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C of this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

9.5 Start-Up and Synchronization. Consistent with the Parties' mutually acceptable procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power and Primary Frequency Response.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Non-Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all non-synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting non-synchronous generators that have not yet completed a System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements apply to existing non-synchronous generators making upgrades that require a new Generator

Interconnection Agreement only where the Transmission Provider's System Impact Study shows the need for reactive power as a result of an upgrade. If applicable, these requirements will be memorialized in Appendix C to this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Voltage Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Payments for reactive power shall be pursuant to any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

9.6.4 Primary Frequency Response. This Section 9.6.4 shall only apply in the event that the Interconnection Request for the Generating Facility completed Definitive Planning Phase Interconnection Customer Decision Point 2 after May 15, 2018.

Interconnection Customer shall ensure the primary frequency response capability of its Generating Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Generating Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved NERC Reliability Standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Generating Facility, and shall be linear in the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based on an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Generating Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Generating Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Generating Facility has been tested and confirmed during commissioning. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Interconnection Customer shall operate the Generating Facility consistent with the provisions specified in Sections 9.6.4.1 and 9.6.4.2 of this GIA. The primary frequency response requirements contained herein shall apply to both synchronous and non-synchronous Generating Facilities.

9.6.4.1 Governor or Equivalent Controls. Whenever the Generating Facility is operated in parallel with the Transmission System, Interconnection Customer shall operate the Generating Facility with its governor or equivalent controls in service and responsive to frequency. Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband

parameter to: (a) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (b) implement the relevant droop and deadband settings from an approved NERC Reliability Standard that provides for equivalent or more stringent parameters. Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Interconnection Customer needs to operate the Generating Facility with its governor or equivalent controls not in service, Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Interconnection Customer shall make Reasonable Efforts to keep outages of the Generating Facility's governor or equivalent controls to a minimum whenever the Generating Facility is operated in parallel with the Transmission System.

9.6.4.2 Timely and Sustained Response. Interconnection Customer shall ensure that the Generating Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Generating Facility has operating capability in the direction needed to correct the frequency deviation. Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Generating Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved Reliability Standard with equivalent or more stringent requirements shall supersede the above requirements.

9.6.4.3 Exemptions. Generating Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from Sections 9.6.4, 9.6.4.1, and 9.6.4.2 of this GIA. Generating Facilities that are behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements

of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in Section 9.6.4, but shall be otherwise exempt from the operating requirements in Sections 9.6.4, 9.6.4.1, 9.6.4.2, and 9.6.4.4 of this GIA.

9.6.4.4 Electric Storage Resources. Interconnection Customer interconnecting an electric storage resource shall establish an operating range in Appendix C that specifies a minimum state of charge and a maximum state of charge between which the electric storage resource will be required to provide primary frequency response consistent with the conditions set forth in Sections 9.6.4, 9.6.4.1, 9.6.4.2 and 9.6.4.3 of this GIA. Appendix C shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the electric storage resource; (5) operational limitations of the electric storage resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Appendix C must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Interconnection Customer's electric storage resource is required to provide timely and sustained primary frequency response consistent with Section 9.6.4.2 of this GIA when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the electric storage resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System. If Interconnection Customer's electric storage resource is charging at the time of a frequency deviation outside of its deadband parameter, it is to increase (for over-frequency deviations) or decrease (for under-frequency deviations) the rate at which it is charging in accordance with its droop parameter. Interconnection Customer's electric storage resource is not required to change from charging to discharging, or vice versa, unless the response necessitated by the droop and deadband settings requires it to do so and it is technically capable of making such a transition.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Interconnection Customer and Transmission Owner may each in accordance with Good Utility Practice in coordination with the other Party and Transmission Provider remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify one another and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Parties of such removal.

9.7.1.2 Outage Schedules. Transmission Provider shall post scheduled outages of transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

Transmission Provider shall compensate, pursuant to applicable Transmission Provider tariff or rate schedule, Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent the Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

Costs shall be determined by negotiation between Transmission Provider and Interconnection Customer prior to implementation of the voluntary change in outage schedules, or if such request is made by or on behalf of a Transmission Customer requesting firm service, costs and recovery of costs shall be determined through a bilateral agreement between the Transmission Customer and Interconnection Customer. Voluntary

changes to outage schedules under this Article 9.7.1.2 are separate from actions and compensation required under Article 13 and for which costs are recovered in accordance with Transmission Provider's applicable tariff or rate schedule.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects a Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Parties, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Parties explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission

Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Under-Frequency, Over-Frequency, Under-Voltage, and Over-Voltage Conditions. The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency or under-voltage system disturbance. Interconnection Customer shall implement under-frequency, over-frequency, under-voltage, and over-voltage relay set points for the Generating Facility as required by the Applicable Reliability Council to ensure "ride through" capability of the Transmission System. Generating Facility response to frequency and/or voltage deviations of pre-determined magnitudes, including under-frequency, over-frequency, under-voltage, and over-voltage, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Owner shall install at Interconnection Customer's expense any Transmission Owner's System Protection Facilities that may be required on the Transmission Owner's Interconnection Facilities or the Transmission Owner's transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer's Interconnection Facilities.

9.7.4.2 Interconnection Customer's and Transmission Owner's System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1-1989, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict

between ANSI Standard C84.1-1989, and any applicable superseding electric industry standard, the applicable superseding electric industry standard shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Parties a copy of its switching and tagging rules that are applicable to the other Parties' activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution System, as applicable, and shall be used for no other purpose.

9.9.2 Other Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more Parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any non-Party users based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to Section 12 of the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Owner Obligations. Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.2 Interconnection Customer Obligations. Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.3 Coordination. The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems. Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses. Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall design, procure, construct, install, own and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A at its sole expense.

11.2 Transmission Owner's Interconnection Facilities. Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Owner's Interconnection Facilities described in Appendix A at the sole expense of Interconnection Customer.

11.3 Network Upgrades, System Protection Facilities and Distribution Upgrades. Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades

described in Appendix A. Interconnection Customer shall be responsible for all costs related to Distribution Upgrades and/or Generator Upgrades. As required by Section 7.3.2.1 and 7.3.3.1 of Attachment X, Transmission Owner shall have provided Transmission Provider with written notice if Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer. In the event that the Transmission Owner elects to fund the capital costs of the Network Upgrades and/or Transmission Owner's System Protection Facilities, then the Parties shall enter into a Facilities Service Agreement. The Facilities Service Agreement shall take the form of the *pro forma* Facilities Service Agreement that is included as Appendix 14 of Attachment X to the MISO Tariff.

11.3.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades**.** Network Upgrades, System Protection Facilities and Distribution Upgrades that are required to accommodate the Generating Facility may be modified because (1) a higher queued interconnection request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued interconnection request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued interconnection request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued interconnection request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification pursuant to Section 4.4 of the GIP, (7) a GIA with an effective date prior to this GIA is terminated, (8) when ordered to restudy by FERC, or (9) the Network Upgrade Facilities Study for a Network Upgrade, which is to be included in this GIA, is completed after execution of this GIA. The higher queued Interconnection Requests that could impact the Network Upgrades, System Protection Facilities and Distribution Upgrades required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A.

11.3.2 Agreement to Restudy and Cost Reallocation**.** In the event that one of the contingencies listed in Article 11.3.1 occurs, at any time before the Network Upgrades, Common Use Upgrades, Shared Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine, in its discretion, that a restudy is required. If a restudy is required, Transmission Provider will provide notice to

Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.3.2.

11.3.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider. Where applicable, payments to fund Shared Network Upgrade(s) that are made to Transmission Provider by Interconnection Customer will be disbursed by Transmission Provider to the appropriate entities that funded the Shared Network Upgrades in accordance with Attachment X and Attachment FF of the Tariff. In the event that Interconnection Customer fails to meet its obligation to fund Shared Network Upgrades, Transmission Owner and Transmission Provider shall not be responsible for the Interconnection Customer's funding obligation.

11.4 Transmission Credits.

11.4.1 Repayment of Amounts Advanced for Network Upgrades. Interconnection Customer shall be entitled to a cash repayment by Transmission Owner(s) and the Affected System Owner(s) that own the Network Upgrades, of the amount paid respectively to Transmission Owner and Affected System Operator, if any, for the Network Upgrades, as provided under Attachment FF of this Tariff and including any tax gross-up or other tax-related payments associated with the repayable portion of the Network Upgrades, and not repaid to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under the Tariff and Affected System's Tariff for Transmission Services with respect to the Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. § 35.19 (a)(2)(iii) from the date of any payment for Network Upgrades through the date on which Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interest shall not accrue during periods in which Interconnection Customer has suspended construction pursuant to Article 11 or the Network Upgrades have been determined not to be needed pursuant to this Article 11.4.1. Interconnection Customer may assign such repayment rights to any person.

If the Generating Facility is designated a Network Resource under the Tariff, or if there are otherwise no incremental payments for Transmission Service resulting from the use of the Generating Facility by Transmission Customer, and

in the absence of another mutually agreeable payment schedule any repayments provided under Attachment FF shall be established equal to the applicable rate for Firm Point-To-Point Transmission Service for the pricing zone where the Network Load is located multiplied by the portion of the demonstrated output of the Generating Facility designated as a Network Resource by the Network Customer(s) or in the absence of such designation, equal to the monthly firm single system-wide rate defined under Schedule 7 of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to Network Customer(s) and consistent with studies pursuant to Section 3.2.2.2 of the GIP.

Notwithstanding the foregoing, as applicable and consistent with the provisions of Attachment FF of this Tariff, Interconnection Customer, Transmission Provider, Transmission Owner, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Owner and Affected System Operator take one of the following actions no later than five (5) years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Owner or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

If the Generating Facility is installed in phases, the amount eligible for refund as each phase achieves Commercial Operation will be reduced by the proportional amount of generation capacity not yet installed. However, all facilities in Appendix A other than the Generating Facility shall be built without consideration for the phasing of the Generating Facility as though the entire Generating Facility will be placed in Commercial Operation for the full output or increased output of the Generating Facility constructed by Interconnection Customer under this GIA.

If the Generating Facility fails to achieve Commercial Operation, but it or another generating facility is later constructed and makes use of the Network Upgrades, Transmission Owner and Affected System Operator shall at that time reimburse Interconnection Customer for the remaining applicable amounts that may be refundable pursuant to Attachment FF of this Tariff that were advanced for the Network Upgrades on their respective systems as described above. Before any such reimbursement can occur, Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which the reimbursement must be made.

11.4.2 Special Provisions for Transmission Provider as an Affected System to be covered under Separate Agreements. When the Transmission Owner's Transmission or Distribution System (including for this Article 11.4.2 independent distribution systems connected to the Transmission System) is an Affected System for an interconnection in another electric system, Transmission Provider will coordinate the performance of Interconnection Studies with the other system. Transmission Provider will determine if any Network Upgrades or Distribution Upgrades, which may be required on the Transmission System as a result of the interconnection, would not have been needed but for the interconnection. Unless Transmission Owner provides, under the interconnection agreement between Interconnection Customer and the other system, for the repayment of amounts advanced to Transmission Provider or an impacted Transmission Owner for Network Upgrades, Interconnection Customer, Transmission Provider, and the impacted Transmission Owner(s) shall enter into an agreement that provides for such repayment by Transmission Owner(s) as directed by Transmission Provider. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the Affected System Operator as well as the payment of refunds by the Affected System Operator.

11.4.3 Notwithstanding any other provision of this GIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades, including the right to obtain cash reimbursement or transmission credits for transmission service that is not associated with the Generating Facility.

11.5 Initial Payment. Interconnection Customer shall elect (and provide its election to the Transmission Provider within five days of the commencement of negotiation of the GIA pursuant to Section 11.2 of the GIP) to make either 1) an initial payment equal to twenty (20) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date is less than or equal to five (5) years of the initial payment date); or 2) an initial payment equal to ten (10) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date exceeds the initial payment date by more than five (5) years); or 3) the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades in the form of security pursuant to Article 11.6. The initial payment shall be provided to Transmission Owner by Interconnection Customer pursuant to this Article 11.5 within the later of a) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or b) forty-five (45) Calendar Days of acceptance by FERC if the GIA

is filed unexecuted and the payment is being protested by Interconnection Customer, or c) forty-five (45) Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer. If the Interconnection Customer made its milestone payments in the form of cash and the Interconnection Customer elects a cash initial payment, then the Transmission Provider shall transfer those funds to the Transmission Owner on the Interconnection Customer's behalf.

11.6 Provision of Security. Unless otherwise provided in Appendix B, at least forty-five (45) Calendar Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of an element, not otherwise funded under Article 11.5, of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades, or at the request of Transmission Owner if regulatory approvals are required for the construction of such facilities, Interconnection Customer shall provide Transmission Owner, at Interconnection Customer's selection, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Owner and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment shall be in an amount sufficient to cover the applicable costs and cost commitments, in addition to those funded under Article 11.5, required of the Party responsible for building the facilities pursuant to the construction schedule developed in Appendix B for designing, engineering, seeking regulatory approval from any Governmental Authority, constructing, procuring and installing the applicable portion of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Owner for these purposes.

In addition:

11.6.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.6.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.4 If the Shared Network Upgrade is not in service, Interconnection Customer will not be required to make a payment under Schedule 26-B until the Shared Network Upgrade is in service, but Interconnection Customer will provide, as applicable, an Irrevocable Letter of Credit to fund any Shared Network Upgrade pursuant to Attachment FF of the Tariff. The Irrevocable Letter of Credit shall

be in an amount sufficient to cover the Interconnection Customer's share of the applicable costs and cost commitments associated with the Shared Network Upgrades. Transmission Provider may periodically adjust the Interconnection Customer's share of the applicable costs and cost commitment of Shared Network Upgrades and may require Interconnection Customer to adjust the amount of the Irrevocable Letter of Credit accordingly.

11.7 Interconnection Customer Compensation. If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Article 13.4 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

ARTICLE 12. INVOICE

12.1 General. Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice. Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Owner shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.

12.3 Payment. Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.

12.4 Disputes. In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow

account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, NERC, the Applicable Reliability Council, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the other Parties promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Parties, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 **General**. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 **Interconnection Customer Authority**. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with

regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.6 of this GIA, no Party shall be liable to any other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978.

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other Parties and any instrument required or

permitted to be tendered or delivered by a Party in writing to the other Parties shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by any Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Parties in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 A Party shall not be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of another Party. Upon a Breach, the non-Breaching Party or Parties shall give written notice of such Breach to the Breaching Party with a copy to the other Party if one Party gives notice of such Breach. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Breach notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete such cure within ninety (90) Calendar Days from receipt of the Breach notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Termination. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party or Parties shall terminate this GIA, subject to Article 2.3.2 of this GIA, by written notice to the Breaching Party, with a copy to the other Party if one Party gives notice of termination, and be relieved of any further obligation hereunder and, whether or not that Party(ies) terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is (they are) entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

17.1.3 Cross-Default. Pursuant to Article 11.3 of this GIA, the Parties shall enter into a Facilities Service Agreement if the Transmission Owner has elected to fund the capital for the Network Upgrades and/or Transmission Owner's System Protection Facilities. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the Facilities Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA. If a default under this GIA results from the Interconnection Customer's breach of the Facilities Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the Facilities Service Agreement and this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to another Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of Interconnection Service, except as provided in this Tariff. The provisions set forth in

the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Parties harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such Indemnified Party may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential

imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate.

18.4.5 The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Parties, their parents, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days' advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.

18.4.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

18.4.7 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.

18.4.8 The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by any Party only with the written consent of the other Parties; provided that a Party may assign this GIA without the consent of the other Parties to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.5 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 **Severability**. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if Interconnection Customer (or any non-Party, but only if such non-Party is not acting at the direction of either Transmission Provider or Transmission Owner) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 **Comparability**. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 **Confidentiality.** Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by a Party to another Party prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by the receiving Party, the disclosing Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term**.** During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. No Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

22.1.4 Rights. Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by a Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties. By providing Confidential Information, no Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Party obligates itself to provide any particular information or Confidential Information to another Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care. Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or

dissemination. Each Party may use Confidential Information solely to fulfill its obligations to another Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure. If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires any Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies**.** The Parties agree that monetary damages would be inadequate to compensate a Party for another Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State**.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to FERC or its staff,

within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Parties to this GIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Parties to this GIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information that Party claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect another Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Parties copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 Information Acquisition. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 Information Submission by Transmission Provider and Transmission Owner The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 Updated Information Submission by Interconnection Customer. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission Owner a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with

any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice, such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the "disclosing Party") shall make available to the other Parties information that is in the possession of the disclosing Party and is necessary in order for the other Parties to: (i) verify the costs incurred by the disclosing Party for which another Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. A Party (the "notifying Party") shall notify the other Parties when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under

this Article shall not entitle any Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Parties, to audit at its own expense the other Parties' accounts and records pertaining to the Parties' performance or the Parties' satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Parties' costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records. Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to a Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the Party or from whom the overpayment or underpayment is owed together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided,

however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event any Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "disputing Party") shall provide the other Parties with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the non-disputing Parties. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the non-disputing Parties' receipt of the Notice of Dispute, such claim or dispute shall be submitted for resolution in accordance with the dispute resolution procedures of the Tariff.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority**.** Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is

a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. {RESERVED}

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect. This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.1.1 Reversion. If offered pursuant to an Agency Agreement under which this GIA is executed by Transmission Provider as agent for the relevant Transmission Owner, in the event that the relevant Agency Agreement terminates, any HVDC Service offered by Transmission Provider under this GIA shall revert to the relevant Transmission Owner and Transmission Provider shall be released from all obligations and responsibilities under this GIA.

30.2 Conflicts. In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation. This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if

applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including."

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by any Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts. This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by all of the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by all of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Parties.

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IN WITNESS WHEREOF, the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

Transmission Provider
Midcontinent Independent System Operator, Inc.

By: _____ 6/9/2023 ces

Name: Aubrey Johnson

Title: VP, System Planning & Competitive Development

Transmission Owner
Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

By: _____
Name: Brian Slocum
Title: SVP & Chief Operating Officer

Interconnection Customer
Lakeside Solar, LLC

By: _____
Name: Randy Porter
Title: Vice President of Transmission

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APPENDICES TO GIA

Appendix A Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrade

Appendix B Milestones

Appendix B-1 Pre-Certification Generation Test Notification Form

Appendix C Interconnection Details

Appendix D Security Arrangements Details

Appendix E Commercial Operation Date

Appendix F Addresses for Delivery of Notices and Billings

Appendix G Interconnection Requirements for a Non-synchronous Generating Facility

Appendix H Interconnection Requirements for Provisional GIA

Appendix I Requirements Applicable to Surplus Interconnection Service

Appendix A To GIA

Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrade

1. Description of Generating Facility

Interconnection Customer shall install a 121.6 MVA facility, rated at 121.6 MW gross and 100 MW net, with all studies performed at or below these outputs. The Generating Facility is composed of thirty-two (32) Power Electronics FS3670K inverter units in a solar farm rated at 3.8 MVA each. Interconnection Service provided under this agreement is 100 MW of conditional ERIS that will become 100 MW of NRIS upon completion of all Network Upgrades under this GIA and transmission assumptions listed in Table A10-1 of Exhibit A10.

Interconnection Customer shall install a switchyard with the appropriate protection equipment coordinated per Appendix C to this GIA. The Switchyard shall contain one (1) generator step-up transformer 138/34.5 kV 75/110/125 MVA connected in series fashion as described in Exhibit A1.

The generating facility shall provide reactive compensation as necessary to meet the FERC Order 827.

2. Interconnection Facilities

(a) Point of Interconnection.

i. The Point of Interconnection shall be at the Lamos switching station at position WM8. J1587 will utilize the POI established by J1375.
ii. The Point of Change of Ownership shall be at the dead-end on the entrance structure inside the Lamos switching station.
iii. The Metering Point will be at the J1587 Collector Substation, compensated to the Point of Interconnection and to be consistent with Transmission Provider shared facilities metering requirements.

(b) **Interconnection Facilities (including metering equipment) to be constructed by Interconnection Customer.** Interconnection Customer shall construct Interconnection Customer Interconnection Facilities and are detailed in Exhibit A1. A generator lead line and one (1) circuit breaker is constructed by and shared with J1375. The J1587 facilities and requirements shall include:

- Interconnection Customer shall install provide 138 kV and 34.5 kV breaker statuses via ICCP connection through Transmission Provider.
- Interconnection Customer shall install two (2) SEL-411L two (2) SEL-411Ls relays for line protection to Lamos station. Interconnection Customer to coordinate with Transmission Owner relay department on relay coordination and compatibility.
- Interconnection Customer is responsible for coordinating and obtaining station

service supply for the Interconnection Customer Interconnection Facilities and the Generating Facility. The Interconnection Customer will coordinate station supply with the local service territory provider to address normal and emergency back-up station power needs for Interconnection Customer Interconnection Facilities and for Generating Facility during construction and operation of those facilities. Net metering of Station Service power may be obtained per the requirements of Transmission Provider's Schedule 20.

(c) Transmission Owner Interconnection Facilities to be constructed by Transmission Owner. Project J1587 will share existing Transmission Owner Interconnection Facilities with project J1375 connected at J1375 Interconnection Switching Station position WM8. No additional Transmission Owner Interconnection Facilities are required.

3. Network Upgrades

(a) Stand-Alone Network Upgrades to be installed by Transmission Owner. None.

(b) Network Upgrades to be installed by Transmission Owner. None.

(c) Shared Network Upgrade(s) to be funded by Interconnection Customer. None.

4. System Protection Facilities

(a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer. None.

(b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner. None.

5. Distribution Upgrades

(a) Distribution Upgrades to be constructed by Transmission Owner. None.

6. Contingency List See Exhibit A10.

7. Affected System Upgrades List Interconnection Customer is responsible to enter into applicable agreements with Affected System Owner for the following upgrades:

- Consumers Energy
    - Protection Upgrade at White Lake Substation

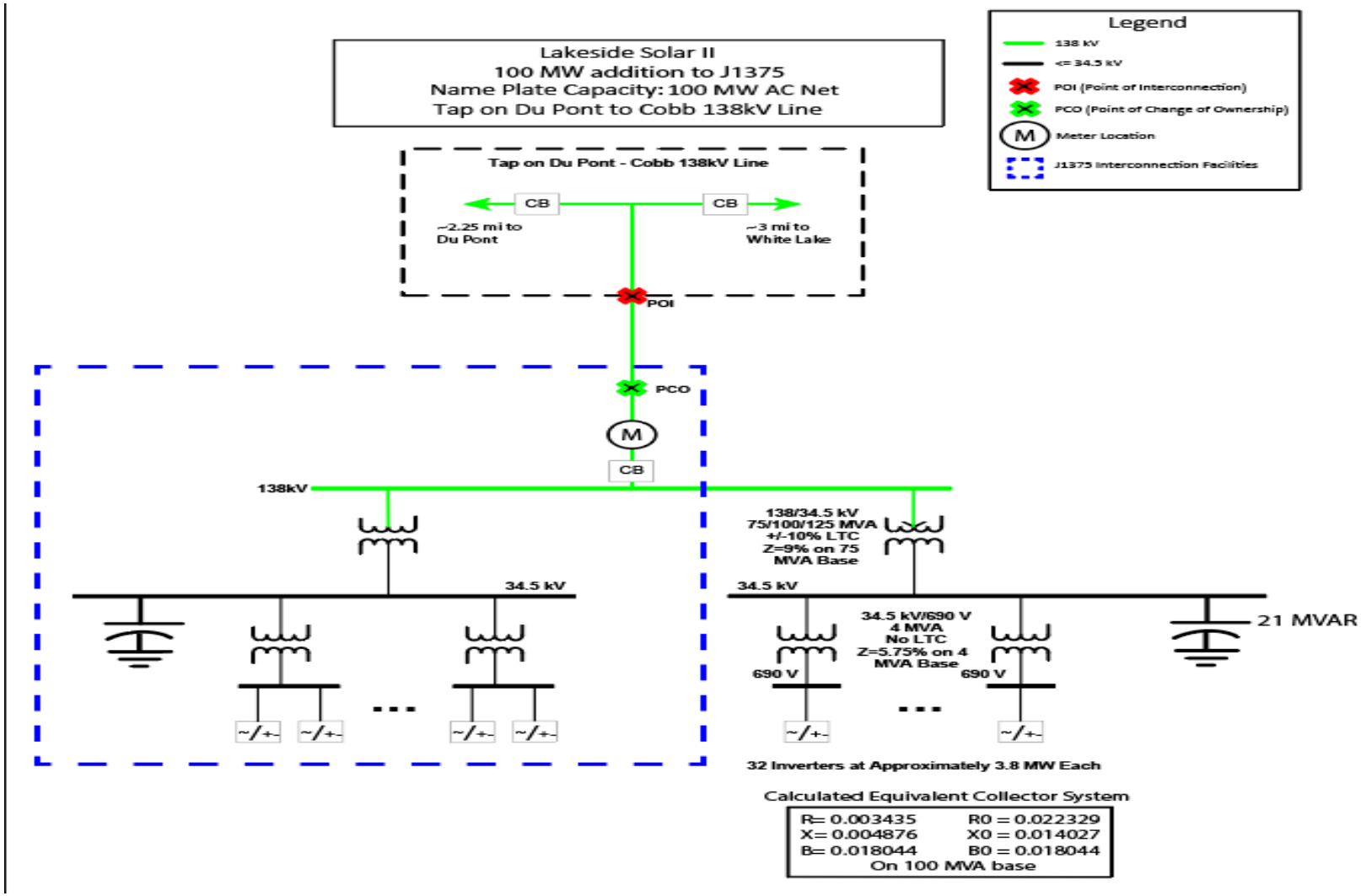
8. **Common Use Upgrades List** Interconnection Customer is responsible to enter into Facilities Construction Agreements and/or Multi-Party Facilities Construction Agreement with Transmission Owner for the following upgrades:

- Build Lulu and loop in Maple - Lemoyne 345 kV (Monroe – Lallendorf 345 kV / Morocco – Allen Junction 345 kV)

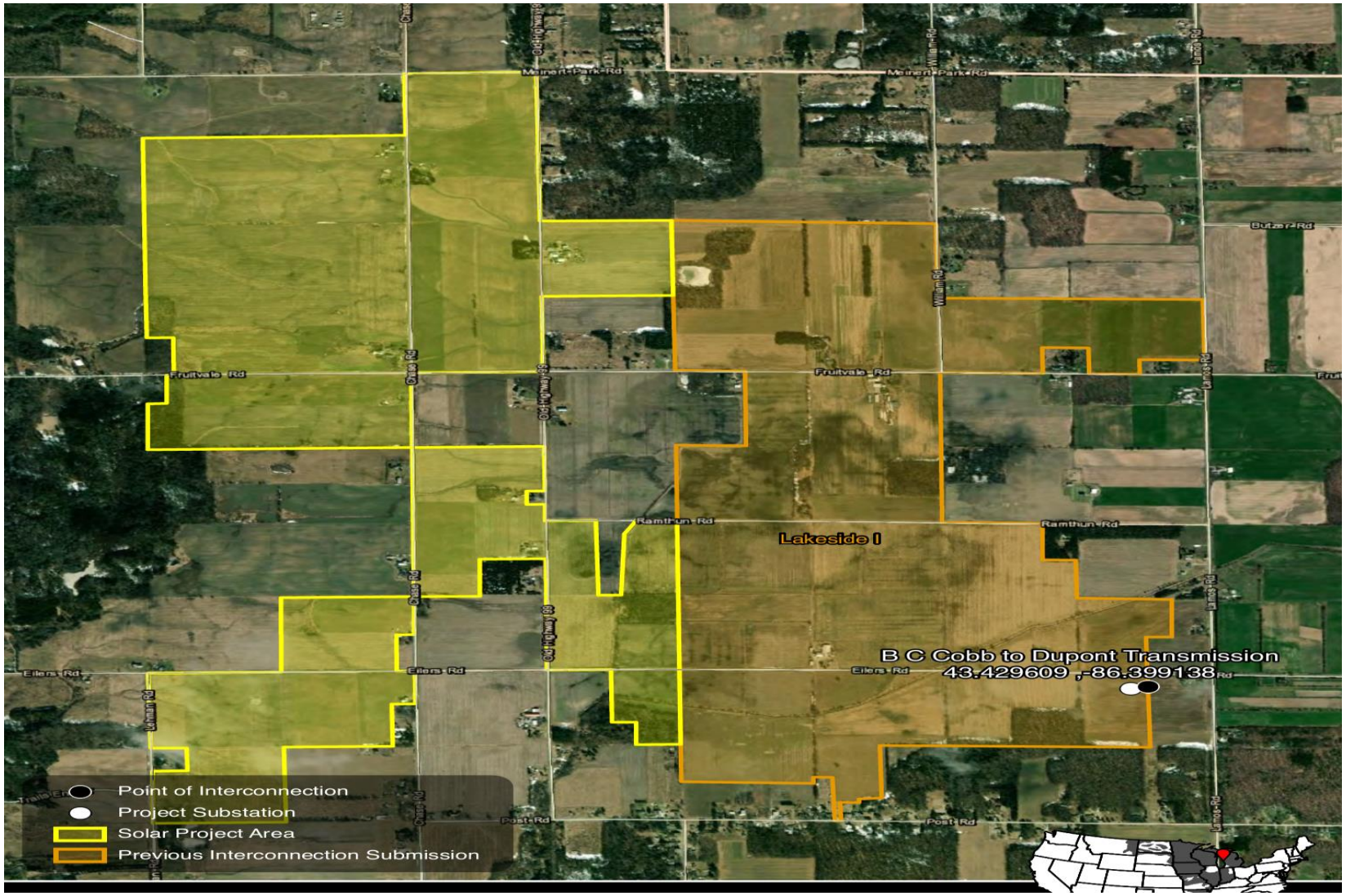
9. **Exhibits** – The following exhibits are included:

A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram
A1-2: Interconnection Project Site Map
A2. Transmission Owner One-Line
A3. Transmission Owner Substation General Arrangement
A4. Transmission Owner Plan and Profile
A5. Facilities to be Constructed by Transmission Owner
A6. Detailed Costs of Facilities to be Constructed by Transmission Owner
A7. Facilities to be Constructed by Interconnection Customer
A8. Detailed Cost of Facilities be Constructed by Interconnection Customer
A9. Facilities Subject to Transmission Owner Reimbursement
A10. Contingent Facilities
A11. Interconnection Customer Milestones {Reserved}
A12. Construction and Coordination Schedules
A13. Permits, Licenses, Regulatory Approvals and Authorization
A14. Interconnection and Operating Guidelines

Exhibit A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram



A1-2: Interconnection Project Site Map



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Exhibit A2. Transmission Owner One-Line

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A3. Transmission Owner Substation General Arrangement

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A4. Transmission Owner Plan and Profile

Not Applicable.

Exhibit A5. Facilities to be Constructed by Transmission Owner

None.

Exhibit A6. Detailed Costs of Facilities to be Constructed by Transmission Owner

None.

Exhibit A7. Facilities to be Constructed by Interconnection Customer

No Network Upgrades or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Exhibit A8. Detailed Cost of Facilities to be Constructed by Interconnection Customer

No Network Upgrades or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

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Exhibit A9. Facilities Subject to Transmission Owner Reimbursement

None.

Exhibit A10. Contingent Facilities

Higher queue and/or same DPP group study Interconnection Requests that may create contingencies pursuant to Article 11.3.1 are listed in tables below. Table A10-1 describes transmission assumptions modeled in the studies that were deemed necessary to allow for the Interconnection Service as described in Appendix A of this GIA and is not related to Article 11.3.1, i.e., does not describe projects associated with a higher queued and/or same DPP group study Interconnection Request. Nevertheless, if the transmission assumptions are not completed or significantly modified, the Interconnection Service granted under this GIA may be restricted until such time as the Interconnection Customer funds a study to determine the applicable ERIS and NRIS level that results due to the changes in Table A10-1.

The list of higher-queued and/or same DPP group study projects in Tables A10-2 and A10-3, not yet in service, were included in the interconnection study for this project. However, a project's inclusion in the System Impact Study does not necessarily mean that these facilities would be contingencies for the Interconnection Customer's Generating Facility. In the event that any of the higher queued and/or same DPP group study generators were to drop out, then the Interconnection Customer may be subject to restudy pursuant to Article 11.3.2.

Table A10-1: Transmission Assumptions

MTEP ID	Project Name	Facility ID	Facility Description	ISD	Status
13574	138kV Voltage Conversion Alternate	22669, 22670, 22673, 22675, 22676	Convert the following lines already constructed 138kV design • Lake County to Plains Junction (constructed to 138kV) • Redwood to Hart (constructed to 138kV) • Plains Junction to Hersey (constructed to 138kV) • Redwood to Lemon Junction (constructed to 138kV) Construct and convert the following MTEP Target A projects in MTEP17 due to condition • White Cloud to Rogers (MTEP Project 9903, Target A MTEP17) • Lemon Junction to Silver Lake (MTEP Project 12224, Target A MTEP17)	12/31/2023	Planned

			Construct/upgrade the following lines not currently in MTEP • Replace Conductor only on Rogers to Lemon Junction (10.29mi) • Rebuild Plains Junction to Hart (22.09mi) • Add conductor on Hersey to Lincoln, designed for double circuit, continue to supply 69kV service to Lincoln substation (3.29mi) • Rebuild Hersey to White Cloud (25.37 mi) • Rebuild Paris Junction to Paris (1.26 mi) • Rebuild Brohman Junction to Brohman (1.34 mi) • Rebuild White Cloud to Casnovia (22.85 mi) • Rebuild Newaygo to Brooks (3.22 mi) • Rebuild Casnovia to Sternberg (19.39 mi) • Rebuild Lake County to Pere Marquette (18.25 mi) Construct the following new stations to replace existing 69kV stations: • Plains Junction (138kV station) • White Cloud (138kV station) • Rogers (138kV single breaker station) • Lemon Junction (138kV single breaker station) • Casnovia (138/69kV station Upgrades to the following stations: • Hersey (add 138/69kV transformer, utilize existing bus work to the extent practical)		

			• Lake County (relocate 69kV line to 138kV bus, available position on 138kV bus currently installed)		
14324	Beals Road – Hazelwood 138kV line cutting into Buck Creek	23309	This project will be needed in conjunction with phase 2 of Consumers Energy's project 12163. This project will cut the Beals Road – Hazelwood 138kV line into Buck Creek. Relay modifications at Beals Road, and Hazelwood may be needed for this project. Also this project will raise Beals Road to Buck Creek 138kV sag limit to at least 282 MVA (1180Amp). The estimated cost is $1.8 million. The expected in-service date is December 31, 2020.	12/31/2022	M3_Long Lead Materials
15800	Bass Creek - Black River 138 kV Rebuild	22669, 22670, 22673, 22675, 22676	The proposed solution is to rebuild 3.77 miles of the Bass Creek – Black River using 954 ACSR conductor with single circuit steel structures.	12/31/2023	Proposed
15802	Rebuild Beals Road - Wealthy 138 kV	22669, 22670, 22673, 22675, 22676	The proposed solution is to rebuild 3.15 miles, 6-wire 336 ACSR section of the Wealthy-Beals Road 138kV circuit using 1431 ACSR conductor with single circuit steel structures.	6/1/2024	Proposed
15942	Rebuild Station Cobb 138 kV	22669, 22670, 22673, 22675, 22676	rebuild Cobb 138 kV station at a new site approximately 3.9 miles to the east (Pine Creek) utilizing new equipment in a six-row, breaker-and-a-half scheme configuration. This solution is to avoid tripping many 138kV circuits for a fault on the 500 bus – tie circuit breaker.	12/31/2025	M2a_Pre-Project Approval

			Acquire new property as necessary and install (17) 138 kV, 3000 A breakers with at least 40 kA (upgradable to 63kA) interrupting capability in a six-row, breaker-and-a-half scheme configuration for this new station. Redirect all circuits currently at the Cobb 138 kV station into the new 138 kV station and connect step-down transformers (TB) #7 and #8 via radial feeds into the new station.		
16002	Four Mile 138 kV Station Rebuild	24133	Rebuild Four Mile 138 kV station at a new site approximately half a mile to the west (Northridge) in a five row, breaker-and-a-half scheme configuration and redirect all circuits currently at the Four Mile 138 kV station into the new 138 kV station. Step-down transformers (TB) #1, #2, #3, and #4 will be connected radially to the new station via the existing 138 kV lines out of the Four Mile station. This new 138 kV station would reduce equipment failures, unplanned outages, and repair costs. In addition, it would enable routine maintenance and outages to be performed in a safe and efficient manner.	12/31/2024	M2a_Pre-Project Approval
19545	Grand Rapids Area Project	22669, 22670, 22673, 22675, 22676	Construct two 138kV circuits (~ 2.45 miles utilizing existing 345kV corridor and 0.25 mile new ROW, 954 ACSR conductor	6/1/2025	Proposed

			on new 230kV double circuit structures) to cut in the Chopin – Northridge 138kV line into Meyer 138kV. Both operate at 138kV. Install (5) new 138kV breaker at Meyer to facilitate new lines come into Meyer and remediate sag limit on the Chopin – Meyer, Meyer – Northridge and Meyer – Tallmadge #2 138kV lines.		
22021	Chopin – Dupont – White Lake 138kV Rebuild	26669, 26673, 26672, 26671, 26670	Rebuild section from Chopin to White Lake from the line to Dupont utilizing 954 ACSR conductor on standard 138 kV double circuit structures with OPGW and relocate Cobb - White Lake (Benston) line to the other side of the new 138 kV standard structures utilizing 954 ACSR conductor, Remove the old structures on the Cobb-Dupont-White Lake and the Cobb-White (Benston) circuits, Rebuild section from White Lake to Dupont utilizing 954 ACSR conductor on standard 138 kV double circuit structures with OPGW and relocate the line from Dupont back up to White Lake (to the east) to the other side of the new 138 kV structures utilizing 954 ACSR conductor, Upgrade Terminal Equipment	12/31/2025	proposed

Table A10-2: Higher Queued Projects

MISO Higher Queued Project	Service Type	TO	County, State	Point of Interconnection	Summer MW (Net)	Fuel Type	Status
J466	NRIS	ITCT	Huron, MI	Stein 345 kV Substation	30	Battery Storage	Under Construction
J758	NRIS	METC	Calhoun, MI	Verona-Foundry 138 kV	200	Solar	In Service
J799	NRIS	ITCT	Washtenaw , MI	Milan 120 kV Substation	149	Solar	Under Construction
J806	NRIS	Consumers Energy	Calhoun , MI	Rice Creek - Vrooman 138 kV Line Tap	91	Solar	Under Construction
J833	NRIS	ITCT	Washtenaw , MI	Milan-Pioneer 120 kV line tap	124.95	Solar	Withdrawn
J857	NRIS	METC	Calhoun , MI	Verona - Foundry 138 kV Line Tap	150	Solar	Under Construction
J875	NRIS	METC	Lenawee , MI	Par - Raisin Road 138 kV Line	535	Solar	Under Construction
J984	NRIS	METC	Gratiot County, MI	Nelson Rd. 345 kV Substation	200	Wind	DPP 2018 East (ITC)
J996	NRIS	METC	Lenawee County, MI	Beecher - Moraco 138 kV Line	80	Solar	Under Construction
J1043	NRIS	METC	Montcalm County, MI	Vergennes - Nelson Rd 345 kV Line Tap	374.4	Wind	In Service
J1062	NRIS	ITCT	Washtenaw County, MI	Majestic - Lemoyne 345 kV Line Tap	150	Solar	Under Construction

J1071	NRIS	METC	Oceana County, MI	Donaldson 138 kV Substation	100	Solar	Under Construction
J1172	NRIS	METC	Genesee County, MI	Dort - Garfield 138 kV Line Tap	50	Solar	Under Construction
J1178	NRIS	METC	Eaton County, MI	Oneida 138 kV Substation	65	Solar	Withdrawn
J1192	NRIS	METC	Eaton County, MI	Oneida 138 kV Substation	35	Solar	Withdrawn
J1194	NRIS	METC	Midland County, MI,Saginaw County, MI	Murphy 138 kV Substation	225.2	Wind	Under Construction
J1196	NRIS	ITCT	Sanilac County, MI	Greenwood - Rapson (Banner) 345 kV Line Tap	200	Solar	Under Construction
J1203	NRIS	METC	Genesee County, MI	Thetford 345 kV Substation	125	Solar	Under Construction
J1207	NRIS	METC	Branch County, MI	Newton 138 kV Substation	50	Gas	Withdrawn
J1210	NRIS	METC	Iosco County, MI	Whittemore - Twining 138 kV Line	50	Solar	Under Construction
J1224	NRIS	ITCT	Washtenaw County, MI	Majestic - Milan 345 kV Line Tap	153	Solar	Under Construction
J1226	NRIS	METC	Lenawee County, MI	Morocco 345 kV Substation	200	Solar	DPP 2019 East (ITC)
J1248	NRIS	METC	Calhoun County, MI	Marshall - Black Stone 138 kV line	100	Solar	Under Construction

J1255	NRIS	METC	Ionia County, MI	Marquette - Vergennes 138 kV Line Tap	200	Solar	Under Construction
J1262	ERIS	ITCT	Wayne County, MI	Waterman 120 kV Substation	25	Gas	DPP 2019 East (ITC)
J1292	ERIS	METC	Ionia County, MI	Thompson Road 138 kV Substation	198	Wind	DPP 2019 East (ITC)
J1297	NRIS	METC	Shiawassee County, MI	Cornell - Bell Road 138 kV Line	170	Solar	Under Construction
J1310	NRIS	METC	Jackson County, MI	Blackstone - Marshall 138 kV Line	125	Solar	Under Construction
J1319	NRIS	ITCT	Huron County, MI	Rapson 120 kV Substation	112	Wind	Under Construction
J1320	NRIS	METC	Branch County, MI	Coldwater - Batavia 138 kV Line	150	Solar	Under Construction
J1329	NRIS	ITCT	Washtenaw County, MI	Majestic - Milan 345 kV Line Tap	20	Battery Storage	DPP 2019 East (ITC)
J1331	NRIS	ITCT	St. Clair County, MI	Greenwood 120 kV Substation	100	Solar	Under Construction
J1350	NRIS	METC	Monroe County, MI	Milan - Monroe - Morocco 345 kV Point	150	Solar	Under Construction
J1375	NRIS	METC	Muskegon County, MI	Du Pont - Cobb - White Lake 138 kV	100	Solar	Under Construction
J1379	NRIS	METC	Montcalm County, MI	Eureka - Vestaburg 138 kV Line Tap	200	Solar	Under Construction
J1389	NRIS	METC	Saginaw County, MI	Murphy Station - Nelson Road 345 kV Line tap	120	Solar	DPP 2019 East (ITC)

Table A10-3: Similar Queued Projects

Project #	Fuel	Transmission Owner	State	POI Name	MW	Service Type
J1516	Solar	ITCT	MI	Fitz 120 kV	100	NRIS
J1525	Solar	ITCT	MI	Grassmere 345 kV	200	NRIS
J1526	Solar	ITCT	MI	Greenwood 345 kV	200	NRIS
J1527	Solar	METC	MI	Kenowa 345 kV	200	NRIS
J1550	Solar	METC	MI	Batavia - Tap Kinderhook distribution station, 138 kV Transmission Line	200	NRIS
J1553	Solar	METC	MI	Bingham West 138 kV	150	NRIS
J1557	Wind	ITCT	MI	Greenwood to Banner 345 kV Line	293	NRIS
J1571	Solar	METC	MI	Morocco to Beecher 138 kV (Ckt 1)	175	NRIS
J1586	Hybrid	METC	MI	Argenta to Tompkins 345 kV line	499	NRIS
J1603	Solar	METC	MI	Vantyle 138 kV	200	NRIS
J1614	Solar	METC	MI	White Road - Four Mile 138 kV line	250	NRIS
J1635	Battery Storage	METC	MI	138 kV Michigan Ave to Newton	100	NRIS
J1658	Solar	METC	MI	Coldwater to Moore Road 138 kV Line	150	NRIS
J1659	Battery Storage	ITCT	MI	120 kV Dorset	100	NRIS
J1663	Solar	METC	MI	Argenta to Tallmadge 345 kV	200	NRIS
J1664	Solar	ITCT	MI	Wabash - Carrigan 120 kV	100	NRIS
J1798	Gas	ITCT	MI	Waterman 120 kV	25	ERIS

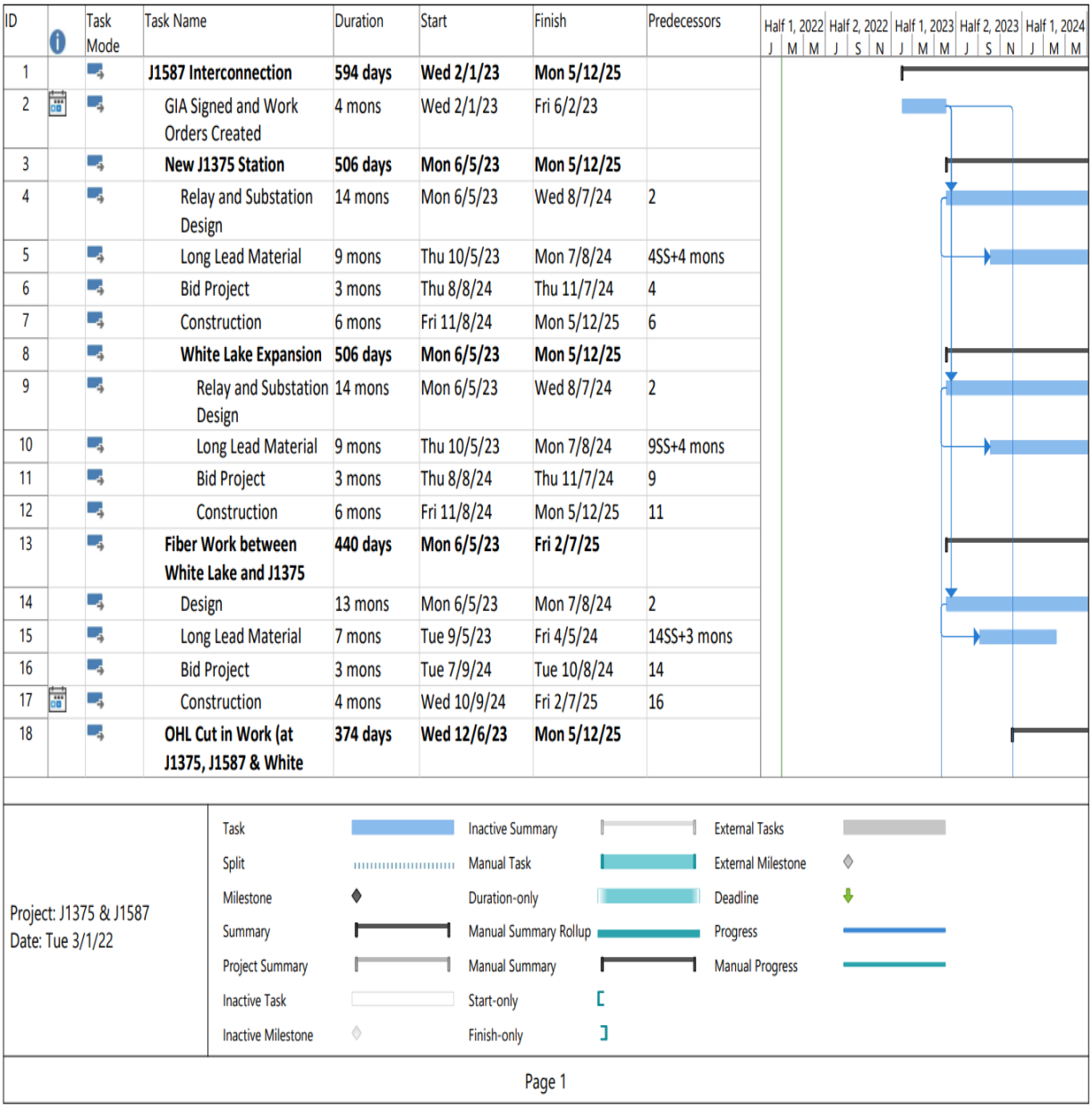
Exhibit A11. Interconnection Customer Milestones

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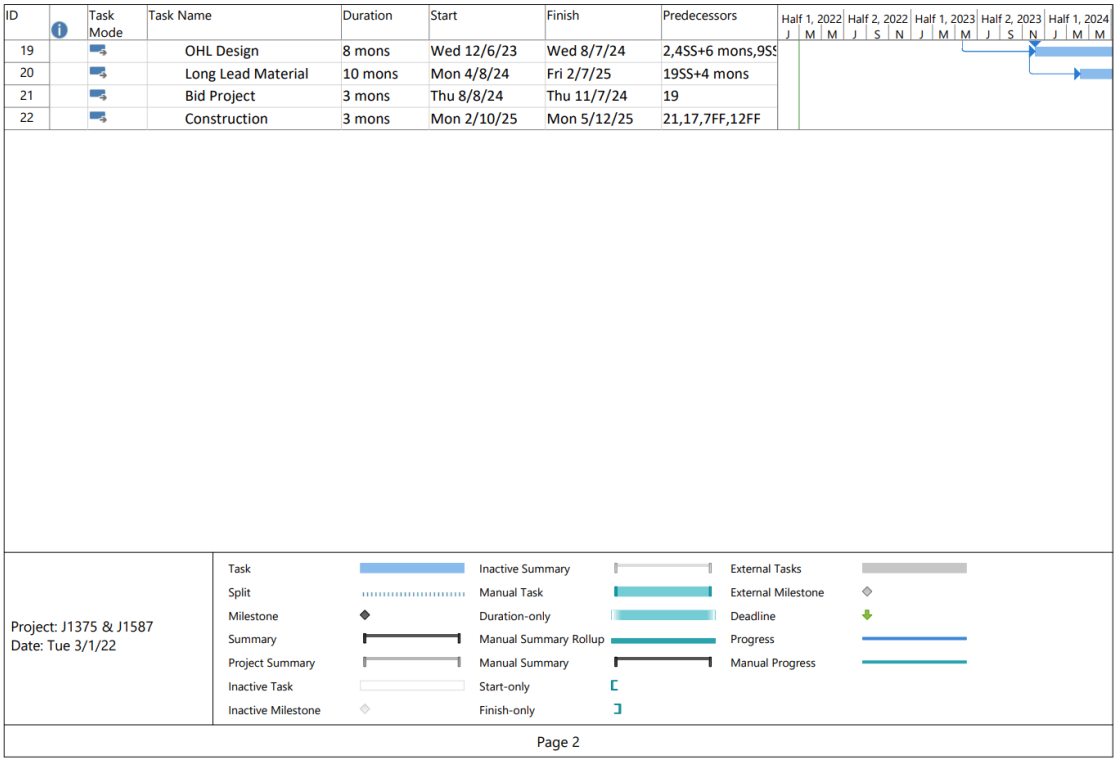
Exhibit A12. Construction and Coordination Schedules

Transmission Owner estimates that approximately 28 months will be required for construction of TOIF and Network Upgrades for project J1587. The In Service Date is indicated in the Appendix B Milestones of this GIA. The indicative construction schedule below is for general reference only. The specific construction schedules will be subject to resources' availability and the availability of outages to perform the work.

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**J1587 Interconnection**	**594 days**	**Wed 2/1/23**	**Mon 5/12/25**	
2		GIA Signed and Work Orders Created	4 mons	Wed 2/1/23	Fri 6/2/23	
3		**New J1375 Station**	**506 days**	**Mon 6/5/23**	**Mon 5/12/25**	
4		Relay and Substation Design	14 mons	Mon 6/5/23	Wed 8/7/24	2
5		Long Lead Material	9 mons	Thu 10/5/23	Mon 7/8/24	4SS+4 mons
6		Bid Project	3 mons	Thu 8/8/24	Thu 11/7/24	4
7		Construction	6 mons	Fri 11/8/24	Mon 5/12/25	6
8		**White Lake Expansion**	**506 days**	**Mon 6/5/23**	**Mon 5/12/25**	
9		Relay and Substation Design	14 mons	Mon 6/5/23	Wed 8/7/24	2
10		Long Lead Material	9 mons	Thu 10/5/23	Mon 7/8/24	9SS+4 mons
11		Bid Project	3 mons	Thu 8/8/24	Thu 11/7/24	9
12		Construction	6 mons	Fri 11/8/24	Mon 5/12/25	11
13		**Fiber Work between White Lake and J1375**	**440 days**	**Mon 6/5/23**	**Fri 2/7/25**	
14		Design	13 mons	Mon 6/5/23	Mon 7/8/24	2
15		Long Lead Material	7 mons	Tue 9/5/23	Fri 4/5/24	14SS+3 mons
16		Bid Project	3 mons	Tue 7/9/24	Tue 10/8/24	14
17		Construction	4 mons	Wed 10/9/24	Fri 2/7/25	16
18		**OHL Cut in Work (at J1375, J1587 & White**	**374 days**	**Wed 12/6/23**	**Mon 5/12/25**	



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ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
19		OHL Design	8 mons	Wed 12/6/23	Wed 8/7/24	2,4SS+6 mons,9SS
20		Long Lead Material	10 mons	Mon 4/8/24	Fri 2/7/25	19SS+4 mons
21		Bid Project	3 mons	Thu 8/8/24	Thu 11/7/24	19
22		Construction	3 mons	Mon 2/10/25	Mon 5/12/25	21,17,7FF,12FF

1. Line outage dates, indicated in the schedule, are placeholders only. The system outage schedule will not be accurately known until a later date. If outages cannot be achieved by the indicated date or sooner, the schedule will be delayed accordingly.
2. The Transmission Owner proposed schedule dates may not match or align with the Customer requested in-service date.

Exhibit A13. Permits, Licenses, Regulatory Approvals and Authorization

The Transmission Owner will be responsible for obtaining all required permits and community approvals for station projects on its fee owned property. Planning approvals and permitting typically take between four and ten months. The process could take longer if unforeseen obstacles are encountered. Since field surveys and design have not begun, it is unclear what permits will be required for the project.

Permits and approvals required for the project may include, but are not limited to the following:

- Building Permit
- Driveway Permit
- EGLE Wetland Permit
- EGLE NPDES Permit
- EGLE Floodplain Permit
- MDOT Permit
- County Road Permit
- Vegetation Removal Permit (local and/or state)
- Soil Erosion and Sedimentation Control Permit
- Drain Permit
- Township Planning Commission Approval
- SHPO Approval
- US Fish and Wildlife Threatened & Endangered Specials
- MDNR Threatened & Endangered Species

Notes:

1. These permits are applicable to construction of switch stations, substations and transmission lines only. Interconnection Customer shall provide all required permits for the Interconnection Customer Interconnection Facilities and the Generating Facility.
2. These permits are not all inclusive.
3. Unless otherwise agreed upon by the Parties, Transmission Owner will acquire necessary approvals and permits for construction of Transmission Owner's facilities.

Exhibit A14. Interconnection and Operating Guidelines

A14-1 Interruption of Service

If required by Good Utility Practice to do so, Transmission Owner or Transmission Operator may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Owner's or Transmission Operator's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Appendix:

1. The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

2. Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

3. When the interruption or reduction must be made under circumstances which do not allow for advance notice, the Transmission Owner or Transmission Operator shall notify the Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

4. Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, the Transmission Owner or Transmission Operator shall notify the Interconnection Customer in advance regarding the timing of such scheduling and further notify the Interconnection Customer of the expected duration. The Transmission Owner or Transmission Operator shall coordinate with the Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to the Interconnection Customer, Transmission Owner, Transmission Operator and the Transmission Provider;

5. The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

A14-2 Voltage Guidelines

Reactive power, voltage regulation and operating requirements will be per Transmission Operator (TOP) and Transmission Provider directives. Interconnection Customer will operate the Generating Facility to a voltage schedule target of 141 kV (1.0217 pu) within a bandwidth of +/- 3 kV (0.0217 pu) at the Point of Interconnection (POI). The Interconnection Customer will

regulate the Generating Facility's voltage to the specified voltage set-point within the defined bandwidth stated above using an automatic voltage controller.
The above voltage schedule is subject to change. If the need for a change is identified, it will be done within the limits of the GIA provisions stated in Section 9.6 and the Generating Facility's power factor design criteria. If a schedule change is needed, appropriate written documentation of the change will be provided to the Interconnection Customer.

Generating Facilities will be designed to not cause voltage criteria violations at both zero and full generator output. In addition, generation, both synchronous and non-synchronous, should be designed to eliminate reactive power injection into or withdrawal from the system when the Generating Facility is not producing real power. This includes reactive power injection caused by generator facilities such as windfarm collector systems.

The Generating Facility shall not cause voltage flicker in accordance with Section 9.7.6. In addition to the standards outlined in Section 9.7., the perception of light flicker in the short-term index (Pst) shall not exceed 1, per IEEE Standard 1453 measurements.

The Interconnection Customer is required to have a generator operator available for 24/7 communication with the TOP. The TOP may, at any time request a variance from the schedule in response to system operating/security requirements.

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Appendix B To GIA
Milestones

1. Selected Option pursuant to Article 5.1: Interconnection Customer selects the Standard Option as described in Article 5.1.1. Articles 5.1.2, 5.1.3 and 5.1.4 shall not apply to this GIA.

2. Milestones: The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP.

A. Interconnection Customer Milestones

No.	Description	Date
1a.	Provide initial payment to Transmission Owner (GIA 11.5).	Not Applicable.
1b.	Provide security, *i.e.*, a guarantee, surety bond, letter of credit or other reasonably acceptable form of security to Transmission Owner (GIA 11.6).	Not Applicable.
1c.	Enter into a Facilities Service Agreement ("FSA") with Transmission Owner for the Network Upgrades associated with this GIA.	Not Applicable.
1d.	Enter into amendment of this GIA, if required, for Interconnection Requests that did not elect optional negotiation period adjustment for Interconnection Facilities Study pursuant to GIA Section 11.3.1.	Within 90 Business Days of the posting of the final Interconnection Facilities report.
2.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; thereafter, within 90 Calendar Days of end of fiscal year or insurance renewal date.
3.	i) Provide to Transmission Provider evidence of continued Site Control after execution of this GIA (GIP 7.2.2). ii) Provide evidence of one or more of the following milestones being achieved: (1) execution of contract for (a) fuel supply or transport; (b) cooling water supply; (c) engineering procurement of major equipment or construction; (d) execution of a contract for the sale of electric energy or capacity from the Generating Facility, or a statement signed by an officer or authorized agent of Interconnection Customer attesting that the	As may be agreed to by the Parties. Within 180 Calendar Days of Effective Date.

	Generating Facility is included in an applicable state resource adequacy plan; or other information that Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource; or (2) documentation of application for state or local air, water, land, or federal nuclear or hydroelectric permits and that the application is proceeding per regulations (GIP 11.3).	
4.	Reserved.	
5.	Invoice Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
6.	Pre-construction meeting.	As may be agreed to by the Parties.
7.	Provide initial design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	180 Calendar Days prior to initial synchronization date.
8.	Provide final design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	90 Calendar Days prior to initial synchronization date.
9.	Deliver to Transmission Owner and Transmission Provider "as-built" drawings, information and documents regarding Interconnection Customer's Interconnection Facilities (GIA 5.10.3).	Within 120 Calendar Days of Commercial Operation Date.
10.	Provide Transmission Owner final cost invoices to construct Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
11.	Notify Transmission Provider and Transmission Owner in writing of Local Balancing Authority where Generating Facility is located (GIA 9.2).	Three months prior to Initial Synchronization Date.
12.	Pre-energization meeting.	As may be agreed to by the Parties.
13.	Initial Synchronization Date.	10/31/2026
14.	Commercial Operation Date.	12/31/2026*
15.	Interconnection Customer shall provide the Parties with notice on the status of the Generating Facility, including COD, under Article 15 of this GIA and shall also send such notice by email to	6 months prior to Initial Synchronization Date.

	ResourceIntegration@misoenergy.org. Notification shall include Interconnection Customer's name, and as applicable Market Participant(s) name(s), and project number.	
16.	Interconnection Customer shall provide notice to the Parties of a test plan in advance of conducting tests for the Generating Facility. The notice shall be in the form below and should be provided under Article 15 of this GIA, and a copy of such notice should be emailed to ResourceIntegration@misoenergy.org**.**	5 Business Days prior to testing.
17.	In the event the Interconnection Customer makes any modifications to the design of the site layouts or interconnection facility routes after execution of this GIA, Interconnection Customer shall notify the Parties of such changes immediately upon identifying the need for such changes. After providing such notification, the Interconnection Customer shall provide to Transmission Provider evidence of continued Site Control for land sufficient to accommodate the changes in site layouts and/or interconnection facility routes (GIP 7.2.2).	90 Calendar Days after Interconnection Customer provides notice to Parties.
18.	Interconnection Customer to provide a completed generator modeling form to Transmission Owner.	60 days prior to In-Service Date.
19.	Interconnection Customer to provide Transmission Owner and Transmission Provider with completed Appendix E Commercial Operation declaration.	As of Commercial Operation.

* Modified from the original Commercial Operation Date of December 31, 2023 contained in the Interconnection Request.

B. Transmission Owner Milestones

No.	**Description**	**Date**
0.	Transmission Owner to enter Network Upgrade information into Transmission Provider's MTEP database and model on demand.	As required by MTEP.
1.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; within 90 Calendar Days of end of fiscal year or insurance renewal date.
2.	Commence design of Interconnection Facilities (GIA 5.5 et seq.). Commence equipment procurement.	As agreed to by the Parties (after completion of Interconnection Facilities Study, receipt of written authorization from Interconnection

		Customer and Interconnection Customer's deposit of security.
3.	Commence construction of Interconnection Facilities (GIA 5.6 et seq.).	As agreed to by the Parties (after receiving approval of Governmental Authority, receipt of written authorization and security from Interconnection Customer).
4.	Comment on Interconnection Customer's final design and specifications.	Within 30 Calendar Days of Interconnection Customer's submission of final design and specifications.
5.	Upon request, deliver to Interconnection Customer and Transmission Provider "as-built" drawings, information and documents regarding Transmission Owner's Interconnection Facilities (GIA 5.11).	Within 120 Calendar Days of Commercial Operation Date.
6.	Provide payment for invoiced estimated costs to construct for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
7.	Provide Interconnection Customer final cost invoices (GIA 12.2 *et seq.*).	Within (6) six months of completion.
8.	Refund overpayment of estimated costs (GIA 12.2).	90 Calendar Days prior to initial synchronization date. Refunds within 30 Calendar Days.
9.	In-Service Date/Backfeed Date.	09/08/2025
10.	Transmission Owner will promptly provide Notice to Interconnection Customer and Transmission Provider if it reasonably expects it cannot meet specified dates for facilities described in Article 5.1.1 of this GIA. See Exhibit A12 for Transmission Owner's construction schedule.	As Provisioned in Article 5.1.1.
11.	Provide Generator Modeling Form to Interconnection Customer.	Prior to GIA execution complete.

C. Affected System Owner Milestones

Task	Date Due
Interconnection Customer is responsible to enter into applicable Agreements with Affected System Owner for the following upgrades: ▪ Consumers Energy. o Protection Upgrade at White Lake Substation.	Prior to Commercial Operation.

D. Transmission Provider Milestones

No.	Description	Date
1.	Transmission Provider to determine conditional limit for interconnection service.	Prior to Commercial Operation.

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Appendix B-1 To GIA
Pre-Certification Generation Test Notification Form

The following form would need to be submitted to MISO Real Time Operations at least five (5) Business Days prior to the first date of testing.

Project Number:

Project Name:

Point of Interconnection:

Dispatcher Contact Information:

Date	Start Time (in EST)	End Time (in EST)	Expected MW Output	Expected MVAR Output (Only needed if beyond normal power factor)

Appendix C To GIA
Interconnection Details

This Appendix C is a part of this GIA among Interconnection Customer, Transmission Owner and Transmission Provider:

1. GENERAL INTERCONNECTION AND OPERATING GUIDELINES

1.1 **Applicability**. Unless specifically stated otherwise, these guidelines are applicable for all generation types.

1.2 **Applicable Standards.** In addition to applicable design standards identified in the GIA, Interconnection Customer agrees to comply with the most recent Transmission Owner substation/transmission/protection design guides, standards, and specifications, where applicable, for the design of and procurement for this interconnection. The Transmission Owner design guides, standards, and specifications are available upon request.

In the event that Transmission Owner design guides, standards or specifications do not address a particular item or issue, Interconnection Customers shall use any other nationally or regionally recognized standard, guide or specification. In the event that there is a conflict between any other standard, guide or specification used by Interconnection Customers and Transmission Owner's design guides, standards and material/construction specifications, Transmission Owner's design guides, standards and specifications shall apply.

1.2 **Communication Requirements.** Interconnection Customer shall provide analog and digital signals including hardened voice communications, as requested by the Transmission Owner and/or the Transmission Provider for RTU/frame relay/or public switched telephone systems, as further defined during detailed engineering and design of the Interconnection Facilities. Interconnection Customer agrees to transmit these signals to Transmission Owner's control building or to such other location as specified by the Transmission Owner during the detailed design of the Interconnection Facilities and Network Upgrades. Transmission Owner shall provide Interconnection Customer with the necessary substation information at the Transmission Owner's signals demarcation point. Interconnection Customer will pay all costs associated with receiving such information from Transmission Owner. The specific location of the demarcation point will be established during the detailed design of the Interconnection Facilities.

1.3 **Metering Requirement.** Interconnection Customer shall be responsible for all interconnection metering.

1.4 **Grounding Requirements.** Interconnection Customer shall design, install, and maintain grounding facilities to ground the Interconnection Customer's Interconnection Facilities, in accordance Applicable Reliability Standards and Good Utility Practice. Interconnection Customer shall be responsible for detailed modeling and evaluation of the interconnected grounding system at the location of the Transmission Owner's

Interconnection Facilities and Interconnection Customer's Interconnection Facilities. If Transmission Owner so chooses, Transmission Owner shall have the right to approve the grounding system design to ensure that the grounding system properly protects the Transmission Owner's Interconnection Facilities.

1.5 Transmission Line and Substation Connection Configurations. The Parties agree that the connections between Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be as configured in Exhibit A2-2. Exact transmission line locations will be developed by Transmission Owner during the detailed design and regulatory process. Interconnection Customer shall provide the space necessary for the Transmission Owner's placement of the transmission line facilities.

1.6 Unit Stability Requirements. Interconnection Customer agrees to operate its Generating Facility in accordance with the stability requirements identified in the Interconnection Evaluation Study and Interconnection Facilities Study reports, or their equivalent, prepared for this interconnection and which have been posted on the Transmission Provider OASIS. Interconnection Customer agrees to operate its Generating Facility within the operating requirements of the Transmission System, and the rules of the NERC, Reliability Coordinator and Transmission Provider.

1.7 Equipment Ratings. Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of the facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study in order that the Interconnection Customer's Interconnection Facilities appropriately coordinate with the Transmission Owner's Interconnection Facilities.

1.8 Short Circuit Requirements. Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of such items. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study.

1.9 Synchronizing Requirements. In addition to requirements defined in Section 2 of this Appendix C, Transmission Owner will furnish Transmission System bus potentials that may be used by Interconnection Customer for synchronizing the combined Generating Facility to Transmission Owner's Transmission System. This potential will be provided to the Interconnection Customer at the Transmission Owner's signal demarcation point, as necessary.

1.10 Generation Control Requirements. In addition to the requirements set forth elsewhere in this Appendix C, the Generating Facility shall be designed and installed

with voltage and var controls. These controls shall comply with any Applicable Reliability Standards, industry standards or Good Utility Practice. The Interconnection Customer, prior to completion of the Generating Facility, shall contact Transmission Owner for the information required to properly design the phase of the Generating Facility. Interconnection Customer further agrees to comply with any control requirements as specified in the Interconnection Facilities Study and as directed by the Transmission Operator, and shall design and construct each generating unit of its Generating Facility, if more than one unit, to include the capability to install power system stabilizers if later required.

Interconnection Customer will provide Transmission Owner with Generating Facility and Interconnection Customer Interconnection Facilities operating control setpoints, prior to Commercial Operation of the Generating Facility. Generating Facility and Interconnection Customer Interconnection Facilities and those facilities' operating control setpoints shall accurately reflect the modeling data provided by the Interconnection Customer for use in the Interconnection Studies. If operating control setpoints for Interconnection Customer's facilities deviate from the control setpoints evaluated in the Interconnection Studies, Transmission Owner may request Interconnection Customer change operating control setpoints, and Interconnection Customer shall revise setpoints as requested. Additionally, after commissioning of the Interconnection Customer's facilities, Interconnection Customer shall notify Transmission Owner prior to revising its operating control setpoints. Changes to Interconnection Customer control setpoints will be subject to Transmission Planner or Planning Coordinator review and approval. Operation of the Generating Facility with operating control setpoints other than those evaluated in the Interconnection Studies or construction of the Generating Facility inconsistent with the modeling of the Generating Facility in the Interconnection Studies may have a material adverse impact on the Transmission System and may be considered a Material Modification.

1.11 Power Factor Design Criteria. Interconnection Customer's Generating Facility is designed to be capable of operating within a power factor between 0.95 leading to 0.95 lagging at the high-side of the Interconnection Customer's substation's step-up transformer. Interconnection Customer agrees to operate its Generating Facility, as directed, to produce or absorb reactive power at the Point(s) of Interconnection within the design limitations of the Generating Facility.

1.12 Inverter Based Resource ("IBR") Requirements.

1.12.1 Current Priority Operating Mode. Unless otherwise agreed upon and noted, under normal operation, IBR generating facilities shall operate in an "Active Current Priority" or an equivalent mode. During fault ride-through, IBR generating facilities shall switch to operate in a "Reactive Current Priority" or an equivalent mode. Post fault, the IBR generating facilities shall return to operating in an "Active Current Priority" or an equivalent mode.

1.12.2 Analog Measurement Window. The following is applicable to all

frequency and voltage elements in section 1.12 of Appendix C of this GIA. Frequency tripping calculations shall be over a six-cycle window or greater. Voltage and current tripping calculations shall utilize RMS measured values over a one-cycle or greater window.

1.12.3 Current Blocking. Current Blocking has also been referred to as momentary cessation throughout the utility industry. The Interconnection Customer's facilities shall continue current injection inside the "No Trip" zone of the frequency and voltage ride through curves of PRC-024. They also shall continue to inject current inside the "May Trip: zone of the frequency and voltage ride through curves of PRC-024 up to the capabilities of the Generating Facility. Current Blocking shall only be permitted if identified as necessary through Interconnection Studies.

1.12.4 Fault Ride-Through and Protection

1.12.4.1 AC Voltage Protection - Continuous. IBR plant and feeder protection shall ride through continuous voltage disturbances at the Point of Measurement ("POM") as applicable per Table 11 and Table 12 of IEEE 2800-2022.

1.12.4.2 AC Voltage Protection - Transient. The IBR plant and feeder protection shall ride through transient overvoltage disturbances and/or switching transients at the POM per Table 14 of IEEE 2800-2022.

1.12.4.3 Frequency Protection. The IBR plant frequency protection shall ride through frequency excursions as specified in Figure 12 and Table 15 of IEEE 2800-2022.

1.12.4.4 AC Overcurrent Protection. If utilized this element shall not limit the Generating Facility ride-through capabilities and as applicable shall be coordinated with the Transmission Owners protection schemes.

1.12.4.5 Rate-of-change-of-frequency. See Appendix G, Section A.v. of this GIA.

1.12.4.6 Phase lock loop (PLL). The IBR plant shall ride through phase angle differences per IEEE 2800-2022 section 7.3.24. For additional requirements see Appendix G Section A.i.4 of this GIA.

1.12.5 Active Power-Frequency Control

1.12.5.1 Droop. The control system shall have an adjustable proportional droop with a default value of 5 percent. The droop response shall include capabilities to respond to both

underfrequency and over-frequency directions. Droop should be based on the difference between maximum nameplate and zero output (Article 9.6.4).

1.12.5.2 Ramp Rates. The closed-loop dynamic response of the active power-frequency control system of the overall Generating Facility shall meet or exceed the performance criteria specified in Table C-1 as measured from the (POM).

Parameter	Description	Performance Target
For a step change in frequency at the POM of the inverter-based resource...		
Reaction Time	Time between the step change in frequency and the time when the resource active power output begins responding to the change[102]	< 500 ms
Rise Time	Time in which the resource has reached 90% of the new steady-state (target) active power output command	< 4 sec
Settling Time	Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power output command	< 10 seconds
Overshoot	Percentage of rated active power output that the resource can exceed while reaching the settling band	< 5%**
Settling Band	Percentage of rated active power output that the resource should settle to within the settling time	< 2.5%**

** Percentage based on final (expected) settling value

Figure C-1[1]

1.12.6 Reactive Power-Voltage Control

1.12.6.1 Plant Large Disturbance Voltage Performance.

1.12.6.1.1 The reactive current-voltage control should be stable for all expected and studied conditions performed throughout the interconnection process.

1.12.6.1.2 The reactive current-voltage control of the overall Generating Facility shall meet or exceed the performance criteria (up to the generator capability) in Table C-2. The controls should be tuned by default to meet these criteria unless identified in the Interconnection Studies.

[1] 2019 NERC Reliability Guideline – "Improvements to Interconnection Requirements for BPS-Connected Inverter-Based Resources: Table 2.21: Dynamic Active Power-Frequency Control

Parameter	Description	Type 3	Type 4
For a large disturbance step change in voltage, measured at the inverter terminals, where voltage falls outside the continuous operating range, the positive sequence component of the inverter reactive current response should meet the following performance specifications			
Reaction Time	Time between the step change in voltage and when the resource reactive power output begins responding to the change	< 1 cycle	< 1 cycle
Step Response Time	The time between the step change in control input voltage and when the reactive power output changes by 90% of its final value	NA	≤ 2.5 cycles
Settling Time	The time between the step change in control input voltage and when the reactive power output settles within the setting band	≤ 6 cycles	≤ 4 cycles
Settling Band	The max to min region where the reactive power output settles after a step change in control input voltage.	-2.5%/+10% of IBR unit maximum current	-2.5%/+10% of IBR unit maximum current

Figure C-2[2,3]

1.12.7 Current Injection During Ride-Through.

1.12.7.1 For balanced faults, the IBR shall inject reactive current dependent on the terminal voltage. The difference between reactive current injection during a fault and pre-fault reactive current output shall be incremental and shall not be negative. (i.e. reactive current during a fault shall be higher than pre-fault)

1.12.7.2 For unbalanced faults, the IBR shall inject both positive sequence reactive current as well as negative sequence current. The negative sequence current shall meet the below criteria:

1.12.7.2.1 Type 4 – Negative sequence terminal voltage between 90 – 100 degrees

1.12.7.2.2 Type 3 – Negative sequence terminal voltages between 90 – 150 degrees

1.12.7.3 The Interconnection Customer shall make necessary modifications to the control systems of the Generation Facility as applicable and as requested by the Transmission Owner any time and up to the capability of the equipment to inject current at the proper magnitude and/or angle for the system.

1.13 Modeling Information. The Interconnection Customer shall provide the Transmission Owner all necessary short circuit, power flow, stability dynamic, harmonic modeling information, facility ratings, and momentary current blocking utilization for the Generating Facility and Interconnection Customer Interconnection Facilities. This modeling information shall be provided prior to energization and

[2] 2019 NERC Reliability Guideline – "Improvements to Interconnection Requirements for BPS-Connected Inverter-Based Resources: Table 3.2: Large Disturbance Reactive Current-Voltage Performance

[3] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

subsequently prior to changes being made, in such time as to allow the Transmission Owner to evaluate.

1.14 Energization, Inspection and Testing Requirements. Before Notice of Commercial Operation is given per Appendix E, Interconnection Customer shall demonstrate to the Transmission Provider and Transmission Owner, if requested by Transmission Owner, through witnessed tests and/or certified test documentation, that the combined Generating Facility will not have adverse impact on the operation of the Transmission System. Such tests and inspections shall include pre-energization testing of equipment connected to the transmission bus, protection and control systems and pre-commercial testing of the governor, excitation and/or power system stabilizer controls. Specific test requirements and documentation need to be arranged with Transmission Owner prior to tests being performed. Protection and control systems include, but are not limited to, AC auxiliary, DC systems, relaying systems, potential and current circuits, and communication systems.

1.15 If applicable, the unique requirements, if any, of the Transmission Owner to which the Generating Facility will be physically interconnected. None identified.

1.16 Other. Interconnection Customer shall provide all necessary easements over all property owned, leased or otherwise controlled by Interconnection Customer, including easements for ingress/egress by Transmission Owner for access to all Transmission Owner's Interconnection Facilities and Network Upgrades that are on the property of Interconnection Customer. Specific real estate requirements will be determined during the final design. Interconnection Customer agrees to grant Transmission Owner reasonable easements in a form that is acceptable to Transmission Owner. It is expressly understood and agreed that Transmission Owner may, during the term of the GIA, make changes to its Transmission System. Interconnection Customer agrees to make any modifications, additions or changes to the Interconnection Customer's Interconnection Facilities that are reasonably necessary or required as a result of such change, modification or addition to Transmission Owner's Transmission System and at Interconnection Customer's sole cost and expense.

2. SPECIFIC SYSTEM PROTECTION REQUIREMENTS

General. The Transmission Owner will construct a protective relaying scheme to protect the Transmission System from faults occurring on the Interconnection Customer's Interconnection Facilities or the Generating Facility and from faults occurring on the Transmission Owner's Interconnection Facilities and Transmission System. Reclosing of generation to the ITC transmission system is typically not allowed. At the Interconnection Customer's request, reclosing may be considered by Transmission Owner provided the operations of the system, the protection of the system, and all other system constraints can be adjusted to accommodate the reclosing request. This will be done solely at the Interconnection Customer's liability.

Interconnection Customer will be responsible for providing protection for the Generating Facility and all associated equipment from faults occurring on its facilities and from faults or other electrical disturbances occurring on the Transmission Owner's Transmission System or any interconnected system. The Interconnection Customer will be responsible for removing any fault contribution of the Generating Facility to any short circuit occurring on the Transmission Owner's Transmission System or any interconnected system not otherwise isolated by the Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission Owner, as applicable. For example, when the only source behind a transmission line fault is the generator, the local transmission line relaying may not trip and will require the Generating Facility to clear the disturbance. The Generating Facility protection needs to be coordinated with the Transmission Owner prior to implementation and as applicable shall meet the frequency, rate of change of frequency, voltage, overcurrent, and unintentional ride through requirements of section 1.13 of Appendix C of this GIA.

In accordance with Good Utility Practice, Interconnection Customer shall design protection schemes such that no single component failure will prevent the isolation of faults and failed equipment. Meeting this requirement generally means providing redundant or backup protective schemes, with separate sensing sources, separate trip paths, dual trip coils on breakers, breaker failure, separate control power supplies, etc., provided that Interconnection Customer will provide only one battery system.

2.1 Changes to Relay Firmware. Firmware changes on interconnecting line relays shall be coordinated with and receive approval by the Transmission Owner prior to being placed into service.

3. SPECIFIC TELEMETRY REQUIREMENTS.

General: Telemetry is required for the monitoring and status of Interconnection Customer's and Transmission Owner's equipment. Details of the specific telemetry requirements will be provided during the detailed design of the facilities. Interconnection Customer shall install and pay the installation cost and monthly communication costs of all required telemetry for the Generating Facility. In general, Transmission Owner requires continuous telemetry of the following:

3.1 Appropriate relaying status of all installed relay equipment.

3.2 Status of all circuit breaker(s) capable of disconnecting the Generating Facility from the Transmission Owner's Transmission System.

3.3 Instantaneous RMS MW, MVAR, phase voltages, plant bus frequency, and as applicable inverters that trip during an event at the Generating Facility.

3.4 As applicable, each IBR shall monitor and retain plant SCADA records and digital fault recorder recordings that will include but not limited to logging of all breaker statuses, relaying trips, and control operations throughout the plant per IEEE 2800-2022 Section 11. Refer to Figure 1 of IEEE 2800-2022 for what is included as

"Plant" for this section.

3.5 Instantaneous revenue quality MW and MVAR; and cumulative revenue quality MWhr and MVARhr at all (or possibly corrected to) Points of Interconnection with Transmission Owner and from the Generating Facility.

3.6 Status of auxiliary station service circuit breaker(s).

3.7 Instantaneous bus voltage(s).

3.8 Transfer trip communication and generation site transfer trip communication status.

3.9 Changes in energy production of the Generating Facility.

3.10 Status indication of automatic voltage regulator equipment.

3.11 Other telemetry as required and mutually agreed upon by the Interconnection Customer and Transmission Owner.

4. SPECIFIC OPERATIONAL REQUIREMENTS.

4.1 System Protection Facilities (Relays As They Relate To Operations). Interconnection Customer shall notify Transmission Owner in advance of planned protection system work and immediately following discovery of protection system failures, which may affect Transmission Owner's system. Interconnection Customer shall report all generator protective relay events to the Transmission Owner system control center, immediately following Interconnection Customer's discovery of the event.

4.2 Communication Requirements. Interconnection Customer will provide any communication protocols for proper function between Interconnection Customer's operating systems and Transmission Owner's operating systems. Interconnection Customer shall pay all fees for such communication facilities and associated monthly services, as necessary, for the Generating Facility.

4.3 Data Reporting Requirements. Interconnection Customer shall supply all information regarding events and status of equipment within the Facility upon request for any event that noticeably affects the operation of the Transmission System. Interconnection Customer shall provide outage schedules, daily/hourly load profiles, and other data upon request of Transmission Owner.

4.4 Emergency Operations, Including System Restoration and Black Start Arrangements. Interconnection Customer is not able to operate as a Black Start Unit as of the effective date of this GIA. However, in accordance with Good Utility Practice, Interconnection Customer agrees to participate when called upon by Transmission Provider or Transmission Owner, in Transmission Owner's Black Start Plan for the Generating Facility and Transmission Owner's Transmission System, as well as any verification testing.

4.5 Identified Must-Run Conditions. None noted for this Generating Facility.

4.6 Specific Transmission Requirements of Nuclear Units to Abide by All NRC Requirements and Regulations. Not applicable to this interconnection.

4.7 Stability Requirements, Including Output. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or Transmission Owner in the operation of the Generating Facility.

4.8 Limitations of Operations in Support of Emergency Response. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or the Transmission Owner in the operation of the Generating Facility.

5. Transmission Owner shall provide the "as-built" drawings, information and documents regarding the Transmission Owner's Interconnection Facilities pursuant to Article 5.11 of the GIA.

6. In accordance with Section 9.4 of the GIA, the operating limits established for the Generating Facility under this GIA shall be as provided by Transmission Provider each quarter, as described in Appendix A. Any operating guides necessary following Commercial Operation will be established in accordance with Section 9.3.

7. Use of RAS or Operating Guide. Implementation of an Operating Guide will constitute an interim solution that will permit Interconnection Customer to obtain conditional Interconnection Service until planned for Network Upgrades are constructed. Any Operating Guide will be subject to the approval of the Transmission Owner and Transmission Provider. Minimum requirements for an Operating Guide are as indicated below.

- Transmission Owner will control Transmission Owner's breaker(s) protecting the Interconnection Customer Interconnection Facilities located at the Generating Facility and shall be able to trip the Interconnection Customer's Generating Facility.
- Protection schemes must be tested and operative.
- Interconnection Customer will operate its Generating Facility as directed by the Transmission Provider and the Transmission Owner.
- A termination date consistent with completion of Network Upgrades will be mutually agreed to as part of all Operating Guides accepted by the Transmission Owner and the Transmission Provider.

Transmission Owner does not allow the addition of an RAS (Remedial Action Scheme) to the Transmission Owner's system. The Transmission Owner will also not allow the addition of an RAS on a system, including the Generating Facility, where the purpose of that RAS is to mitigate a constraint on the Transmission Owner's system.

Original Sheet No. 129

Appendix D To GIA
Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information ("CEII") as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Original Sheet No. 130

Appendix E To GIA
Commercial Operation Date

This Appendix E is a part of this GIA between Transmission Provider, Transmission Owner and Interconnection Customer.

[Date]

Midcontinent Independent System Operator, Inc.
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Re: _____ Generating Facility

Dear _____:

On **[Date] [Interconnection Customer]** has completed Trial Operation of Unit No. ___. This letter confirms that **[Interconnection Customer]** commenced commercial operation of Unit No. ___ at the Generating Facility, effective as of **[Date plus one Calendar Day]**.

Thank you.

[Signature]

[Interconnection Customer Representative]

cc: Transmission Owner

Original Sheet No. 131

Appendix F To GIA
Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company, LLC
Attn: General Counsel
27175 Energy Way
Novi, MI 48377
jdanna@itctransco.com

Interconnection Customer:

Lakeside Solar, LLC
Attn: Randy Porter, Vice President of Transmission
8400 Normandale Lake Blvd. Suite 1200
Bloomington, MN, 55437
randy@nationalgridrenewables.com
CC: rhalim@nationalgridrenewables.com

Billings and Payments:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company, LLC
P.O. Box 673963
Detroit, MI 48267-3963

Interconnection Customer:

Lakeside Solar, LLC
Attn: Chris Morgan
8400 Normandale Lake Boulevard Suite 1200
Bloomington, MN, 55437
accounting@nationalgridrenewables.com
CC: JRunholt@nationalgridrenewables.com
CC: vthies@nationalgridrenewables.com

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

MISO
Phone: (317)-249-5700
Email: misotap@misoenergy.org or
MISOTransmissionAccessPlanning@misoenergy.org

Transmission Owner:

Michigan Electric Transmission Company, LLC
Attn: Planning Department – Vice President
27175 Energy Way
Novi, MI 48377

Interconnection Customer:

Lakeside Solar, LLC
Attn: Devon Pehrson – Electrical Engineer III
8400 Normandale Lake Blvd. Suite 1200
Bloomington, MN, 55437
dpehrson@nationalgridrenewables.com
Attn: Jason Hastings – Interconnection Project Manager
jhastings@nationalgridrenewables.com

Original Sheet No. 133

Appendix G To GIA
Interconnection Requirements for a Non-synchronous Generating Facility

Appendix G sets forth requirements and provisions specific to a non-synchronous generating facility. All other requirements of this GIA continue to apply to non-synchronous generating facility interconnections.

A. Technical Standards Applicable to a Non-synchronous Generating Facility

i. Abnormal Voltage Ride-Through Capability

A non-synchronous generating facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below.

1. Non-synchronous generating facilities are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4-9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the non-synchronous generating facility substation location, as determined by and documented by the transmission provider. The maximum clearing time the non-synchronous generating facility shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the non-synchronous generating facility may disconnect from the transmission system. A non-synchronous generating facility shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the GSU.

2. This requirement does not apply to faults that would occur between the non-synchronous Generator terminals and the high side of the GSU.

3. Momentary cessation (ceasing to inject current into the transmission grid during a fault without mechanical isolation) is prohibited in North American Electric Reliability Corporation (NERC) reliability standard PRC-024 no trip zone.

4. Non-synchronous generating facility inverters may not trip or cease to inject current for momentary loss of synchronism. Any inverter may trip if the phase lock loop is unable to regain synchronism 150 milliseconds after loss of synchronism.

5. Non-synchronous generating facilities may be tripped after the fault period if this action is intended as part of a Special Protection System.

6. Non-synchronous generating facilities may meet the abnormal voltage ride-through requirements of this standard by the dynamic performance capability of the generators, by installing additional equipment (*e.g.* Static VAr Compensator) within the non-synchronous generating facility or by a combination of generator performance and additional equipment.

7. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G abnormal voltage ride-through Standard are exempt from meeting the Appendix G abnormal voltage ride-through Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G abnormal voltage ride-through Standard.

ii. Power Factor Design Criteria (Reactive Power)

The following reactive power requirements apply only to a newly interconnecting non-synchronous generating facility that has completed a System Impact Study as of the effective date of the Final Rule establishing the reactive power requirements for non-synchronous generators in section 9.6.1 of this GIA (Order No. 827). A non-synchronous generating facility to which this provision applies shall maintain a factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the high side of the generator substation. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by Transmission Provider, or a combination of the two. Interconnection Customer shall not disable power factor equipment while the non-synchronous generating facility is in operation. Non-synchronous generating facilities shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system.

iii. Supervisory Control and Data Acquisition (SCADA) Capability

The non-synchronous generating facility shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed non-synchronous generating facility, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

iv. Transient Data Recording Equipment for Facilities above 20 MW

Non-synchronous generating facilities with generating capacities of more than 20 MW must monitor and record data for all frequency ride-through events, transient low-voltage disturbances that initiated reactive current injection, reactive current injection or momentary cessation for transient high-voltage disturbances, and inverter trips. The data may be recorded and stored in a central plant control system. The following data must be recorded:

Plant Level

(1) Plant three-phase voltage, current and power factor
(2) Status of ancillary reactive devices
(3) Status of all plant circuit breakers
(4) Status of plant controller

(5) Plant control set points
(6) Status of main plant transformer no load taps
(7) Status of main plant transformer tap changer (if applicable)
(8) Protective relay trips (relay target data)

Inverter Level Data

(1) Frequency, current, and voltage during frequency ride-through events
(2) Voltage and current during momentary cessation for transient high-voltage events (when used)
(3) Voltage and current during reactive current injection for transient low or high-voltage events
(4) Inverter alarm and fault codes
(5) DC current
(6) DC voltage

The data must be time synchronized to a one millisecond level of resolution. All data except phase angle measuring unit data must be sampled at least every 10 milliseconds.

The non-synchronous generating facility shall store this data for a minimum of 60 calendar days. The non-synchronous generating facility, upon request from MISO or the transmission owner, shall make this data available within 10 calendar days of the request.

v. Protection Settings

A non-synchronous generating facility, while complying with the under-frequency and over-frequency ride through requirements, shall use accurately calculated and filtered frequency measurement over a time window to set frequency protection and should not use an instantaneously calculated value to set frequency protection.

A non-synchronous generating facility, while complying with the under-voltage and over-voltage ride through requirements should use filtered Root-Mean-Squared (RMS) voltage measurement to set voltage protection.

Inverter rate-of-change-of-frequency (ROCOF) protection shall be disabled unless an equipment limitation exists that requires the inverter to trip on high ROCOF.

Appendix H To GIA – Not Applicable
Interconnection Requirements for Provisional GIA

Provisional Agreement

This GIA is being provided in accordance with Section 11.5 of the Transmission Provider's GIP, which provides among other things, that an Interconnection Customer may request that Transmission Provider provide Interconnection Customer with a Provisional Generator Interconnection Agreement that limits the transfer of energy by Interconnection Customer commensurate with that allowed for Energy Resource Interconnection Service. Interconnection Customer requested Transmission Provider to provide a Provisional Generator Interconnection Agreement for limited operation at the discretion of Transmission Provider based upon the results of available studies (by Interconnection Customer and by Transmission Provider).

A Provisional Interconnection Study, the results of which are posted on the confidential portion of the Transmission Provider's internet website, was performed by Transmission Provider in order to confirm the facilities that are required for provisional Interconnection Service and to require them to be in place prior to commencement of service under the GIA.

Interconnection Customer represents that the Interconnection Customer facilities (including Network Upgrades, Interconnection Facilities, Distribution Upgrades, System Protection Upgrades and/or Generator Upgrades) that are necessary to commence provisional Interconnection Service and meet the requirements of NERC, or any applicable regional entity for the interconnection of a new generator are in place prior to the commencement of generation from the Generating Facility and will remain in place during the term of the service. The requisite Interconnection Studies were performed for the Generating Facility. Interconnection Customer shall meet any additional requirements (including reactive power requirements) pursuant to the results of applicable future Interconnection System Impact Studies. Until such time as the applicable Interconnection Studies and any identified facilities are completed, the output of the Generating Facility will operate within the output limit prescribed in a future, if applicable, operating guide.

The maximum permissible output of the Generating Facility under Appendix A will be updated by Transmission Provider on a quarterly basis, determined in accordance with Section 11.5 of the GIP, by finding the transfer limit of energy commensurate with the analysis for Energy Resource Interconnection Service ("ERIS"). This study shall be performed assuming the system topology represented by the base cases used to calculate Available Flowgate Capability, as described in Attachment C of the Tariff, with dispatch and optimization algorithms posted on the MISO internet site and operation above those limits will be deemed as unauthorized use of the Transmission System and subject to provisions in the Tariff surrounding that use.

Use of interim operating guide

Implementation of interim operating guide, if applicable, will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned Network Upgrades are constructed. Any interim operating

guide will be subject to the approval of Transmission Owner and Transmission Provider. Minimum requirements for an interim operating guide are as indicated below.

* Transmission Operator will have control of breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
* Protection schemes must be tested and operative
* Interconnection Customer will provide continuous communication capability with the Generator Operator
* Interconnection Customer and the owner of the Existing Generating Facility will enter into an operating agreement or similar agreement which designates, among other things, the responsibilities and authorities of each of the parties and shall be subject to the acceptance of Transmission Provider and Transmission Owner.
* A termination date consistent with completion of construction of Network Upgrades will be included as part of all operating guides accepted by Transmission Owner and Transmission Provider.

Interconnection Customer assumes all risks and liabilities with respect to changes, which may impact the Generator Interconnection Agreement including, but not limited to, change in output limits and responsibilities for future Network Upgrade and cost responsibilities that have not yet been identified on the direct connect Transmission System as well as all affected Transmission, Distribution or Generation System(s) including non-Transmission Provider Systems. Such upgrades will be determined pursuant to the Tariff and Policies in effect at the time of the Interconnection Studies.

Appendix I To GIA – Not Applicable
Requirements Applicable to Surplus Interconnection Service

Where this GIA provides for Surplus Interconnection Service, Interconnection Customer acknowledges, agrees to, and will be required to operate under the following conditions:

1) The combined Real-Time Offers, including Energy and Operating Reserves, of the Generating Facility and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement must be less than or equal to Interconnection Service limit (MW, MVAR, MVA output) provided in Exhibit I-1 (Monitoring and Consent Agreement) (hereinafter, "Interconnection Service limit"). In the event that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility exceeds such Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

   In the event that the sum of the emergency and/or economic maximum offer limits of the Generating Facility and the Existing Generating Facility exceeds the Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

2) The total MW, MVAR, MVA output at the Point of Interconnection resulting from the combined output of the Generating Facility with Surplus Interconnection Service and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement shall not at any time exceed the Interconnection Service limit.

3) The Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement is not relieved of any applicable requirements under the RAR of the Tariff.

4) The Interconnection Customer shall submit to the Transmission Provider a report by the seventh Calendar Day of each month showing the prior month's output, by 15 minute increment, the combined real-time offers and cleared energy injection. The Existing Generating Facility and the Interconnection Customer shall cooperate consistent with other provisions in the Tariff to the extent necessary to ensure accuracy of the report. Transmission Provider shall provide a template for this report.

Exhibit I-1 (Completed Monitoring and Consent Agreement - Appendix 11 of the GIP)

Exhibit I-2 (Completed Energy Displacement Agreement - Appendix 12 of the GIP)

Original Sheet No. 1

GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT ("GIA") is made and entered into this 10th day of June, 2026, by and between **Lakeside Solar, LLC**, a limited liability company, organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), and **Michigan Electric Transmission Company, LLC**, a limited liability company organized and existing under the laws of the State of Michigan ("Transmission Owner"), and the **Midcontinent Independent System Operator, Inc**., a non-profit, non-stock corporation organized and existing under the laws of the State of Delaware ("Transmission Provider"). Interconnection Customer, Transmission Owner and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Transmission Provider has functional control of the operations of the Transmission System, as defined herein and according to NERC's Rules of Procedure, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, Transmission Owner owns or operates the Transmission System, whose operations are subject to the functional control of Transmission Provider, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer, Transmission Owner and Transmission Provider have agreed to enter into this GIA, and where applicable subject to Appendix H for a Provisional Generator Interconnection Agreement, for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

10 kW Inverter Process shall mean the procedure for evaluating an Interconnection Request for a certified inverter-based Small Generating Facility no larger than 10 kW that uses the screen set forth in Section 14.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System(s) shall mean an electric transmission system or the electric system associated with an Existing Generating Facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Provider's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Interconnection Customer shall mean any entity that submits an interconnection request for a Generating Facility to a transmission system other than Transmission Provider's Transmission System that may cause the need for Affected System Network Upgrades on the Transmission Provider's Transmission System.

Affected System Network Upgrades shall mean the additions, modifications, and upgrades to Transmission Provider's Transmission System required to accommodate Affected System Interconnection Customer's proposed interconnection to a transmission system other than Transmission Provider's Transmission System.

Affected System Operator shall mean the entity that operates an Affected System.

Affected System Queue Position shall mean the queue position of an Affected System Interconnection Customer in Transmission Provider's interconnection queue relative to Transmission Provider's Interconnection Customers' Queue Position.

Affected System Study shall mean the evaluation of Affected System Interconnection Customers' proposed interconnection(s) to a transmission system other than the Transmission Provider's Transmission System that have an impact on Transmission Provider's Transmission System, as described in Section 8 of this GIP.

Affected System Study Agreement shall mean the agreement contained in Appendix 16 to the GIP that is made between Transmission Provider and host transmission provider, in absence of a JOA, JPA, or other agreement filed with the Commission, as noted in Section 8 of the GIP.

Affected System Study Report shall mean the report issued following completion of an Affected System Study.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the Parties, their respective facilities and/or the respective services they provide.

Applicable Reliability Standards shall mean the requirements and guidelines of the Electric Reliability Organization and the Balancing Authority Area of the Transmission System to which the Generating Facility is directly interconnected.

Balancing Authority shall mean an entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.

Balancing Authority Area shall mean the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Base Case Data shall mean base case power flow, short circuit and stability databases, including all underlying assumptions, and contingency lists. Such databases and lists, hereinafter referred to as Base Cases, shall include all (1) generation projects and (2) transmission projects, including merchant transmission projects that are proposed for the Transmission System for which a transmission expansion plan has been submitted and approved by the MISO Board.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday. In the event that a period specified in this GIA is calculated in Calendar Days ends on a non-business day, such period shall be deemed to conclude on the following business day.

Cluster shall mean a group of one or more Interconnection Requests that are studied together for the purpose of conducting a Group Study.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Commitment Projection shall mean a projection of the number of MW expected to commit to the JTIQ Portfolio from ERAS and all DPP study clusters that already have passed DP1 as described in Section 9.4.2.e.ii of Rate Schedule 6 (MISO SPP-JOA).

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System, not classified under Attachment FF as a Baseline Reliability Project, Market Efficiency Project, or Multi-Value Project, that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Connection Facilities shall mean the Transmission Owner's Connection Facilities and the MHVDC Connection Customer's Connection Facilities, as defined in the MHCP.

Contingent Facilities shall mean those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request's costs, timing and study findings are dependent, and if delayed or not built, could cause a need for restudies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing. Contingent Facilities may include facilities identified in MTEP that if delayed or not built could impact the timing of the Interconnection Request.

Customer Engagement Window shall mean the time period prior to the start of Definitive Planning Phase I set forth in Section 3.3.4 of the GIP.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Definitive Planning Phase shall mean the Generator Interconnection Procedures process which leads to a Generator Interconnection Agreement. An Interconnection Customer enters the Definitive Planning Phase pursuant to GIP Section 7.2. The Definitive Planning Phase includes three distinct phases (Definitive Planning Phases I, II, and III) pursuant to Section 7 of the Generator Interconnection Procedures.

Definitive Planning Phase Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, in the Definitive Planning Phase. The Definitive Planning Phase Queue Position is established based upon the date Interconnection Customer satisfies all of the requirements of GIP Section 7.2 to enter the Definitive Planning Phase. All Interconnection Requests within the same Definitive Planning Phase cycle shall have equal priority (i.e. similarly queued).

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Electric Reliability Organization shall mean the North American Electric Reliability Corporation or its successor organization.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one of the enumerated conditions or situations identified in this definition also exists.

Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an Existing Generating Facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Surplus Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation).

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Existing Generating Facility shall mean a Generating Facility that is either under construction or is in service, and has an unsuspended interconnection agreement with its host transmission provider.

Expanded Scope Analysis shall mean the analysis described in Section 9.4.2.d.iv.a of

Rate Schedule 6 (MISO-SPP JOA).

Expedited Resource Addition Study (ERAS) shall mean the temporary procedure for expediting interconnection projects identified for claimed resource adequacy and/or reliability needs.

Expedited Generator Interconnection Agreement (EGIA) shall mean the interconnection agreement for the Expedited Resource Addition Study established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 3.9 of this Attachment X. This agreement shall take the form of the Transmission Provider's *pro forma* Generator Interconnection Agreement modified for the Expedited Resource Addition Study. Unless otherwise provided in the GIP, all requirements applicable to the *pro forma* Generator Interconnection Agreement shall apply to the Expedited Generator Interconnection Agreement.

Facilities Construction Agreement (FCA) shall mean the form of facilities construction agreement, set forth in Appendix 8 to these Generator Interconnection Procedures. The FCA shall be used when an Interconnection Customer or an Affected System Interconnection Customer causes the need for the construction of Network Upgrades, Affected System Network Upgrades, or System Protection Facilities on the transmission system of the Transmission Provider.

Fast Track Process shall mean the procedure for evaluating an Interconnection Request for a certified Small Generating Facility no larger than five MW that includes the screen set forth in Section 14, customer options meeting, and optional supplemental review.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq*.

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Final System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase III.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. A Generating Facility consists of one or more generating unit(s) and/or storage device(s) which usually can operate independently and be brought online or taken offline individually.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes more than one device for the production and/or storage for later injection of electricity.

Generating Facility Modification shall mean modification to an Existing Generating Facility, including comparable replacement of only a portion of its equipment at the Existing Generating Facility.

Generating Facility Replacement shall mean replacement of one or more generating units and/or storage devices at the Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection as the generating units and/or storage devices that is/are being decommissioned and electrically disconnected.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in Attachment X of the Tariff.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an Existing Generating Facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection

Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Restudy shall mean a restudy of a Group Study conducted pursuant to Section 7.5 of the GIP

Group Study(ies) shall mean the evaluation of one or more Interconnection Requests within a Cluster as described in Section 7 of the GIP. Group Studies are divided into phases as described in section 7.3 of the GIP.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

HVDC Facilities shall mean the high voltage direct current transmission facilities, including associated alternating current facilities, if any, that are subject to Section 27A of the Tariff and that are specifically identified in (i) any Agency Agreement pertaining to such facilities between Transmission Provider and Transmission Owner that owns or operates such facilities, or (ii) in any other arrangement that permits or will permit Transmission Provider to provide HVDC Service over such facilities as set forth in Section 27A of the Tariff.

HVDC Service shall mean Firm and Non-Firm Point-To-Point Transmission Service provided by Transmission Provider on HVDC Facilities pursuant to Section 27A of the Tariff.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

Injection Rights shall mean the Transmission Provider's pre-certification of the Transmission System's capability to receive capacity and energy from the MHVDC Transmission Line at the requested Point of Connection, and in the specified MW quantity, without degrading the reliability of the Transmission System, as described in Section 16 of the GIP and Section 3.2.3 of the MHCP.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer Decision Point I shall mean the time period beginning when

the Interconnection Customer is provided the Preliminary System Impact Study results including cost estimates for upgrades and concludes after fifteen (15) Business Days.

Interconnection Customer Decision Point II shall mean the time period beginning when the Interconnection Customer is provided the Revised System Impact Study results including cost estimates for upgrades and concludes after fifteen (15) Business Days.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A of this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study(ies) shall mean a study conducted by Transmission Owner, or its agent, for Interconnection Customer(s) to determine a list of facilities (including Interconnection Customer's Interconnection Facilities or Affected System Interconnection Customer's interconnection facilities, Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and Affected System Network Upgrades, as identified in the Interconnection System Impact Study, Affected System Study, or Affected System Operator's applicable study), the cost of those facilities, and the time required to interconnect with the Transmission System or the Affected System Operator's transmission system.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean (1) an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or a request for the Expedited Resource Addition Study for new generation capacity, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an Existing Generating Facility that is interconnected with the Transmission System, or to interconnect an Existing Generating Facility that is external to the Transmission System, or to change Energy Resource Interconnection Service to Network Resource Interconnection Service for an Existing Generating Facility; or (2) an MHVDC Connection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to

obtain Injection Rights..

Interconnection Service shall mean the service provided by Transmission Provider associated with interconnecting the Generating Facility to the Transmission System, or external host transmission provider if applicable, and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection pursuant to the terms of this Generator Interconnection Agreement or Point of Delivery as set forth in the Service Agreement for Network Resource Interconnection Service for an External Generating Facility and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the forms of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection Procedures for conducting all studies required by the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Joint Operating Agreement ("JOA") shall mean an agreement between adjacent balancing authorities or transmission providers for the coordination of operations.

Joint Operating Agreement between the Midcontinent Independent System Operator, Inc. and Southwest Power Pool, Inc. (MISO-SPP JOA) shall mean Rate Schedule 6 to the MISO Tariff.

Joint Planning Agreement ("JPA") shall mean an agreement between adjacent balancing authorities or transmission providers for the coordination of planning.

Joint Targeted Interconnection Queue (JTIQ) shall refer to the study and processes described in Section 9.4.2 of Rate Schedule 6 (MISO-SPP JOA).

Joint Targeted Interconnection Queue Study ("JTIQ Study") shall mean a transmission planning study conducted jointly by SPP and MISO to facilitate the interconnection of new generator capacity in both Parties' regions.

JTIQ Commitment Group Member shall mean any JTIQ Commitment Group Member included in a Commitment Group consistent with Section 9.4 of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Commitment Group or Commitment Group shall mean a group of JTIQ Commitment Group Members that have executed a JTIQ Generator Interconnection Agreement within the twelve (12) month period ending April 30th of each year. The Commitment Group shall also include JTIQ Commitment Group Members for which a JTIQ Generator Interconnection Agreement has been filed unexecuted by SPP or the Transmission Provider and the Commission has accepted the agreement within the twelve (12) month period ending April 30th of each year.

JTIQ Generator Charge shall mean the charge to JTIQ Commitment Group Members to recover the JTIQ Commitment Group Member's share of the JTIQ Monthly Revenue Requirement for each of the JTIQ Upgrades in the JTIQ Portfolio in the Transmission Provider's Region.

JTIQ Participation Group shall mean the group of Interconnection Requests that shall consist of all interconnection customers included in the JTIQ Screening Groups whose interconnection request meets the distribution factor and impact criteria specified in Section 9.4.2(d)((ii) of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Portfolio shall mean a group of JTIQ Upgrades identified pursuant to Section 9.4 of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Screening Group shall mean a group of MISO Interconnection Customers and SPP interconnection customers whose Interconnection Requests will be screened for inclusion in a JTIQ Participation Group. The JTIQ Screening Group shall consist of all interconnection customers who have submitted interconnection requests into a MISO ERAS, SPP ERAS, DPP study cluster, or SPP DISIS study cluster that: (1) has a study commencement or kick off date that is after the date that the Parties' respective Boards of Directors have approved a JTIQ Portfolio; and (2) has not commenced DPP Phase I, a MISO ERAS, the SPP ERAS or DISIS Phase One studies pursuant to each party's OATT as of the date that the Parties have declared the JTIQ Portfolio fully subscribed.

JTIQ Service Agreements shall mean the JTIQ Commitment Agreement attached to the MISO GIA as Appendix 17 and the SPP's *pro forma* agreement(s) that obligate interconnection customers to provide security for and pay the JTIQ Generator Charge for JTIQ Network Upgrades included in the applicable JTIQ Portfolio.

JTIQ Upgrade shall mean a Network Upgrade included in a JTIQ portfolio pursuant to Section 9.4 of Rate Schedule 6 (MISO-SPP JOA)**.**

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of Electric Reliability

Organization Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Local Resource Zone (LRZ) shall mean a geographic area within the Transmission Provider Region that is prescribed by the Transmission Provider, based upon the criteria in Section 68A.3, to address congestion that limits Planning Resource deliverability.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean: (1) modification to an Interconnection Request in the queue, that has a material adverse impact on the cost or timing of any other Interconnection Request with an equal or later queue priority date; or Qualified Change.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility, Interconnection Customer's Interconnection Facilities, and/or Transmission Owner's Interconnection Facilities pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Surplus Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Surplus Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA.

Multi-Party Facilities Construction Agreement (MPFCA) shall mean the form of facilities construction agreement, set forth in Appendix 9 to these Generator Interconnection Procedures. The MPFCA shall be used when multiple Interconnection Requests or interconnection requests from Affected System Interconnection Customers cause the need for the construction of Common Use Upgrades on the Transmission System and share cost responsibility for such Common Use Upgrades.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to integrate its Generating Facility with the Transmission System in the same manner as for any Generating Facility being designated as a Network Resource. Network Resource Interconnection Service does not convey transmission service. Network Resource Interconnection Service shall include any network resource interconnection service established under an agreement with, or the tariff of, a Transmission Owner prior to integration into MISO, that is determined to be deliverable through the integration deliverability study process.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the interconnection of the Generating Facility(ies) to the Transmission System. Network Upgrades shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Outage Transfer Distribution Factor (OTDF) Outage Transfer Distribution Factor, as defined by the Electric Reliability Organization.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Permissible Technological Advancement shall mean advancements to turbines, inverters, plant supervisory controls, excitation systems, or other technological advancements submitted to the Transmission Provider prior to the issuance of this draft Generator Interconnection Agreement for such project provided that such advancements does not: (1) degrade the electrical characteristics of the generating equipment; (2) does not cause any material adverse impact on the Transmission System with regard to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response; (3) does not increase the installed capacity of the Generating Facility; or (4) change the fuel source of the proposed Generating Facility.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A of the GIA, where the Interconnection Facilities connect to the Transmission System.

Potential MW Total shall mean a projection of the number of MW that may commit to the JTIQ Portfolio from all ERAS and study clusters to date, including the current study cluster(s).

Preliminary System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase I.

Pre-Queue Phase shall mean Interconnection Customer outreach and education effort undertaken prior to the submission of the Interconnection Request.

Proportional Impact Method shall mean a technical analysis conducted by Transmission Provider to determine the degree to which each Generating Facility in the Group Study contributes to the need for a specific Network Upgrade.

Provisional Generator Interconnection Agreement shall mean the interconnection agreement for Provisional Interconnection Service established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 7.9 of this Attachment X. This agreement shall take the form of the Generator Interconnection Agreement modified for provisional purposes. Unless otherwise provided in the GIP, all requirements applicable to the Generator Interconnection Agreement shall apply to the Provisional Generator Interconnection Agreement.

Provisional Interconnection Service shall mean Interconnection Service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling that Transmission System to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Provisional Generator Interconnection Agreement and the Tariff.

Provisional Interconnection Study shall mean an engineering study, performed at Interconnection Customer's request, as a condition to entering into a Provisional Generator Interconnection Agreement, that evaluates the impact of the proposed interconnection on the safety and reliability of the Transmission System and, if applicable, any Affected System. The study shall identify and detail the impacts on the Transmission System and, if applicable, an Affected System, from stability, short circuit, and voltage issues that would result if the Generating Facility were interconnected without project modifications or system modifications.

Qualified Change shall mean a planned modification to an Existing Generating Facility that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests pursuant to Section 4.1 of the GIP.

Reasonable Efforts shall mean, with respect to an action required to be attempted or taken by a Party under this Generator Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Relevant Electric Retail Regulatory Authority (RERRA) shall mean an entity that has jurisdiction over and establishes prices and/or policies for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any such entity.

Reliability Assessment Study shall mean an engineering study that evaluates the impact of a proposed Generating Facility Replacement on the reliability of Transmission System during the time period between the date that the Existing Generating Facility ceases commercial operations and the Commercial Operation Date of the Replacement Generating Facility.

Replacement Generating Facility shall mean a Generating Facility that replaces an Existing Generating Facility, or a portion thereof, at the same electrical Point of Interconnection pursuant to Section 3.7 of this Attachment X.

Replacement Impact Study shall mean an engineering study that evaluates the impact of a proposed Generating Facility Replacement on the reliability of the Transmission System.

Revised System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase II.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System and Transmission Provider conducted for the purpose of discussing the proposed Interconnection Request and any alternative interconnection options, exchanging information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, refining information and models provided by Interconnection Customer(s), discussing the Group Study materials posted to OASIS pursuant to Section 3.4 of the GIP, and analyzing such information.

Shared Interconnection Request shall mean (1) multiple Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect new Generating Facilities, or to increase the capacity of, or make a Material Modification to the operating characteristics of, Existing Generating Facilities that are interconnected with the Transmission System, or to interconnect Existing Generating Facilities that are external to the Transmission System, or to change Energy Resource Interconnection Service to Network Resource Interconnection Service for Existing Generating Facilities; or (2) multiple MHVDC Connection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to obtain Injection Rights.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s), including when the Transmission Owner elects to fund the capital cost of such a Network Upgrade or Common Use Upgrade under Section 11.3 of the GIA, and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable (*i.e.*, when the Interconnection Customer is providing the site for such facilities), the Transmission Owner's Interconnection Facilities and Network Upgrades at the POI that the Interconnection Customer will develop. Such documented right shall be one of the following: (1) ownership of a site; (2) a leasehold interest in a site; or (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site. Transmission Provider will maintain acreage requirements for each Generating Facility type on its OASIS or public website.

Small Generating Facility shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than five MW and meets the requirements of Section 14 and Appendix 3 of the GIP.

Southwest Power Pool (SPP) shall refer to the Southwest Power Pool, Inc. the Regional Transmission Organization that is the counterparty to Rate Schedule 6 (MISO-SPP JOA).

Special Protection System (SPS) shall mean an automatic protection system or remedial action scheme designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components, to maintain system reliability. Such action may include changes in demand (MW and MVar), energy (MWh and MVarh), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding, (b) fault conditions that must be isolated, (c) out-of-step relaying not designed as an integral part of an SPS, or (d) Transmission Control Devices.

Stand Alone Network Upgrades shall mean Network Upgrades, that are not part of an Affected System or a JTIQ Upgrade, that Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA. If the Transmission Provider or Transmission Owner and Interconnection Customer disagree about whether a particular Network Upgrade is a Stand Alone Network Upgrade, the Transmission Provider or Transmission Owner that disagrees with the Interconnection Customer must provide the Interconnection Customer a written technical explanation outlining why the Transmission Provider or Transmission Owner does not consider the Network Upgrade to be a Stand Alone Network Upgrade within fifteen (15) Business Days of its determination.

Substation Network Upgrades shall mean Network Upgrades that are required at or

near the Point of Interconnection and are identified in the first portion of the Interconnection Facilities Study as described in GIP Section 7.3.2.5.

Supplemental Affected System Analysis shall mean **t**he affected systems analysis described in Section 7.3.2.3.1 of this GIP and Section 9.4.2.e.iii.a.i of the Rate Schedule 6 (MISO-SPP JOA) to determine if Supplemental Affected System Upgrades are required for one or more JTIQ Participation Group member(s).

Supplemental Affected System Upgrade shall mean a Network Upgrade in addition to those required to address the impact of interconnection requests in the current study cluster as described in Section 9.4.2.e.iii.a.i of Rate Schedule 6 (MISO-SPP-JOA).

Surplus Interconnection Service shall mean any Interconnection Service that is derived from the unneeded portion of Interconnection Service established in a GIA or in agreement with, or under the tariff of, a Transmission Owner prior to integration into MISO, such that if Surplus Interconnection Service is utilized the total amount of Interconnection Service at the Point of Interconnection would remain the same.

System Planning and Analysis Phase shall mean the phase of the Generator Interconnection Procedure process, prior to January 4, 2017, which consisted of an Interconnection System Impact Study for those Interconnection Requests that were studied in this phase.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Target MW Value shall mean the projected new generation interconnection MW enabled by the JTIQ Portfolio. The Target MW Value for each JTIQ Portfolio shall be identified in Section 9.4 and related subsections of Rate Schedule 6.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

Threshold Charge shall mean the charge calculated using an estimate of plant in service value for the JTIQ Portfolio, excluding amounts funded under the GRIP Program, as described in Section 9.4.2 of Rate Schedule 6 (MISO-SPP JOA).

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and

reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Owner shall mean that Transmission Owner as defined in the Tariff, which includes an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include any Independent Transmission Company that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean the Midcontinent Independent System Operator, Inc. ("MISO"), the Regional Transmission Organization that controls or operates the transmission facilities of its transmission-owning members used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service (including HVDC Service) or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

User-Defined Model shall mean any set of programming code created by equipment manufacturers or developers that captures the latest features of controllers that are mainly software-based and represent the entities' control strategy but does not necessarily correspond to any particular generic library model, as contained in Attachment A to Appendix 1 of the GIP.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility

owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of thirty (30) years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice. This GIA shall be terminated by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, Transmission Provider shall only terminate that portion of the GIA. Notwithstanding the foregoing, in the limited circumstance that the Interconnection Request is served by a contingent Network Upgrade with an in-service date that is farther out than the Commercial Operation Date permitted under Section 4.4.4 of Attachment X, Transmission Provider shall only terminate this GIA for failure to achieve Commercial Operation by that later in-service date of the contingent Network Upgrade. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.1.1 Surplus Interconnection Service. Where this GIA provides for Surplus Interconnection Service and the Energy Displacement Agreement or the Monitoring and Consent Agreement required for Surplus Interconnection Service are no longer in effect, Interconnection Customer shall immediately cease Commercial Operation of the Generating Facility and this GIA shall be deemed terminated. In the event that the Existing Generating Facility retires and/or permanently ceases commercial

operation, the Surplus Interconnection Service provided under this GIA shall terminate except as provided in Section 3.3.1.3 of the GIP.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

For EGIAs, no termination shall become effective until Interconnection Customer has provided all security as required by Section 2.4.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Parties, as of the date of the other Parties' receipt of such notice of termination, under this GIA. In the event that this GIA is terminated by Interconnection Customer, Interconnection Customer is responsible for all financial impact that is caused as a result of this termination or the termination of Interconnection Customer's FCA(s) or MPFCA(s), such financial impact being determined through the financial impact analysis performed in accordance with Section 7.8 of Attachment X. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

In the event that this EGIA is terminated by Interconnection Customer that had an Interconnection Request studied in ERAS, Interconnection Customer is responsible for the full cost of all Network Upgrades identified in this EGIA as well as any Network Upgrades identified during the ERAS process that are to be memorialized in an agreement other that this EGIA, including any applicable FCA, MPFCA, or JTIQ Service Agreements. If the Network Upgrade costs for Network Upgrades subject to an FCA, MPFCA, or JTIQ Service Agreement have not been finalized or the Interconnection Customer has not made the payment under such agreement as of the date that termination of this EGIA is sought, Interconnection Customer shall provide the payment or security for such Network Upgrades in the amount required by the applicable agreement. If such agreement has not been executed and final costs are not available as of a date that termination is sought, Interconnection Customer shall provide such payment or security in an amount corresponding to the most recent estimate provided by the Transmission Provider during the ERAS process. Interconnection Customer shall pay or Transmission Provider shall refund, as applicable, to Interconnection Customer the difference between the amount of any estimated payment or security made pursuant to this Article and the final cost of such NU within ninety (90) Calendar Days after such final costs are invoiced to the Interconnection Customer.

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer or upgrades not yet constructed, Transmission Owner shall promptly transfer such amounts to Transmission Provider, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts. Transmission Provider will perform a financial impact analysis in accordance with Section 7.8 of Attachment X to determine the amount that should be refunded to Interconnection Customer. Transmission Provider shall refund such remaining amounts to Interconnection Customer, less the amount of Automatic Withdrawal Penalty funds received by the Interconnection Customer in accordance with Section 7.8.1 of the Attachment X and less any financial impact caused by the termination of this GIA or Interconnection Customer's FCA(s) or MPFCA(s), as determined through the analysis performed in accordance with Section 7.8 of Attachment X. If Interconnection Customer made its payment(s) through a letter of credit, surety bond, or parental guarantee, Transmission Owner will draw against that letter of credit, surety bond, or parental guarantee in an amount determined through the analysis performed in accordance with Section 7.8 of Attachment X plus the amount of any Automatic Withdrawal Penalty funds received by the Interconnection Customer in accordance with Section 7.8.1 of the Attachment X, and transfer that amount to Transmission Provider, unless Interconnection Customer funds the financial impact through another means.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs

associated with procuring such materials, equipment, or facilities. If Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 **Disconnection**. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 **Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 **Filing.** Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 **Interconnection Product Options**. Interconnection Customer has selected the following (checked) type of Interconnection Service:

Check: ____X___ SI or ____ ER and/or ____ NR (See Appendix A for details)

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product. ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, Transmission Owner shall construct facilities consistent with the studies identified in Appendix A.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis up to the amount of MW identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. After that date FERC makes effective MISO's Energy Market Tariff filed in Docket No. ER04-691-000, Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the Interconnection Service approval, and the Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission or other delivery service from the Generating Facility is assured, but Interconnection Customer may obtain Point-To-Point Transmission Service, Network Integration Transmission Service or be used for secondary network transmission service, pursuant to the Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection or to improve its ability to do so, transmission delivery service must be

obtained pursuant to the provisions of the Tariff. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network or Distribution Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service).

4.1.2.1 The Product. Transmission Provider must conduct the necessary studies and Transmission Owner shall construct the facilities identified in Appendix A of this GIA, subject to the approval of Governmental Authorities, needed to integrate the Generating Facility in the same manner as for any Generating Facility being designated as a Network Resource.

4.1.2.2 Transmission Delivery Service Implications. NR Interconnection Service allows the Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources that are interconnected to the Transmission or Distribution System, as applicable, and to be studied as a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of Transmission Service, any Network Customer can utilize Network Integration Transmission Service under the Tariff to obtain delivery of energy from the Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

NR Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission or distribution constraints on the Transmission or Distribution System, as applicable, the Generating Facility shall be subject to the applicable congestion management procedures in the Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future Transmission Service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether such Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service, such request may require additional studies and upgrades in order for Transmission Provider to grant such request. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

4.1.2.3 Conditional NR Interconnection Service. An Interconnection Customer seeking NR Interconnection Service for new or added capacity at a Generating Facility may be granted conditional NR Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's

Generating Facility. At the request of Interconnection Customer, conditional NR Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional NR Interconnection Service status may be converted to ER Interconnection Service if either of the following occurs:

1) Interconnection Customer fails to fund necessary studies and Network Upgrades required to allow the Interconnection Customer's Generating Facility to receive NR Interconnection Service upon the completion of higher queued projects involving the same common elements; or

2) The higher queued project(s) or planned and required Network Upgrades are placed in service and the Network Upgrades required to provide NR Interconnection Service status to the Interconnection Customer's Generating Facility are not in service.

In the event Interconnection Customer fails to fund the necessary studies and Network Upgrades for NR Interconnection Service, the Interconnection Customer's conditional NR Interconnection Service status shall be converted to ER Interconnection Service status unless Interconnection Customer makes a new Interconnection Request. Such new Interconnection Request shall be evaluated in accordance with the GIP and its new queue position.

Some or all of the conditional NR Interconnection Service status may be temporarily revoked if the Network Upgrades are not in service when the higher queued project(s) are placed in service. The availability of conditional NR Interconnection Service status will be determined by Transmission Provider's studies. Upon funding and completion of the Network Upgrades required to establish the Generating Facility's NR Interconnection Service status, the Generating Facility will be granted NR Interconnection Service status.

The Parties agree that the portion of the Generating Facility classified as NR Interconnection Service is the first portion of the output of the combined output of all the units at the Generating Facility except in circumstances where Interconnection Customer otherwise elects this GIA, as amended, to allocate that portion to the output of specific unit(s) at the Generating Facility, the total of which will not exceed the output eligible for NR Interconnection Service as shown by the additional studies. To the extent Interconnection Customer desires to obtain NR Interconnection Service for any portion of the Generating Facility in addition to that supported by such additional studies, Interconnection Customer will be

required to request such additional NR Interconnection Service through a separate Interconnection Request in accordance with the GIP.

4.1.3 Surplus Interconnection Service (SI).

4.1.3.1 The Product. Surplus Interconnection Service is restricted Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an Existing Generating Facility without increasing the total amount of Interconnection Service at the Point of Interconnection.

4.1.3.2 Transmission Delivery Service Implications. Surplus Interconnection Service does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.2 Provision of Service. Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards. Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of any Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that Party shall not be deemed to be in Breach of this GIA for its compliance therewith. The Party so limited shall notify the other Parties whereupon Transmission Provider shall amend this GIA in concurrence with the other Parties and submit the amendment to the Commission for approval.

4.4 No Transmission Delivery Service. The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.5 Interconnection Customer Provided Services. The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.7.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select: 1) the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, and permit acquisition of Transmission System equipment or right-of-way; and 2) either the Standard Option or

Alternate Option set forth below and such dates and selected option shall be set forth in Appendix B. If the dates designated by Interconnection Customer are not acceptable to Transmission Owner, Transmission Owner shall so notify Interconnection Customer within thirty (30) Calendar Days. Upon receipt of the notification that Interconnection Customer's designated dates are not acceptable to Transmission Owner, the Interconnection Customer shall notify Transmission Owner within thirty (30) Calendar Days whether it elects to exercise the Option to Build if it has not already elected to exercise the Option to Build.

5.1.1 Standard Option. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option. If the dates designated by Interconnection Customer are acceptable to Transmission Provider and Transmission Owner, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities by the designated dates.

If Transmission Owner subsequently fails to complete the Transmission Owner's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Owner shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each

Calendar Day that Transmission Provider refuses to grant clearances to install equipment.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.1.3 Option to Build. Pursuant to Section 7.3.2.5 & 7.3.3.5 of the GIP, Individual or Multiple Interconnection Customers shall have the option to assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by the dates originally designated by Interconnection Customer under Article 5.1.2, if the requirements of this Article 5.1.3 are met. When multiple Interconnection Customers exercise this option, multiple Interconnection Customers may agree to exercise this option provided (1) all Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades constructed under this option are only required for Interconnection Customers in a single Cluster and (2) all impacted Interconnection Customers execute and provide to Transmission Provider an agreement regarding responsibilities, and payment for, the construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades planned to be built under this option. The Parties must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option. If the dates designated by Interconnection Customer pursuant to Article 5.1 are not acceptable to Transmission Owner, the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives, or the procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build under Article 5.1.3). If the Parties are unable to reach agreement on such terms and conditions, then, pursuant to Article 5.1.1 (Standard Option), Transmission Owner shall assume responsibility for the design, procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if Interconnection Customer has elected to exercise the Option to Build.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.2 General Conditions Applicable to Option to Build. If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades after receipt of all required approvals from Governmental Authorities necessary to commence construction,

(1) Interconnection Customer shall engineer, procure equipment, and construct the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner, or as required by any Governmental Authority;

(2) Interconnection Customer's engineering, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law or Governmental Authority to which Transmission Owner would be subject in the engineering, procurement or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall be entitled to review and approve the engineering design, equipment acceptance tests(including witnessing of acceptance tests), and the construction (including monitoring of construction) of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall have the right to reject any design, procurement, construction or acceptance test of any equipment that does not meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;

(5) at any time during construction, Transmission Provider and Transmission Owner shall have unrestricted access to the construction site for the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network

Upgrades to meet the standards and specifications provided by Transmission Provider and Transmission Owner;

(7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from the Interconnection Customer's construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1, Indemnity;

(8) Interconnection Customer shall transfer control of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner in accordance with Appendix B;

(10) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall approve and accept for operation and maintenance the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2 only if the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority.

(11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Owner.

(12) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, Interconnection Customer shall pay Transmission Owner the agreed upon amount of [$ PLACEHOLDER] for Transmission Owner to execute the responsibilities enumerated to Transmission Owner under Article 5.2. Transmission Owner shall invoice Interconnection Customer for this total amount to be divided on a monthly basis pursuant to Article 12.

(13) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, and the Transmission Owner has elected to fund the costs of Network Upgrades pursuant to Article 11.3, then prior to Interconnection Customer incurring any construction costs relating to the Option to Build and by the date specified in Appendix B, Interconnection Customer shall invoice the Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for

which the Interconnection Customer has exercised its Option to Build in accordance with Appendix B. The Transmission Owner shall be required to reimburse Interconnection Customer for the full amount of such invoiced costs by the date specified in Appendix B, which shall be prior to the date by which Interconnection Customer must make any construction payment for such Stand Alone Network Upgrades. After completion of the construction of Stand Alone Network Upgrades by the Interconnection Customer and by the date specified in Appendix B for the Interconnection Customer to transfer such Stand Alone Network Upgrades to the Transmission Owner, Interconnection Customer shall provide an invoice of the final cost of the construction of Stand Alone Upgrades and shall set forth such costs in sufficient detail to enable the Transmission Owner to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. In the event that the actual costs exceed the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Transmission Owner shall pay to Interconnection Customer the difference between the amount previously paid and the actual costs within thirty (30) Calendar Days after receipt of a final construction invoice from Interconnection Customer. In the event that the actual costs are less than the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Interconnection Customer shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Transmission Owner any amount by which the actual payment by Transmission Owner for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice. Following the transfer of the Stand Alone Network Upgrades from the Interconnection Customer to the Transmission Owner, the Interconnection Customer shall make payments for such facilities to the Transmission Owner pursuant to an agreement between and among the Parties.

5.3 Liquidated Damages. The actual damages to Interconnection Customer, in the event the Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission Provider and Transmission Owner pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of the Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct.

The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) the Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Transmission Provider, Interconnection Customer or any other earlier queued Interconnection Customer who has entered into an earlier GIA with Transmission Provider and/or a Transmission Owner or with an Affected System Operator, or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure; (3) Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; (4) the delay is due to the inability of Transmission Owner to obtain all required approvals from Governmental Authorities in a timely manner for the construction of any element of the Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, or any other permit or authorization required, or any land rights or other private authorizations that may be required, and Transmission Owner has exercised Reasonable Efforts in procuring such approvals, permits, rights or authorizations; or (5) the Parties have otherwise agreed.

5.4 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures established by the Electric Reliability Organization. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.5 Equipment Procurement. If responsibility for construction of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all

of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.5.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.5.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.6.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.6.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.7 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other, with a copy to be provided to the other Parties. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.8 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.9 Other Interconnection Options.

5.9.1 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably

expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

The maximum permissible output of the Generating Facility will be updated on a quarterly basis if the Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are not in service within six (6) months following the Commercial Operation Date of the Generating Facility as specified in Appendix B of this GIA. These quarterly studies will be performed using the same methodology set forth in Section 11.5 of the GIP. These quarterly updates will end when all Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are in service.

5.9.2 Provisional Interconnection Service.

Upon the request of Interconnection Customer, and prior to completion of requisite Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities Transmission Provider may execute a Provisional Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of the Electric Reliability Organization, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are

not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for Provisional Interconnection Service. The maximum permissible output of the Generating Facility in the Provisional Generator Interconnection Agreement shall be studied and updated on a quarterly basis. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Generator Interconnection Agreement and the Generator Interconnection Agreement, including changes in output limits and Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities cost responsibilities.

5.10 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own or control, and install the ICIF, as set forth in Appendix A.

5.10.1 Interconnection Customer's Interconnection Facility Specifications. Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.10.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan

showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer's specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.11 Transmission Owner's Interconnection Facilities Construction. The Transmission Owner's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the "as-built" drawings, information and documents for the Transmission Owner's Interconnection Facilities specified in Appendix C to this GIA.

Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.12 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish *at no cost* to the other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.13 Lands of Other Property Owners. If any part of the Transmission Owner's Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or

Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.14 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.15 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements).Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.16 Suspension.

5.16.1 Interconnection Customer's Right to Suspend for Force Majeure Event; Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to

suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the higher of $5 million or the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A of this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.16.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.16, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and effectiveness of the cure pursuant to Article 17, the Transmission Owner's Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant

circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.16.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.16, no construction duration, timelines and schedules set forth in Appendix B shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.16, Interconnection Customer shall be responsible for only those costs specified in this Article 5.16.

5.17 Taxes.

5.17.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. To the extent that Transmission Owner is a limited liability company and not a corporation, and has elected to be taxed as a partnership, then the following shall apply: Transmission Owner represents, and the Parties acknowledge, that Transmission Owner is a limited liability company and is treated as a partnership for federal income tax purposes. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35. It is anticipated by the parties that any amounts paid by Interconnection Customer to Transmission Owner for Network Upgrades will be reimbursed to Interconnection Customer in accordance with the terms of this GIA, provided Interconnection Customer fulfills its obligations under this GIA.

5.17.2 Representations and Covenants. In accordance with IRS Notice 2016-36, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for

income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 2016-36, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 2016-36. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.17.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

5.17.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.17.5 Private Letter Ruling or Change or Clarification of Law. At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify

under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

5.17.6 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

5.17.7 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented

reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.17.8 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA, Transmission Owner shall promptly refund to Interconnection Customer the following:

any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be

entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.17.9 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.18 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.19 Modification.

5.19.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient

information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.19.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

5.19.4 Sole Interconnection: During the term of this GIA, Interconnection Customer shall not connect the Generating Facilities described in Appendix A of this GIA to the transmission facilities of any transmission provider other than the Transmission Provider, or a successor to the Transmission Provider, except as expressly allowed by the Transmission Provider's Tariff. Any connection that violates this Article 5.19.4 shall be deemed a breach of this GIA subject to

default and termination pursuant to Articles 17 and 2 of this GIA. In the event Interconnection Customer proposes to connect the Generating Facilities to the transmission system of another transmission provider, all Interconnection Service under this agreement shall terminate no later than the date on which such Generating Facilities achieve commercial operation over its connection to the other transmission provider. Interconnection Customer shall adhere to the requirements of Attachment Y to the Tariff as applicable.

ARTICLE 6. TESTING AND INSPECTION

6.1 **Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities, including control equipment to limit injection at the POI to the level of Interconnection Service set forth in Appendix A and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

6.2 **Post-Commercial Operation Date Testing and Modifications**. Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 **Right to Observe Testing.** Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.

6.4 **Right to Inspect**. Each Party shall have the right, but shall have no obligation to: (i) observe Transmission Owner's and Interconnection Customer's tests and/or inspection of any of their respective System Protection Facilities and other protective equipment, including power system stabilizers and control equipment; (ii) review the settings of the System Protection Facilities and other protective equipment; and (iii) review the maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to time as it deems necessary upon reasonable notice to the other Parties. The exercise or

non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 **General.** Each Party shall comply with the Electric Reliability Organization requirements. Unless the Interconnection Customer is utilizing shared Interconnection Customer Interconnection Facilities, or unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the "Metering Party") at the Point of Interconnection prior to any operation of the Generating Facility. Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party's option, compensated to, the Point of Interconnection. If Interconnection Customer will share Interconnection Facilities with any other projects, Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities sufficient to measure the output of such Interconnection Customer's Generating Facility separately from any other Generating Facilities with which it will share Interconnection Facilities. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Parties upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 **Check Meters.** Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check the Metering Equipment owned by the Metering Party. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider, Transmission Owner or their designees. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.

7.3 **Standards**. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 **Testing of Metering Equipment**. The Metering Party shall inspect and test Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently than every two (2) years. The Metering Party shall give reasonable notice to the other Parties of the time when any inspection or test

shall take place, and the other Parties may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent (2%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the previous test of the Metering Equipment.

7.5 Metering Data. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 Interconnection Customer Obligations. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind or solar as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals while operating under the Tariff. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the

Generating Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner.

Each Party will promptly advise the other Parties if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. Interconnection Customer whose Generating Facility contains at least one Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. Transmission Provider and Interconnection Customer whose Generating Facility contains a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. Interconnection Customer whose Generating Facility contains a Variable Energy Resource also shall submit data to Transmission Provider regarding all forced outages to the extent necessary for Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by Interconnection Customer to Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by Transmission Provider. Data requirements for meteorological and forced

outage data will be negotiated by Transmission Provider and Interconnection Customer, and will be set forth in Appendix C, Interconnection Details, of this GIA.

ARTICLE 9. OPERATIONS

9.1 **General.** Each Party shall comply with the Electric Reliability Organization requirements. Each Party shall provide to any Party all information that may reasonably be required by that Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 **Local Balancing Authority Notification**. At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.

9.3 **Transmission Provider and Transmission Owner Obligations**. Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 **Interconnection Customer Obligations**. Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C of this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

9.5 **Start-Up and Synchronization.** Consistent with the Parties' mutually acceptable

procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power and Primary Frequency Response.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Inverter-Based Resource Plants. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all inverter-based resource plants in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting inverter-based resource plants that have not yet completed a System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements apply to existing inverter-based resource plants making upgrades that require a new Generator Interconnection Agreement only where the Transmission Provider's System Impact Study shows the need for reactive power as a result of an upgrade. If

applicable, these requirements will be memorialized in Appendix C to this GIA.

Additional reactive power requirements for inverter-based resource plants are provided in Appendix G of this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Voltage Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Payments for reactive power shall be pursuant to

any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

9.6.4 Primary Frequency Response. This Section 9.6.4 shall only apply in the event that the Interconnection Request for the Generating Facility completed Definitive Planning Phase Interconnection Customer Decision Point 2 after May 15, 2018.

Interconnection Customer shall ensure the primary frequency response capability of its Generating Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Generating Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved Reliability Organization reliability standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Generating Facility, and shall be linear in the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based on an approved Electric Reliability Organization reliability standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Generating Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Generating Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved Electric Reliability Organization Reliability Standard providing for an equivalent or more stringent parameter. Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Generating Facility has been tested and confirmed during commissioning. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Interconnection Customer shall operate the Generating Facility consistent with the provisions specified in Articles 9.6.4.1 and 9.6.4.2 of this GIA. The primary frequency response requirements contained herein shall apply to both synchronous and inverter-based resource plant Generating Facilities.

9.6.4.1 Governor or Equivalent Controls. Whenever the Generating Facility is operated in parallel with the Transmission System, Interconnection Customer shall operate the Generating Facility with its governor or

equivalent controls in service and responsive to frequency. Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband parameter to: (a) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (b) implement the relevant droop and deadband settings from an approved Regional Reliability Organization reliability standard that provides for equivalent or more stringent parameters. Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Interconnection Customer needs to operate the Generating Facility with its governor or equivalent controls not in service, Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Interconnection Customer shall make Reasonable Efforts to keep outages of the Generating Facility's governor or equivalent controls to a minimum whenever the Generating Facility is operated in parallel with the Transmission System.

9.6.4.2 Timely and Sustained Response. Interconnection Customer shall ensure that the Generating Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Generating Facility has operating capability in the direction needed to correct the frequency deviation. Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Generating Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved reliability standard with equivalent or more stringent requirements shall supersede the above requirements.

9.6.4.3 Exemptions. Generating Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from Articles 9.6.4, 9.6.4.1, and 9.6.4.2 of this GIA. Generating Facilities that are

behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in Article 9.6.4, but shall be otherwise exempt from the operating requirements in Articles 9.6.4, 9.6.4.1, 9.6.4.2, and 9.6.4.4 of this GIA.

9.6.4.4 Electric Storage Resources. Interconnection Customer interconnecting an electric storage resource shall establish an operating range in Appendix C that specifies a minimum state of charge and a maximum state of charge between which the electric storage resource will be required to provide primary frequency response consistent with the conditions set forth in Articles 9.6.4, 9.6.4.1, 9.6.4.2 and 9.6.4.3 of this GIA. Appendix C shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the electric storage resource; (5) operational limitations of the electric storage resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Appendix C must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Interconnection Customer's electric storage resource is required to provide timely and sustained primary frequency response consistent with Article 9.6.4.2 of this GIA when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the electric storage resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System.

9.6.4.5 Inverter-Based Resource Plants. Additional primary frequency response requirements for inverter-based resource plants, including electric storage resources, are provided in Appendix G of this GIA.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Interconnection Customer and Transmission Owner may each in accordance with Good Utility Practice in coordination with the other Party and Transmission Provider remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify one another and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Parties of such removal.

9.7.1.2 Outage Schedules. Transmission Provider shall post scheduled outages of transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

Transmission Provider shall compensate, pursuant to applicable Transmission Provider tariff or rate schedule, Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent the Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

Costs shall be determined by negotiation between Transmission Provider and Interconnection Customer prior to implementation of the voluntary change in outage schedules, or if such request is made by or on behalf of a Transmission Customer requesting firm service, costs and recovery of costs shall be determined through a bilateral agreement between the Transmission Customer and Interconnection Customer. Voluntary

changes to outage schedules under this Article 9.7.1.2 are separate from actions and compensation required under Article 13 and for which costs are recovered in accordance with Transmission Provider's applicable tariff or rate schedule.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects a Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Parties, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Parties explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission

Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Ride Through Capability and Performance. The Transmission System is designed to automatically activate a load-shed program as required by the Electric Reliability Organization in the event of an underfrequency system disturbance. Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Generating Facility as required by the Electric Reliability Organization to ensure frequency "ride through" capability of the Transmission System. Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. Interconnection Customer shall also implement under-voltage and over-voltage relay set points, or equivalent electronic controls, as required by the Electric Reliability Organization to ensure voltage "ride through" capability of the Transmission System. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other Generating Facilities in the Balancing Authority Area on a comparable basis. For abnormal frequency conditions and voltage conditions within the "no trip zone" defined by Reliability Standard PRC-024-3 or successor mandatory ride through reliability standards, the non-synchronous Generating Facility must ensure that, within any physical limitations of the Generating Facility, its control and protection settings are configured or set to (1) continue active power production during disturbance and post disturbance periods at pre-disturbance levels, unless providing primary frequency response or fast frequency response; (2) minimize reductions in active power and remain within dynamic voltage and current limits, if reactive power priority mode is enabled, unless providing primary frequency response or fast frequency response; (3) not artificially limit dynamic reactive power capability during disturbances; and (4) return to pre-disturbance active power levels without artificial ramp rate limits if active power is reduced, unless providing primary frequency response or fast frequency response.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Owner shall install at Interconnection Customer's expense any Transmission Owner's System Protection Facilities that may be required on the Transmission Owner's Interconnection Facilities or the Transmission Owner's transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer's Interconnection Facilities.

9.7.4.2 Interconnection Customer's and Transmission Owner's System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution

System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict between ANSI Standard C84.1, and any applicable superseding electric industry standard, the applicable superseding electric industry standard shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Parties a copy of its switching and tagging rules that are applicable to the other Parties' activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution System, as applicable, and shall be used for no other purpose.

9.9.2 Other Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more Parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer

and any non-Party users based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to Section 12 of the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Owner Obligations. Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.2 Interconnection Customer Obligations. Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.3 Coordination. The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems. Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses. Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of

Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall design, procure, construct, install, own and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A at its sole expense.

11.2 Transmission Owner's Interconnection Facilities. Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Owner's Interconnection Facilities described in Appendix A at the sole expense of Interconnection Customer.

11.3 Network Upgrades, System Protection Facilities and Distribution Upgrades. Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades described in Appendix A. Interconnection Customer shall be responsible for all costs related to Distribution Upgrades and/or Generator Upgrades. As required by Section 7.3.2.1 and 7.3.3.1 of Attachment X, Transmission Owner shall have provided Transmission Provider with written notice if Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer. In the event that the Transmission Owner elects to fund the capital costs of the Network Upgrades and/or Transmission Owner's System Protection Facilities, then the Parties shall enter into a Facilities Service Agreement. The Facilities Service Agreement shall take the form of the *pro forma* Facilities Service Agreement that is included as Appendix 14 of Attachment X to the MISO Tariff .

11.3.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades. Network Upgrades, System Protection Facilities and Distribution Upgrades that are required to accommodate the Generating Facility may be modified because (1) a higher queued Interconnection Request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued Interconnection Request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued Interconnection Request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued Interconnection Request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification pursuant to Section 4.4 of the GIP, (7) a GIA with an effective date prior to this GIA is terminated, (8) when ordered to restudy by FERC, or (9) the Network Upgrade Facilities Study for a Network Upgrade, which is to be included in this

GIA, is completed after execution of this GIA. The higher queued Interconnection Requests that could impact the Network Upgrades, System Protection Facilities and Distribution Upgrades required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A.

11.3.2 Agreement to Restudy and Cost Reallocation. In the event that one of the contingencies listed in Article 11.3.1 occurs, at any time before the Network Upgrades, Common Use Upgrades, Shared Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine, in its discretion, that a restudy is required. If a restudy is required, Transmission Provider will provide notice to Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.3.2.

11.3.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider. Where applicable, payments to fund Shared Network Upgrade(s) that are made to Transmission Provider by Interconnection Customer will be disbursed by Transmission Provider to the appropriate entities that funded the Shared Network Upgrades in accordance with Attachment X and Attachment FF of the Tariff. In the event that Interconnection Customer fails to meet its obligation to fund Shared Network Upgrades, Transmission Owner and Transmission Provider shall not be responsible for the Interconnection Customer's funding obligation.

11.4 Transmission Credits.

11.4.1 Repayment of Amounts Advanced for Network Upgrades. Interconnection Customer shall be entitled to a cash repayment by Transmission Owner(s) and the Affected System Owner(s) that own the Network Upgrades, of the amount paid respectively to Transmission Owner and Affected System Operator, if any, for the Network Upgrades, as provided under Attachment FF of this Tariff and including any tax gross-up or other tax-related payments associated with the repayable portion of the Network Upgrades, and not repaid to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection

Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under the Tariff and Affected System's Tariff for Transmission Services with respect to the Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. § 35.19 (a)(2)(iii) from the date of any payment for Network Upgrades through the date on which Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interest shall not accrue during periods in which Interconnection Customer has suspended construction pursuant to Article 11 or the Network Upgrades have been determined not to be needed pursuant to this Article 11.4.1. Interconnection Customer may assign such repayment rights to any person.

If the Generating Facility is designated a Network Resource under the Tariff, or if there are otherwise no incremental payments for Transmission Service resulting from the use of the Generating Facility by Transmission Customer, and in the absence of another mutually agreeable payment schedule any repayments provided under Attachment FF shall be established equal to the applicable rate for Firm Point-To-Point Transmission Service for the pricing zone where the Network Load is located multiplied by the portion of the demonstrated output of the Generating Facility designated as a Network Resource by the Network Customer(s) or in the absence of such designation, equal to the monthly firm single system-wide rate defined under Schedule 7 of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to Network Customer(s) and consistent with studies pursuant to Section 3.2.2.2 of the GIP.

Notwithstanding the foregoing, as applicable and consistent with the provisions of Attachment FF of this Tariff, Interconnection Customer, Transmission Provider, Transmission Owner, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Owner and Affected System Operator take one of the following actions no later than five (5) years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Owner or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

If the Generating Facility is installed in phases, the amount eligible for refund as each phase achieves Commercial Operation will be reduced by the proportional amount of generation capacity not yet installed. However, all facilities in Appendix A other than the Generating Facility shall be built without

consideration for the phasing of the Generating Facility as though the entire Generating Facility will be placed in Commercial Operation for the full output or increased output of the Generating Facility constructed by Interconnection Customer under this GIA.

If the Generating Facility fails to achieve Commercial Operation, but it or another generating facility is later constructed and makes use of the Network Upgrades, Transmission Owner and Affected System Operator shall at that time reimburse Interconnection Customer for the remaining applicable amounts that may be refundable pursuant to Attachment FF of this Tariff that were advanced for the Network Upgrades on their respective systems as described above. Before any such reimbursement can occur, Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which the reimbursement must be made.

11.4.2 Special Provisions for Transmission Provider as an Affected System to be covered under Separate Agreements. When the Transmission Owner's Transmission or Distribution System (including for this Article 11.4.2 independent distribution systems connected to the Transmission System) is an Affected System for an interconnection in another electric system, Transmission Provider will coordinate the performance of Interconnection Studies with the other system. Transmission Provider will determine if any Network Upgrades or Distribution Upgrades, which may be required on the Transmission System as a result of the interconnection, would not have been needed but for the interconnection. Unless Transmission Owner provides, under the interconnection agreement between Interconnection Customer and the other system, for the repayment of amounts advanced to Transmission Provider or an impacted Transmission Owner for Network Upgrades, Interconnection Customer, Transmission Provider, and the impacted Transmission Owner(s) shall enter into an agreement that provides for such repayment by Transmission Owner(s) as directed by Transmission Provider. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the Affected System Operator as well as the payment of refunds by the Affected System Operator.

11.4.3 Notwithstanding any other provision of this GIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades, including the right to obtain cash reimbursement or transmission credits for transmission service that is not associated with the Generating Facility.

11.5 Initial Payment. For upgrades that the Transmission Owner has elected to self-fund, the

Interconnection Customer is responsible for making the initial payment for the total cost of Network Upgrades (excluding JTIQ Upgrades) or Transmission Owner's System Protection Facilities in the form of security pursuant to Article 11.6. For upgrades where the Transmission Owner did not elect to self-fund, the Interconnection Customer shall elect (and provide its election to the Transmission Provider within five days of the commencement of negotiation of the GIA pursuant to Section 11.2 of the GIP) to make either 1) an initial payment equal to twenty (20) percent of the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date is less than or equal to five (5) years of the initial payment date); or 2) an initial payment equal to ten (10) percent of the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date exceeds the initial payment date by more than five (5) years); or 3) the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades in the form of security pursuant to Article 11.6. The initial payment shall be provided to Transmission Owner by Interconnection Customer pursuant to this Article 11.5 within the later of a) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or b) forty-five (45) Calendar Days of acceptance by FERC if the GIA is filed unexecuted and the payment is being protested by Interconnection Customer, or c) forty-five (45) Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer. If the Interconnection Customer made its milestone payments in the form of cash and the Interconnection Customer elects a cash initial payment, then the Transmission Provider shall transfer those funds to the Transmission Owner on the Interconnection Customer's behalf.

11.6 Provision of Security. Unless a milestone cash payment schedule is provided in Appendix B, Interconnection Customer shall, at least forty-five (45) Calendar Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of a facility, not otherwise funded under Article 11.5, provide additional security. Additionally, the Interconnection Customer will be required to provide security more than forty-five (45) Calendar Days in advance if requested by Transmission Owner because regulatory approvals are required for the construction of such facilities. Interconnection Customer shall provide Transmission Owner, at Interconnection Customer's selection, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Owner and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment, as specified in Appendix B of this GIA, shall be in an amount sufficient to cover the applicable costs and cost commitments, in addition to those funded under Article 11.5, required of the Party responsible for building the facilities pursuant to the construction schedule developed in Appendix B for designing, engineering, seeking regulatory approval from any Governmental Authority, constructing, procuring and installing the applicable portion of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution

Upgrades or Stand-Alone Network Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Owner for these purposes. Transmission Owner must use the milestone payments required under the GIP before requiring Interconnection Customer to submit additional security. Transmission Owner must specify, in Appendix B of this GIA, the dates for which Interconnection Customer must provide additional security for construction of each discrete portion of Transmission Owner's Interconnection Facilities, Network Upgrades, or Distribution Upgrades and Interconnection Customer must provide such additional security.

In addition:

11.6.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.6.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.4 If the Shared Network Upgrade is not in service, Interconnection Customer will not be required to make a payment under Schedule 26-B until the Shared Network Upgrade is in service, but Interconnection Customer will provide, as applicable, an Irrevocable Letter of Credit to fund any Shared Network Upgrade pursuant to Attachment FF of the Tariff. The Irrevocable Letter of Credit shall be in an amount sufficient to cover the Interconnection Customer’s share of the applicable costs and cost commitments associated with the Shared Network Upgrades. Transmission Provider may periodically adjust the Interconnection Customer’s share of the applicable costs and cost commitment of Shared Network Upgrades and may require Interconnection Customer to adjust the amount of the Irrevocable Letter of Credit accordingly.

11.7 Interconnection Customer Compensation. If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Article 13.4 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

11.8 Provision of Security for JTIQ Upgrades. If the Transmission Provider determines that the Interconnection Request meets the distribution factor and impact criteria specified in Section 9.4.2(d)((ii) of Rate Schedule 6 (MISO SPP JOA) and is included in the JTIQ Participation Group, Interconnection Customer shall be required to provide security in accordance with Attachment X, Appendix 18 (MISO JTIQ Commitment Agreement) and SPP’s JTIQ Service Agreement.

ARTICLE 12. INVOICE

12.1 General. Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice. Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Owner shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.

12.3 Payment. Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.

12.4 Disputes. In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, the Electric Reliability Organization, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the other Parties promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Parties, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 General. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require

the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 Interconnection Customer Authority. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.6 of this GIA, no Party shall be liable to any other for any action it takes in responding to an Emergency

Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978.

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other Parties and any instrument required or permitted to be tendered or delivered by a Party in writing to the other Parties shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by any Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Parties in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 A Party shall not be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of another Party. Upon a Breach, the non-Breaching Party or Parties shall give written notice of such Breach to the Breaching Party with a copy to the other Party if one Party gives notice of such Breach. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Breach notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete

such cure within ninety (90) Calendar Days from receipt of the Breach notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Termination. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party or Parties shall terminate this GIA, subject to Article 2.3.2 of this GIA, by written notice to the Breaching Party, with a copy to the other Party if one Party gives notice of termination, and be relieved of any further obligation hereunder and, whether or not that Party(ies) terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is (they are) entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

17.1.3 Cross-Default. Pursuant to Article 11.3 of this GIA, the Parties shall enter into a Facilities Service Agreement if the Transmission Owner has elected to fund the capital for the Network Upgrades and/or Transmission Owner's System Protection Facilities. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the Facilities Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA. If a default under this GIA results from the Interconnection Customer's breach of the Facilities Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the Facilities Service Agreement and this GIA.

Pursuant to Section 11.3 of the GIP, an Interconnection Customer included in a JTIQ Participation Group shall execute or request the unexecuted filing both of the Transmission Provider's JTIQ Commitment Agreement and the JTIQ Service Agreement included in SPP's tariff. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the JTIQ Commitment Agreement or SPP's JTIQ Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA provided, however, that the manner and timing of cure of such breach shall adhere to the requirements of the applicable agreement and cure in accordance with the provisions of such agreement shall also cure the breach of this GI. If a default under this GIA results from the Interconnection Customer's breach of the JTIQ Commitment Agreement or SPP JTIQ Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the JTIQ Commitment Agreement, SPP JTIQ Service Agreement, and this GIA.

17.2 Violation of Operating Assumptions for Generating Facilities. If Transmission

Provider requires Interconnection Customer to memorialize the operating assumptions for the charging behavior of the Generating Facility that includes at least one electric storage resource in Appendix A of this GIA, Transmission Provider may consider Interconnection Customer to be in Breach of the GIA if Interconnection Customer fails to operate the Generating Facility in accordance with those operating assumptions for charging behavior. However, if Interconnection Customer operates contrary to the operating assumptions for charging behavior specified in Appendix A of this GIA at the direction of Transmission Provider, Transmission Provider shall not consider Interconnection Customer in Breach of this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to another Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of Interconnection Service, except as provided in this Tariff. The provisions set forth in the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Parties harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such Indemnified Party may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with

counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate for generators not eligible for the Fast Track Process in GIP Section 14. The requirement for generators eligible for the Fast Track Process in GIP Section 14 is a minimum combined single limit of Five Million Dollars ($5,000,000) per occurrence/Five Million Dollars ($5,000,000) aggregate..

18.4.5 The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Parties, their parents, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days' advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.

18.4.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

18.4.7 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.

18.4.8 The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by any Party only with the written consent of the other Parties; provided that a Party may assign this GIA without the consent of the other Parties to any Affiliate of the assigning Party with an equal or greater credit rating

and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.5 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 **Severability**. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if Interconnection Customer (or any non-Party, but only if such non-Party is not acting at the direction of either Transmission Provider or Transmission Owner) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 **Comparability**. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 **Confidentiality.** Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by a Party to another Party prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed

orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by the receiving Party, the disclosing Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term**.** During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. No Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing

Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

22.1.4 Rights. Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by a Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties. By providing Confidential Information, no Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Party obligates itself to provide any particular information or Confidential Information to another Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care. Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use Confidential Information solely to fulfill its obligations to another Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure. If a court or a Governmental Authority or entity with the right, power, and apparent authority to do so requests or requires any Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies**.** The Parties agree that monetary damages would be inadequate to

compensate a Party for another Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State**.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Parties to this GIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Parties to this GIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information that Party claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or

if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect another Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Parties copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 **Information Acquisition**. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 **Information Submission by Transmission Provider and Transmission Owner** The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 **Updated Information Submission by Interconnection Customer**. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission

Owner a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice, such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating

requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the "disclosing Party") shall make available to the other Parties information that is in the possession of the disclosing Party and is necessary in order for the other Parties to: (i) verify the costs incurred by the disclosing Party for which another Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. A Party (the "notifying Party") shall notify the other Parties when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Article shall not entitle any Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Parties, to audit at its own expense the other Parties' accounts and records pertaining to the Parties' performance or the Parties' satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Parties' costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records. Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to a Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the Party or from whom the overpayment or underpayment is owed together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event any Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "disputing Party") shall provide the other Parties with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the non-disputing Parties. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the non-disputing Parties' receipt of the

Notice of Dispute, such claim or dispute shall be submitted for resolution in accordance with the dispute resolution procedures of the Tariff.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority**.** Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. {RESERVED}

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect. This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.1.1 Reversion. If offered pursuant to an Agency Agreement under which this GIA is executed by Transmission Provider as agent for the relevant Transmission Owner, in the event that the relevant Agency Agreement terminates, any HVDC Service offered by Transmission Provider under this GIA shall revert to the relevant Transmission Owner and Transmission Provider shall be released from all obligations and responsibilities under this GIA.

30.2 Conflicts. In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation. This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including."

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by any Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts. This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by all of the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by all of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the

other Parties.

IN WITNESS WHEREOF, the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

Transmission Provider
Midcontinent Independent System Operator, Inc.

By: _____
Name: Aubrey Johnson
Title: Vice President, System Planning

June 10, 2026 kkh

Transmission Owner
Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp, a Michigan corporation, its sole manager

By: Brian Slocum
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Interconnection Customer
Lakeside Solar, LLC

By: _____
Name: Rafik Halim
Title: Vice President, Transmission & RTO Po

APPENDICES TO GIA

Appendix A Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrades
Appendix B Milestones
Appendix B-1 Pre-Certification Generation Test Notification Form
Appendix C Interconnection Details
Appendix D Security Arrangements Details
Appendix E Commercial Operation Date
Appendix F Addresses for Delivery of Notices and Billings
Appendix G Interconnection Requirements for Inverter-Based Resource Plants
Appendix H Interconnection Requirements for Provisional GIA
Appendix I Requirements Applicable to Surplus Interconnection Service

Original Sheet No. 95

Appendix A to GIA

Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrades

Preamble:
Coordinated Output – means the combined total S1081 Project output plus the J1375 output cannot exceed the J1375 output limit of 100 MW nor can the S1081 Project exceed its maximum 100 MW net output.

Surplus Interconnection:
This Coordinated Output service requires the Interconnection Customer to always have in effect a Monitoring and Consent Agreement with the Existing Generating Facility J1375 that is in Commercial Operation and remains in Commercial Operation at the same POI. At all times power requirements at the POI and Generator Step Up transformer shall meet the same real and reactive output requirements as if only the J1375 Generating Facility was operating at that output level.

The real time Coordinated Output of the J1375 and the S1081 project shall be monitored and if the output of the J1375 and the S1081 exceeds 100 MW at any time, the output of the Interconnection Customer's Generating Facility shall be reduced to zero until the Interconnection Customer implements corrective action acceptable to the Transmission Provider and Transmission Owner.

1. Description of Generating Facility

Interconnection Customer shall install a 142.56 MVA facility, rated at 105.7536 MW gross and 100 MW / (400 MWh) net, with all studies performed at or below these outputs. The Generating Facility is composed of one-hundred and eight (108) Tesla Megapack 2XL inverter units in a battery energy storage system (BESS) rated at 1.32 MVA / 0.9792 MW with an energy rating of (3.7037) MWh each. Interconnection Service provided under this agreement is 100 MW of conditional ERIS and/or NRIS that will become 100 MW of ERIS and/or NRIS upon completion of all Network Upgrades under this GIA and transmission assumptions listed in Table A10-1 of Exhibit A10.

The BESS was studied as charging from the Transmission System and limited to a maximum not to exceed charging load of 100 MW on the Transmission System over any time duration.

Interconnection Customer shall install a switchyard with the appropriate protection equipment coordinated per Appendix C to this GIA.

2. Interconnection Facilities

(a) Point of Interconnection.

i. The Point of Interconnection shall be at the tie point between the 138 kV disconnect switches 8M6 and 8W4 at Position WM8 in the Transmission Owner's Lamos switching station.
ii. The Point of Change of Ownership will be at the dead-end on the entrance structure at Transmission Owner's Lamos station.
iii. The Metering Equipment will be at S1081 collector station, compensated to the POI. See Exhibit A2.

(b) Interconnection Facilities (including metering equipment) to be constructed by Interconnection Customer.

One (1) generator step-up transformer 138/34.5 kV 72/96/120 MVA Z=9.0% and one (1) 138 kV, 1200 A 31.5kA circuit breaker are constructed and owned by J1375 and shared with S1081.

An approximately 0.1 miles of 795 kcmil Condor generator lead line is constructed and owned by J1375 and shared with J1587, S1081 and S1082.

Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities for project S1081 per GIA 7.1.

Interconnection Customer is responsible for coordinating and obtaining station service supply for the Interconnection Customer Interconnection Facilities and the Generating Facility. The Interconnection Customer will coordinate station supply with the local service territory provider to address normal and emergency back-up station power needs for Interconnection Customer Interconnection Facilities and for Generating Facility during construction and operation of those facilities. Net metering of Station Service power may be obtained per the requirements of Transmission Provider's Schedule 20.

(c) Transmission Owner Interconnection Facilities (including metering equipment) to be constructed by Transmission Owner. None

3. Network Upgrades

(a) Stand-Alone Network Upgrades to be installed by Transmission Owner. None.

(b) Network Upgrades to be installed by Transmission Owner. None.

(c) Shared Network Upgrade(s) to be funded by Interconnection Customer. None.

(d) Substation Network Upgrades to be installed by Transmission Owner. None.

4. System Protection Facilities

(a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer. None.

(b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner. None.

5. Distribution Upgrades

(a) Distribution Upgrades to be constructed by Transmission Owner. None.

6. Contingency List None.

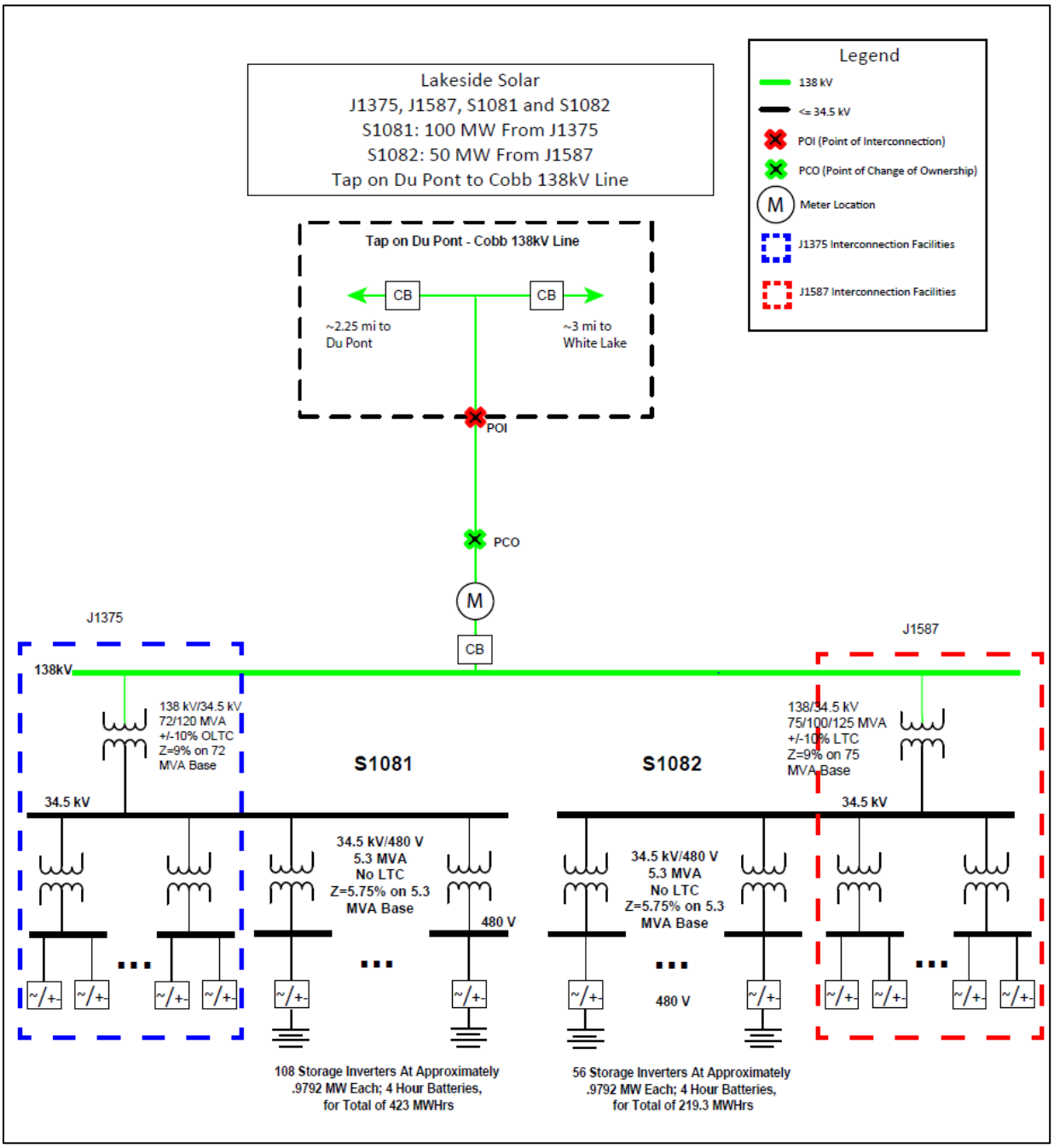
7. Affected System Upgrades List None.

8. JTIQ Upgrades None.

9. Exhibits – The following exhibits are included:

A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram
A2. Transmission Owner One-Line
A3. General Arrangement Drawing
A4. Transmission Owner Plan and Profile
A5. Facilities to be Constructed by Transmission Owner
A6. Detailed Costs of Facilities to be Constructed by Transmission Owner {Reserved}
A7. Network Upgrades to be Constructed by Interconnection Customer
A8. Transmission Owner's Interconnection Facilities to be Constructed by Interconnection Customer
A9. Facilities Subject to Transmission Owner Reimbursement {Reserved}
A10. Contingent Facilities
A11. Interconnection Customer Milestones {Reserved}
A12. Construction and Coordination Schedules {Reserved}
A13. Permits, Licenses, Regulatory Approvals and Authorization {Reserved}
A14. Interconnection and Operating Guidelines

Exhibit A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram



Original Sheet No. 99

Exhibit A2. Transmission Owner One-Line

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 100

Exhibit A3. General Arrangement Drawing

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 101

Exhibit A4. Transmission Owner Plan and Profile

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 102

Exhibit A5. Facilities to be Constructed by Transmission Owner

None.

Original Sheet No. 103

Exhibit A6. Detailed Costs of Facilities to be Constructed by Transmission Owner

{Reserved}

Exhibit A7. Network Upgrades to be Constructed by Interconnection Customer

No Transmission Owner Interconnection Facilities or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Original Sheet No. 105

Exhibit A8. Transmission Owner's Interconnection Facilities to be Constructed by Interconnection Customer

No Transmission Owner Interconnection Facilities or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Original Sheet No. 106

Exhibit A9. Facilities Subject to Transmission Owner Reimbursement

{Reserved}

Exhibit A10. Contingent Facilities

Table A10-1 describes transmission assumptions modeled in the studies that were deemed necessary to allow for the Interconnection Service as described in Appendix A of this GIA and is not related to Article 11.3.1, i.e., does not describe projects associated with a higher queued and/or similarly queued Interconnection Requests. Nevertheless, if the transmission assumptions are not completed or significantly modified, the Interconnection Service granted under this GIA may be restricted until such time as the Interconnection Customer funds a study to determine the applicable ERIS and NRIS level that results due to the changes in Table A10-1.

A list of higher-queued and/or similarly queued study projects are in Tables A10-2 and A10-3.

Table A10-1: Transmission Assumptions

MTEP ID	Facility ID	Facility	Description	Expected Completion Date
None.				

Table A10-2: Prior Queued Projects

MISO Higher Queued Project #	Service Type	TO	County, State	Point Of Interconnection	Pmax (MW)	Fuel Type
None.						

Table A10-3: Similarly Queued Projects

MISO Higher Queued Project #	Service Type	TO	County, State	Point Of Interconnection	Pmax (MW)	Fuel Type
None.						

Original Sheet No. 108

Exhibit A11. Interconnection Customer Milestones

{Reserved}

Original Sheet No. 109

Exhibit A12. Construction and Coordination Schedules

{Reserved}

Original Sheet No. 110

Exhibit A13. Permits, Licenses, Regulatory Approvals and Authorization

{Reserved}

Exhibit A14. Interconnection and Operating Guidelines

A14-1 Voltage Guidelines

Reactive power, voltage regulation and operating requirements will be per Transmission Operator (TOP) and Transmission Provider directives. Interconnection Customer will operate the Generating Facility to a voltage schedule target of 141 kV (1.0217 pu) within a bandwidth of +/- 3 kV (0.0217 pu) at the Point of Interconnection (POI). The Interconnection Customer will regulate the Generating Facility's voltage to the specified voltage set-point within the defined bandwidth stated above using an automatic voltage controller. The Generating Facility shall be designed to eliminate reactive power injection into or withdrawal from the system, measured at the high side of the generator substation, when the Generating Facility is not producing real power. This includes reactive power injection caused by collector systems.

The above voltage schedule is subject to change. If the need for a change is identified, it will be done within the limits of the GIA provisions stated in Section 9.6 and the Generating Facility's power factor design criteria. If a schedule change is needed, appropriate written documentation of the change will be provided to the Interconnection Customer.

The Interconnection Customer is required to have a generator operator available for 24/7 communication with the TOP. The TOP may, at any time request a variance from the schedule in response to system operating/security requirements.

Appendix B to GIA
Milestones

1. Selected Option pursuant to Article 5.1: Not Applicable.

2. Milestones: The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP.

A. Interconnection Customer Milestones

No.	Description	Date
1a.	Provide initial payment to Transmission Owner (GIA 11.5).	Not Applicable.
1b.	Provide security, *i.e.*, a guarantee, surety bond, letter of credit or other reasonably acceptable form of security to Transmission Owner (GIA 11.6).	Not Applicable.
1c.	Enter into a Facilities Service Agreement ("FSA") as may be applicable, with Transmission Owner for the Network Upgrades associated with this GIA.	Not Applicable.
1d.	Enter into amendment of this GIA, if required, for Interconnection Requests that did not elect optional negotiation period adjustment for Interconnection Facilities Study pursuant to GIA Section 11.3.1.	Not Applicable.
1e.	Enter into SPP JTIQ Service Agreement (if included in JTIQ Participation Group) pursuant to GIP Section 11.1.	Not Applicable.
1f.	Enter into any agreement required by an Affected System for the study, construction, or funding of a network upgrade to mitigate impacts (for Interconnection Requests processed through ERAS) pursuant to GIP Section 3.5.2.	Not Applicable.
1g.	Demonstrate 100% Site Control (if not provided earlier due to qualifying regulatory limitations) or the GIA may be terminated per Article 2 of this GIA and the Interconnection Customer may be subject to Withdrawal Penalties per Section 7.6.2.1.1 of the GIP (Calculation of the Automatic Withdrawal Penalty).	Within 180 Calendar Days of the Effective Date.
2.	Provide Certificate of Insurance (GIA 18.4.9).	Within 60 Calendar Days of execution of the GIA; thereafter, within 90 Calendar Days of end of fiscal year or insurance renewal date.
3.	Provide evidence of one or more of the following	Within 180 Calendar Days of

	milestones being achieved: (1) execution of contract for (a) fuel supply or transport; (b) cooling water supply; (c) engineering procurement of major equipment or construction; (d) execution of a contract for the sale of electric energy or capacity from the Generating Facility, or a statement signed by an officer or authorized agent of Interconnection Customer attesting that the Generating Facility is included in an applicable state resource adequacy plan; or other information that Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource; or (2) documentation of application for state or local air, water, land, or federal nuclear or hydroelectric permits and that the application is proceeding per regulations (GIP 11.3).	Effective Date.
4.	Provide security in the amount of $_____ to Transmission Owner to commence design, equipment procurement and construction for Interconnection Facilities (GIA 5.5 and 5.6).	Not Applicable.
5.	Invoice Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
6.	Pre-construction meeting.	As may be agreed to by the Parties.
7.	Provide initial design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	180 Calendar Days prior to initial synchronization date.
8.	Provide final design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	90 Calendar Days prior to initial synchronization date.
9.	Deliver to Transmission Owner and Transmission Provider "as-built" drawings, information and documents regarding Interconnection Customer's Interconnection Facilities (GIA 5.10.3).	Within 120 Calendar Days of Commercial Operation Date.
10.	Provide Transmission Owner final cost invoices to construct Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
11.	Notify Transmission Provider and Transmission	Three months prior to Initial

	Owner in writing of Local Balancing Authority where Generating Facility is located (GIA 9.2).	Synchronization Date.
12.	Pre-energization meeting.	As may be agreed to by the Parties.
13.	Initial Synchronization Date.	07/30/2029
14.	Commercial Operation Date.	12/31/2029
15.	Interconnection Customer shall provide the Parties with notice on the status of the Generating Facility, including COD, under Article 15 of this GIA and shall also send such notice by email to ResourceIntegration@misoenergy.org. Notification shall include Interconnection Customer's name, and as applicable Market Participant(s) name(s), and project number.	6 months prior to Initial Synchronization Date.
16.	Interconnection Customer shall provide notice to the Parties of a test plan in advance of conducting tests for the Generating Facility. The notice shall be in the form below and should be provided under Article 15 of this GIA, and a copy of such notice should be emailed to ResourceIntegration@misoenergy.org**.**	5 Business Days prior to testing.
17.	In the event the Interconnection Customer makes any modifications to the design of the site layouts or interconnection facility routes after execution of this GIA, Interconnection Customer shall notify the Parties of such changes immediately upon identifying the need for such changes. After providing such notification, the Interconnection Customer shall provide to Transmission Provider evidence of continued Site Control for land sufficient to accommodate the changes in site layouts and/or interconnection facility routes (GIP 7.2.2).	90 Calendar Days after Interconnection Customer provides notice to Parties.
18.	Interconnection Customer to provide Transmission Owner and Transmission Provider with completed Appendix E Commercial Operation declaration.	As of Commercial Operation.
19.	Interconnection Customer to complete Generator Modeling Form and provide to Transmission Owner.	60 Days prior to the In Service Date.
20.	Interconnection Customer to provide valid parameterized PSCAD model of the inverter and the plant controller.	Within 90 Days of GIA execution.

B. Transmission Owner Milestones

No.	Description	Date
0.	Transmission Owner to enter Network Upgrade information into Transmission Provider's MTEP database and model on demand.	Not Applicable.
1.	Provide Certificate of Insurance (GIA 18.4.9).	Not Applicable.
2.	• Commence design of Interconnection Facilities (GIA 5.5 et seq.). • Commence equipment procurement.	Not Applicable.
3.	Commence construction of Interconnection Facilities (GIA 5.6 et seq.).	Not Applicable.
4.	Comment on Interconnection Customer's final design and specifications.	Within 30 Calendar Days of Interconnection Customer's submission of final design and specifications.
5.	Upon request, deliver to Interconnection Customer and Transmission Provider "as-built" drawings, information and documents regarding Transmission Owner's Interconnection Facilities (GIA 5.11).	Not Applicable.
6.	Provide payment for invoiced estimated costs to construct for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
7.	Provide Interconnection Customer final cost invoices (GIA 12.2 *et seq.*).	Not Applicable.
8.	Refund overpayment of estimated costs (GIA 12.2).	Not Applicable.
9.	In-Service Date/Backfeed Date.	05/12/2029
10.	Provide Generator Modeling Form to Interconnection Customer.	Prior to GIA execution.
11.	Transmission Owner will promptly provide Notice to Interconnection Customer and Transmission Provider if it reasonably expects it cannot meet specified dates for facilities described in Article 5.1.1 of this GIA. See Exhibit A12 for Transmission Owner's construction schedule.	As Provisioned in Article 5.1.1.

C. Affected System Owner Milestones

Task	Date Due
None.	Not Applicable.

Original Sheet No. 116

Appendix B-1 to GIA
Pre-Certification Generation Test Notification Form

The following form would need to be submitted to MISO Real Time Operations at least five (5) Business Days prior to the first date of testing.

Project Number:

Project Name:

Point of Interconnection:

Dispatcher Contact Information:

Date	Start Time (in EST)	End Time (in EST)	Expected MW Output	Expected MVAR Output (Only needed if beyond normal power factor)

Appendix C to GIA
Interconnection Details

1. GENERAL INTERCONNECTION AND OPERATING GUIDELINES

1.1 **Applicability**. These guidelines are applicable for all generation types, synchronous and Inverter Based Resources ("IBR"). Additionally, IBR references are applicable to Grid Following ("GFL") and Grid Forming ("GFM") technology. Where necessary, sections will be specific to the generation type and/or IBR technology. IBR plants shall meet Appendix C performance requirements as required per Table C-1. Generating Facilities Replacement and Surplus Interconnections shall follow DPP-2023 Requirements.

Appendix C Subclause	Required by Appendix C for DPP-2021	Required by Appendix C for DPP-2022	Required by Appendix C for DPP-2023 and later
1.13.1 Current Priority Operating Mode	X		
1.13.2 Analog Measurement Window	X	X	X
1.13.3 Current Blocking	X		
1.13.4.1 Reference Point of Applicability	X	X	X
1.13.4.2 AC Voltage Protection - Continuous	X		
1.13.4.3 AC Voltage Protection - Transient	X		
1.13.4.4 Frequency Protection	X		
1.13.4.5 AC Overcurrent Protection	X	X	X
1.13.4.6 Rate-of-change-of-frequency	X	X	X
1.13.4.7 Phase lock loop (PLL)	X		
1.13.5 Active Power-Frequency Control	X	X	
1.13.6 Reactive Power-Voltage Control	X	X	
1.13.7 Current Injection During Ride-Through	X	X	X
1.13.8 Battery Energy Storage Systems ("BESS") and GFM Requirements.	X	X	

Table C-1

1.2 Applicable Standards. In addition to applicable design standards identified in the GIA, Interconnection Customer agrees to comply with the most recent Transmission Owner substation/transmission/protection design guides, standards, and specifications, where applicable, for the design of and procurement for this interconnection. The Transmission Owner design guides, standards, and specifications are available upon request.

If Transmission Owner design guides, standards or specifications do not address a particular item or issue, Interconnection Customers shall use any other nationally or regionally recognized standard, guide or specification. If there is a conflict between any other standard, guide or specification used by the Interconnection Customers and the Transmission Owner's design guides, standards and material/construction specifications, Transmission Owner's design guides, standards and specifications shall apply.

1.3 Communication Requirements. Interconnection Customer shall provide analog and digital signals including hardened voice communications, as requested by the Transmission Owner and/or the Transmission Provider for RTU/frame relay/or public switched telephone systems, as further defined during detailed engineering and design of the Interconnection Facilities. Interconnection Customer agrees to transmit these signals to Transmission Owner's control building or to such other location as specified by the Transmission Owner during the detailed design of the Interconnection Facilities and Network Upgrades. Transmission Owner shall provide Interconnection Customer with the necessary substation information at the Transmission Owner's signals demarcation point. Interconnection Customer will pay all costs associated with receiving such information from Transmission Owner. The specific location of the demarcation point will be established during the detailed design of the Interconnection Facilities.

1.4 Metering Requirement. Interconnection Customer shall be responsible for all interconnection metering.

1.5 Grounding Requirements. Interconnection Customer shall design, install, and maintain grounding facilities to ground the Interconnection Customer's Interconnection Facilities, in accordance with Applicable Reliability Standards and Good Utility Practice. Interconnection Customer shall be responsible for detailed modeling and evaluation of the interconnected grounding system at the location of the Transmission Owner's Interconnection Facilities and Interconnection Customer's Interconnection Facilities. If Transmission Owner so chooses, Transmission Owner shall have the right to approve the grounding system design to ensure that the grounding system properly protects the Transmission Owner's Interconnection Facilities.

1.6 Transmission Line and Substation Connection Configurations. The Parties agree that the connections between Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be as configured in Exhibit A2-2. Exact transmission line locations will be developed by Transmission Owner during the detailed design and regulatory process. Interconnection Customer shall provide the space necessary for the Transmission Owner's placement of the transmission line facilities.

1.7 Unit Stability Requirements. Interconnection Customer agrees to operate its Generating Facility in accordance with the stability requirements identified in the Interconnection Evaluation Study and Interconnection Facilities Study reports, or their equivalent, prepared for this interconnection and which have been posted on the

Transmission Provider OASIS. Interconnection Customer agrees to operate its Generating Facility within the operating requirements of the Transmission System, and the rules of the NERC, Reliability Coordinator and Transmission Provider.

1.8 Equipment Ratings. Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of the facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study in order that the Interconnection Customer's Interconnection Facilities appropriately coordinate with the Transmission Owner's Interconnection Facilities.

1.9 Short Circuit Requirements. Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of such items. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study.

1.10 Synchronizing Requirements. In addition to requirements defined in Section 2 of this Appendix C, at the Transmission Owner's discretion, Transmission System bus potentials will be furnished which may be used by Interconnection Customer for synchronizing the combined Generating Facility to Transmission Owner's Transmission System. This potential will be provided to the Interconnection Customer at the Transmission Owner's signal demarcation point, as necessary.

1.11 Generation Control and Modeling Verification Requirements.

1.11.1 Generator Control. In addition to the requirements set forth elsewhere in Appendix C, the Generating Facility shall be designed and installed with voltage and var controls. These controls shall comply with any Applicable Reliability Standards, industry standards, or Good Utility Practice. The Interconnection Customer, prior to completion of the Generating Facility, shall contact the Transmission Owner for the information required to properly design the phase of the Generating Facility. Interconnection Customer further agrees to comply with any control requirements as specified in the Interconnection Facilities Study and as directed by the Transmission Operator, and shall design and construct each generating unit of its Generating Facility, if more than one unit, to include the capability to install power system stabilizers if later required. Interconnection Customer will provide Transmission Owner with Generating Facility and Interconnection Customer Interconnection Facilities' operating control setpoints, prior to Commercial Operation of the Generating Facility. Generating Facility and Interconnection Customer Interconnection Facilities and those facilities' operating control setpoints shall accurately reflect the modeling data provided by the Interconnection Customer for use in the Interconnection Studies.

1.11.2 Generator Control Modifications.

If operating control setpoints for Interconnection Customer's facilities deviate from the control setpoints evaluated in the Interconnection Studies, Transmission Owner may request Interconnection Customer change operating control setpoints, and Interconnection Customer shall revise setpoints as requested. After commissioning, the Interconnection Customer shall notify Transmission Owner prior to revising its operating control setpoints or operating characteristics. Changes to Interconnection Customer control setpoints will be subject to Transmission Planner or Planning Coordinator review and approval. Operation of the Generating Facility with operating control setpoints other than those evaluated in the Interconnection Studies or construction of the Generating Facility inconsistent with the modeling of the Generating Facility in the Interconnection Studies may have a material adverse impact on the Transmission System and may be considered a Material Modification.

1.11.3 Modeling Information. The Interconnection Customer shall provide the Transmission Owner all necessary short circuit, power flow, stability dynamic, harmonic modeling information, facility ratings, and momentary current blocking utilization for the Generating Facility and Interconnection Customer Interconnection Facilities. This modeling information shall be provided prior to energization and subsequently prior to changes being made, in such time as to allow the Transmission Owner to evaluate.

1.12 Power Factor Design Criteria. Interconnection Customer's Generating Facility is designed to be capable of operating within a power factor between 0.95 leading to 0.95 lagging at the high side of the Interconnection Customer's substation's step-up transformer. Interconnection Customer agrees to operate its Generating Facility, as directed, to produce or absorb reactive power at the Point(s) of Interconnection within the design limitations of the Generating Facility.

1.13 Inverter Based Resource Requirements.

1.13.1 Current Priority Operating Mode. Unless otherwise agreed upon and noted, under normal operation, IBR generating facilities shall operate in an "Active Current Priority" or an equivalent mode. During fault ride-through, IBR generating facilities shall switch to operate in a "Reactive Current Priority" or an equivalent mode. Post fault, the IBR generating facilities shall return to operating in an "Active Current Priority" or an equivalent mode.

1.13.2 Analog Measurement Window. The following is applicable to all frequency and voltage elements in section 1.13 of Appendix C of this GIA. Frequency tripping calculations shall be over a six-cycle window or greater. Voltage and current tripping calculations shall utilize RMS measured values over a one-cycle or greater window.

1.13.3 Current Blocking. Current Blocking has also been referred to as momentary cessation throughout the utility industry. The Interconnection Customer's facilities shall continue current injection inside the "No Trip" zone of the frequency and voltage ride through curves of PRC-024. They also shall continue to inject current inside the "May Trip: zone of the

frequency and voltage ride through curves of PRC-024 up to the capabilities of the Generating Facility. Current Blocking shall only be permitted if identified as necessary through Interconnection Studies.

1.13.4 Fault Ride-Through and Protection

1.13.4.1 Reference Point of Applicability ("RPA") – Except where stated otherwise "RPA" for all technical, minimum requirements for interconnection, capability and performance referenced in sections, tables, or figures of this Appendix C shall be the Point of Measurement ("POM") as shown in Figure C-2. Nominal voltage for use in Appendix G, Section B subclause 7.2.2.1 shall be the nominal voltage at the POI.

1.13.4.2 AC Voltage Protection - Continuous. IBR plant and feeder protection shall ride through continuous voltage disturbances per Table 11 and Table 12 of IEEE 2800-2022 (Table C-2 & C-3).

Table 11 —Voltage ride-through requirements at the RPA for IBR plants with auxiliary equipment that cause ride-through limitations[89]

Applicable voltage (p.u.) at the RPA	Operating mode/response	Minimum ride-through time (s) (design criteria)
V > 1.20	May ride-through or may trip	NA
V > 1.10	Mandatory operation	1.0
V > 1.05	Continuous operation[90]	1800
V < 0.90	Mandatory operation	3.00
V < 0.70	Mandatory operation	2.50
V < 0.50	Mandatory operation	1.20
V < 0.25	Mandatory operation	0.16
V < 0.10	Permissive operation[91]	0.16

Table 12 —Voltage ride-through requirements at the RPA for IBR plants without auxiliary equipment that cause ride-through limitations

Applicable voltage (p.u.) at the RPA	Operating mode/response	Minimum ride-through time (s) (design criteria)
V > 1.20	May ride-through or may trip	NA
V > 1.10	Mandatory operation	1.0
V > 1.05	Continuous operation[90]	1800
V < 0.90	Mandatory operation	6.00
V < 0.70	Mandatory operation	3.00
V < 0.50	Mandatory operation	1.20
V < 0.25	Mandatory operation	0.32
V < 0.10	Permissive operation[91]	0.32

NOTE 1—For interconnection at 500 kV system nominal voltage, the minimum ride-through time is infinite when applicable voltage is > 1.05 per unit and ≤ 1.10 per unit at 500 kV base.

NOTE 2—For isolated IBR, regardless of their energy resource, interconnecting via a dedicated VSC-HVDC transmission facility, the voltage ride-through requirements specified in Table 12 applies.

NOTE 3—For IBR plants consisting of photovoltaic (PV) and ESS that do not use auxiliary equipment that causes ride-through limitations, as determined during the *IBR plant* design evaluation in Clause 12, the voltage ride-through requirements specified in Table 12 applies.

NOTE 4—The nominal system voltage as defined in ANSI C84.1 is used as a base to derive per unit values in Table 11 and Table 12. The respective maximum voltage in ANSI C84.1 is adopted as a high-voltage limit for the *continuous operation region*. When the TS is normally operated outside of *continuous operation region*, the *TS owner* should provide a base voltage value and respective *continuous operation range* for purposes of voltage ride-through requirements.

NOTE 5—In case of hybrid IBR plants consisting of various IBR technologies, some combination of voltage ride-through capability requirements specified in Table 11 and Table 12 may need to be applied. In such a circumstance, the capability shall be based mutual agreement between TS owner and IBR owner.

Table C-2 & C-3[1]

1.13.4.3 AC Voltage Protection - Transient. The IBR plant and feeder protection shall ride through transient overvoltage disturbances and/or switching transients per Table 14 of IEEE 2800-2022 (Table C-4).

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 11 & Table 12: Voltage ride-through requirements at the RPA for IBR plants with and without auxiliary equipment that cause ride-through limitations

Table 14—Transient overvoltage ride-through requirements at the RPA

Voltage[c] (p.u.) at the RPA	Minimum ride-through time (ms)[d] (design criteria)[b]
V > 1.80	See footnote[a]
V > 1.70	0.2
V > 1.60	1.0
V > 1.40	3.0
V > 1.20	15.0

[a] Appropriate surge protection shall be applied at the RPA as well as within the *IBR plant*, including *IBR unit* terminals (POC), as necessary.
[b] The minimum ride-through times specified in Table 14 apply to both 50 Hz and 60 Hz systems.
[c] Specified voltage magnitudes are the residual voltages with surge arresters applied.
[d] Cumulative time over a 1-min time window.

Table C-4[2]

1.13.4.4 Frequency Protection. The IBR plant frequency protection shall ride through frequency excursions as specified in Figure 12 and Table 15 of IEEE 2800-2022. (Figure C-1 & Table C-5)

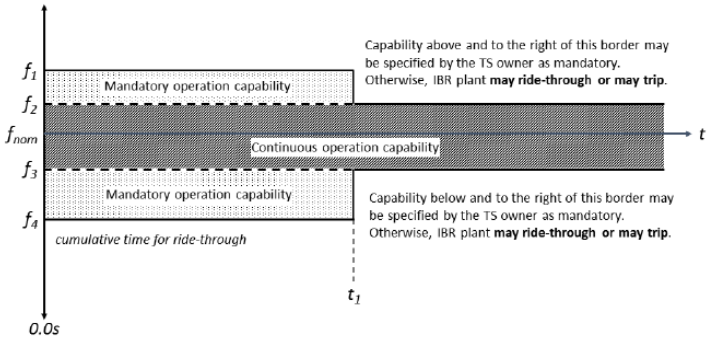


Figure 12—Frequency ride-through capability requirements for *IBR plant*

Table 15—Frequency ride-through capability for an *IBR plant* (see Figure 12)

Frequency range (Hz)	Percent from f_{nom}	Minimum time (s) (design criteria)	Operation
f_1, f_4	+3, −5	299.0 (t_1)	Mandatory operation
f_2, f_3	+2, −2	∞	Continuous operation

Figure C-1, Table C-5[3]

1.13.4.5 AC Voltage and Overcurrent Protection. If utilized this element shall not limit the Generating Facility ride-through capabilities and as applicable shall be coordinated with the Transmission Owners protection schemes.

1.13.4.6 Rate-of-change-of-frequency. Inverter rate-of-change-of-frequency (ROCOF) protection shall be disabled unless an equipment limitation exists that requires the inverter to trip on high ROCOF

[2] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 14: Transient overvoltage ride-through requirements at the RPA

[3] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Figure 12 & Table 15: Frequency ride-through capability requirements for IBR plant

1.13.4.7 Phase lock loop (PLL). The IBR plant shall ride through positive sequence phase angle differences at the applicable voltage within the sub-cycle-to-cycle time frame of less than or equal to 25 electrical degrees per IEEE 2800-2022 section 7.3.2.4.

1.13.5 Active Power-Frequency Control

1.13.5.1 Droop. The control system shall have an adjustable proportional droop with a default value of 5 percent. The droop response shall include capabilities to respond to both underfrequency and over-frequency directions. Droop should be based on the difference between maximum nameplate and zero output (Article 9.6.4).

1.13.5.2 Ramp Rates. The closed-loop dynamic response of the active power-frequency control system of the overall Generating Facility shall meet or exceed the performance criteria specified in Table C-6.

Parameter	Units	Performance Target
Reaction time	Seconds	0.50
Rise time	Seconds	4.0
Settling time	Seconds	10.0
Damping Ratio	Unitless	0.3
Settling band	% of change	Max (2.5% of change or 0.5% of nameplate capacity

Table C-6[4]

1.13.6 Reactive Power-Voltage Control

1.13.6.1 Plant Large Disturbance Voltage Performance.

1.13.6.1.1 The reactive current-voltage control should be stable for all expected and studied conditions performed throughout the interconnection process.

1.13.6.1.2 The reactive current-voltage control of the overall Generating Facility shall meet or exceed the performance criteria (up to the generator capability) in Table C-7. The controls should be tuned by default to meet these criteria unless identified in the Interconnection Studies.

Parameter	Performance target
Reaction time	< 250 ms
Maximum step response time	30 s

[4] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

Damping	> 0.3

Table C-7[5]

1.13.7 Current Injection During Ride-Through.

1.13.7.1 Specific to this section only, the requirements are applicable at the Point of Connection ("POC"). Reference Figure C-2 of this Appendix.

1.13.7.2 For balanced faults, the IBR shall inject reactive current dependent on the terminal voltage. The difference between reactive current injection during a fault and pre-fault reactive current output shall be incremental and shall not be negative. (i.e. reactive current during a fault shall be higher than pre-fault)

1.13.7.3 For unbalanced faults, the IBR shall inject both positive sequence reactive current as well as negative sequence current. The negative sequence current shall lead the negative sequence voltage using the criteria below:

1.13.7.3.1 Type 4 – between 90 – 100 degrees

1.13.7.3.2 Type 3 – between 90 – 150 degrees

1.13.7.4 The Interconnection Customer shall make necessary modifications to the control systems of the Generation Facility as applicable and as requested by the Transmission Owner at any time and up to the capability of the equipment to inject current at the proper magnitude and/or angle for the system.

1.13.8 Battery Energy Storage Systems ("BESS") and GFM Requirements. Battery energy storage systems connecting to ITC facilities may be required to have Grid Forming capabilities when warranted by study. Given the rapid pace of the change in the generation fleet, Interconnection Customers connecting BESS are strongly encouraged to request manufacturers of its BESS to include GFM capabilities.

1.13.8.1 In the event a BESS is required to have GFM capabilities, the performance characteristics indicated below may be required. These characteristics would be provided by the BESS within the GFM BESS equipment's rating limits.

1.13.8.1.1 GFM-Specific Voltage and Frequency Support: GFM shall provide autonomous, near-instantaneous frequency and voltage support by maintaining a nearly constant internal voltage phasor in the sub-transient time frame, including:

1.13.8.1.1.1 Phase Jump Performance: GFM shall resist near-instantaneous voltage magnitude and phase angle changes by providing appropriate levels of active and reactive power output in the sub-

[5] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

transient time frame.

1.13.8.1.1.2 System Strength Support: GFM shall help reduce the sensitivity of voltage change for a given change in current in the sub-transient time scale.

1.13.8.1.2 Ability to Stably Operate with Loss of Last Synchronous Machine: GFM shall be able to stably operate through and following the disconnection of the last synchronous machine in its portion of the power grid.

1.14 Energization, Inspection and Testing Requirements. Before Notice of Commercial Operation is given per Appendix E, Interconnection Customer shall demonstrate to the Transmission Provider and Transmission Owner, if requested by Transmission Owner, through witnessed tests and/or certified test documentation, that the combined Generating Facility will not have adverse impact on the operation of the Transmission System. Such tests and inspections shall include pre-energization testing of equipment connected to the transmission bus, protection and control systems and pre-commercial testing of the governor, excitation and/or power system stabilizer controls. Specific test requirements and documentation need to be arranged with Transmission Owner prior to tests being performed. Protection and control systems include, but are not limited to, AC auxiliary, DC systems, relaying systems, potential and current circuits, and communication systems.

1.15 If applicable, the unique requirements, if any, of the Transmission Owner to which the Generating Facility will be physically interconnected. None identified.

1.16 Other. Interconnection Customer shall provide all necessary easements over all property owned, leased or otherwise controlled by Interconnection Customer, including easements for ingress/egress by Transmission Owner for access to all Transmission Owner's Interconnection Facilities and Network Upgrades that are on the property of Interconnection Customer. Specific real estate requirements will be determined during the final design. Interconnection Customer agrees to grant Transmission Owner reasonable easements in a form that is acceptable to Transmission Owner. It is expressly understood and agreed that Transmission Owner may, during the term of the GIA, make changes to its Transmission System. Interconnection Customer agrees to make any modifications, additions or changes to the Interconnection Customer's Interconnection Facilities that are reasonably necessary or required as a result of such change, modification or addition to Transmission Owner's Transmission System and at Interconnection Customer's sole cost and expense.

2. SPECIFIC SYSTEM PROTECTION REQUIREMENTS

General. The Transmission Owner will construct a protective relaying scheme to protect the Transmission System from faults occurring on the Interconnection Customer's Interconnection Facilities or the Generating Facility and from faults occurring on the Transmission Owner's Interconnection Facilities and Transmission System. Reclosing of generation to the ITC transmission system is typically not allowed. At the Interconnection

Customer's request, reclosing may be considered by Transmission Owner provided the operations of the system, the protection of the system, and all other system constraints can be adjusted to accommodate the reclosing request. This will be done solely at the Interconnection Customer's liability. The Interconnection Customer shall not implement any anti-islanding protection schemes that limit ride-through capability. Interconnection Customer will be responsible for providing protection for the Generating Facility and all associated equipment from faults occurring on its facilities and from faults or other electrical disturbances occurring on the Transmission Owner's Transmission System or any interconnected system. The Interconnection Customer will be responsible for removing any fault contribution of the Generating Facility to any short circuit occurring on the Transmission Owner's Transmission System or any interconnected system not otherwise isolated by the Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission Owner, as applicable. For example, when the only source behind a transmission line fault is the generator, the local transmission line relaying may not trip and will require the Generating Facility to clear the disturbance. The Generating Facility protection needs to be coordinated with the Transmission Owner prior to implementation and as applicable shall meet the frequency, rate of change of frequency, voltage, overcurrent, and ride-through requirements of section 1.13 of Appendix C of this GIA.

In accordance with Good Utility Practice, Interconnection Customer shall design protection schemes such that no single component failure will prevent the isolation of faults for failed equipment. Meeting this requirement generally means providing redundant or backup protective schemes, with separate sensing sources, separate trip paths, dual trip coils on breakers, breaker failure, separate control power where no single DC breaker tripping disables both protection schemes. Where redundant batteries are not present, both monitoring and reporting to a Control Center for both open circuit and low voltage DC alarming is required.

2.1 Changes to Relay Firmware. Firmware changes on interconnecting line relays shall be coordinated with and receive approval by the Transmission Owner prior to being placed into service.

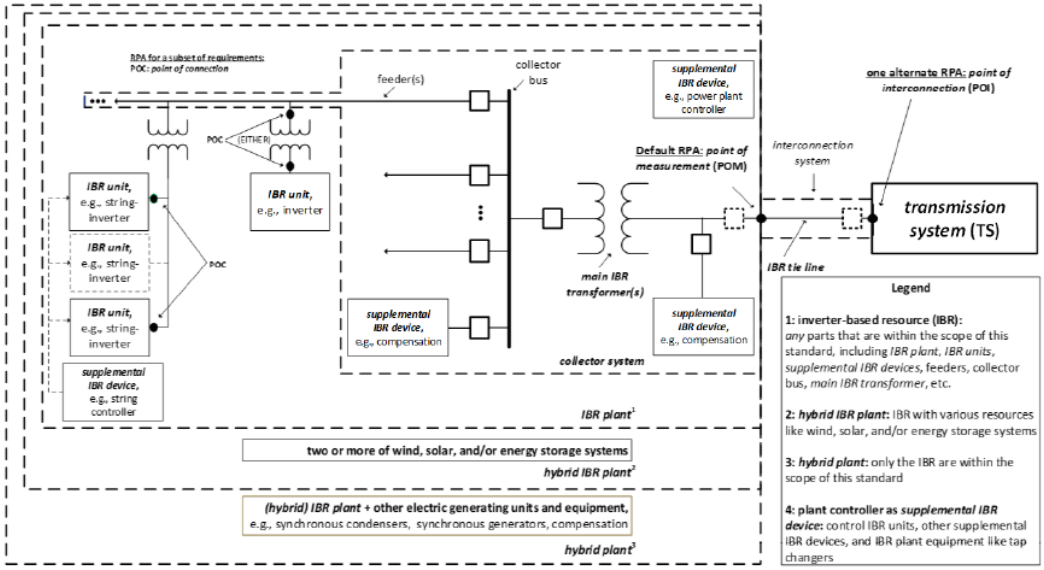
3. SPECIFIC TELEMETRY REQUIREMENTS.

General: Telemetry is required for the monitoring and status of Interconnection Customer's equipment in a format that is acceptable to the Transmission Owner. Details of the specific telemetry requirements will be provided during the detailed design of the facilities. Interconnection Customer shall install and pay the installation cost and monthly communication costs of all required telemetry for the Generating Facility and provide the data to the Transmission Owner, typically via ICCP. In general, Transmission Owner requires continuous telemetry of the following:

3.1 Status of all circuit breaker(s) capable of disconnecting the Generating Facility from the Transmission Owner's Transmission System.

3.2 Instantaneous RMS MW, MVAR, phase voltages, and plant bus frequency compensated the substation high voltage terminals POM. For IBR facilities, data should be aggregated to the POM.

3.3 As applicable, each IBR shall monitor and retain plant SCADA records and digital fault recorder recordings that will include but not limited to logging of all breaker statuses, relaying trips, and control operations throughout the Plant per IEEE 2800-2022 Section 11 Table 19 (Table C-8 below). This information shall be shared with the Transmission Owner as requested within 10 Business Days of the request to support post-event analysis. Refer to Figure 1 of IEEE 2800-2022 (Figure C-2) for what is included as "Plant" for this section.



NOTE 1—The POM is the default RPA. Moving the RPA from the POM to the POI may exceed the technical minimum requirements specified in this standard and may require deliberate consideration of the pros and cons. For example, the ability of *IBR plants* to meet the performance requirements in this standard may be impacted if the *IBR owner* is not allowed to install their measurement and control equipment at the POI substation.[21]

NOTE 2—The POC may be at either side of the *IBR unit* transformer, if present.

NOTE 3—A *supplemental IBR device*, e.g., reactive power compensation equipment, plant controller, and other examples as listed in NOTE 1 of the definition in 3.1, may be used to achieve compliance with the requirements of this standard at the RPA. In case where synchronous condenser is used as a *supplemental IBR device*, refer to a general exemption in 1.4.

NOTE 4—More complex IBR connection setups that include multiple IBR tie lines to one or to multiple POIs in the TS may be found in the practice for reliability or other reasons.

NOTE 5—Other electric generating units and equipment, e.g., synchronous condensers, synchronous generators with the exception of synchronous generators connected to the TS via an inverter, and compensation that is not associated with an IBR, are outside the scope of this standard.

Figure C-2[6]

[6] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Figure 1: Illustration of defined terms for ac-connected inverter-based resources (IBRs).

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Plant SCADA data (CSV file)	The plant SCADA system is often a lower resolution repository of information that, at minimum, shall include the following data points: Measurements — *Point of measurement* voltage and medium-voltage *collector system* voltages — *Point of measurement* frequency — *IBR plant* active and reactive power output — *IBR units* active and reactive power output of individual[147] — Shunt dynamic device reactive power output Signals — External control signals from the *TS operator* (BA, RTO, RC, etc.) — External automatic generation control signals — Active and reactive power commands sent to *IBR units*	One record per s	1 year	One year	Subclause 4.4, Table 1

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Plant equipment status (tabular log file)	— All breaker statuses, including change of status log — Shunt (dynamic or static) reactive compensation device statuses — Substation transformer status (main step-up and *collector system*) — Status of on load tap changer — Medium-voltage *collector system* statuses — Status of individual *IBR units* — Time stamp — Time synchronization (e.g., GPS status word) or status of the GPS clock signal	Static, as changed	1 year	NA	Not applicable
Unit functional settings	— *IBR unit* autonomous functions parameter settings[148]	Static, as changed	1 year	NA	Not applicable
Sequence of events recording (SER) data (tabular log file, time tag shall have an accuracy of one millisecond or less)	SER devices should be sized to capture and store hundreds or thousands of event records and logs. SER event records can be triggered for many different reasons but at minimum, shall include the following: — Event date/time stamp (synchronized to common reference, e.g., Coordinated Universal Time [UTC]) — Event type (status changes, synchronization status, configuration change, etc.) — Sequence number (for potential overwriting)	Static, as changed	90 days	NA	Not applicable
Digital fault recording (DFR) data (COMTRADE format and tabular log file)	This data shall be captured for at least the plant-level (e.g., at the *point of measurement*) response to BPS events. It is typically high resolution (kHz) point-on-wave data (transient) and triggered based on configured settings. Data points shall include: — Time stamp — Phase-to-ground voltage for each phase — Bus frequency (as measured/calculated by the recording device) — Each phase current and residual or neutral current — Calculated active and reactive power output — If applicable, dynamic reactive device voltage, frequency, current, and power output — Applicable binary status	≥ 128 samples per cycle, triggered	90 days	5 s COMTRADE data, (split between pre-fault and post-fault data needs to be mutually agreed upon with the *TS owner/TS operator*)	Subclause 4.4, Table 2
Dynamic disturbance recorder (DDR) data (COMTRADE format and tabular log file)	A DDR shall capture the specified plant-level data continuously at the *point of measurement*. This data can be used for multiple purposes including event analysis and disturbance-based model verification. Data points shall include: — Time stamp — Bus voltage phasor (phase quantities and positive-sequence) — Bus frequency — Current phasor (phase quantities and positive-sequence) — Calculated active and reactive power output	Input: ≥ 960 samples per s output: ≥ 60 times (records) per s, continuous[149]	1 year	NA[149]	Subclause 4.4, Table 2
Inverter fault codes and dynamic recordings (CSV file and tabular log file)	For grid BPS faults/events which trigger ride-through operation of an *IBR unit* or cause it to trip, the following information shall be recorded at *IBR units* for analysis: — All major and minor fault codes — All fault and alarm status words — Change of operating mode — High- and low-voltage ride-through — High- and low-frequency ride-through — PLL loss of synchronism — DC current and voltage — AC phase currents and voltage — Pulse width modulation index (if applicable) — Control system command values, reference values, and feedback signals	Many kHz, triggered	90 days	5-s data, (split between pre-fault and post-fault data needs to be mutually agreed upon with the *TS owner/TS operator*)	Stated by *IBR owner*
Power quality—flicker (PQDIF format)	Plant-level P_{st} and P_{lt} using a flicker meter that is compliant with IEC 61000-4-15 and IEC 61000-4-30	10 min	90 days	NA	IEC 61000-4-30

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Power quality—RVC (PQDIF format)	Plant-level RVC (DeltaV/V) using a PQ meter that is compliant with IEC 61000-4-30 (IEC RMS value measured by one cycle, updated every half cycle)	NA	90 days	NA	IEC 61000-4-30[150]
Power quality—Very short-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50). Unless required by the *TS owner*, very short-term harmonics measurements are optional.	3 s	10 days	NA	IEC 61000-4-7 and IEC 61000-4-30
Power quality—short-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50).	10 min	90 days	NA	IEC 61000-4-7 and IEC 61000-4-30
Power quality—long-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50).	95 weekly percentile (per IEEE Std 519)	1 year	NA	IEC 61000-4-7 and IEC 61000-4-30

Table C-8[7]

3.4 Instantaneous revenue quality MW and MVAR; and cumulative revenue quality MWhr and MVARhr at all (or possibly corrected to) Points of Interconnection with Transmission Owner and from the Generating Facility.
3.5 Status of auxiliary station service circuit breaker(s).
3.6 Instantaneous bus voltage(s).
3.7 Transfer trip communication and generation site transfer trip communication status.
3.8 Changes in energy production of the Generating Facility.
3.9 Status indication of automatic voltage regulator equipment.
3.10 Other telemetry as required and mutually agreed upon by the Interconnection Customer and Transmission Owner.

4. SPECIFIC OPERATIONAL REQUIREMENTS.

4.1 System Protection Facilities (Relays As They Relate To Operations). Interconnection Customer shall notify Transmission Owner in advance of planned protection system work and immediately following discovery of protection system failures, which may affect Transmission Owner's system. Interconnection Customer shall report all generator protective relay events to the Transmission Owner system control center, immediately following Interconnection Customer's discovery of the event.

4.2 Data Reporting Requirements. Interconnection Customer shall supply all information regarding events and status of equipment within the Facility upon request for any event that noticeably affects the operation of the Transmission System. Interconnection Customer shall provide outage schedules, daily/hourly load profiles, and other data upon request of Transmission Owner.

4.3 Emergency Operations, Including System Restoration and Black Start Arrangements. Interconnection Customer is not able to operate as a Black Start Unit as of the effective date of this GIA. However, in accordance with Good Utility

[7] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 19: Measurement data – type, points, sampling rate, retention and duration.

Practice, Interconnection Customer agrees to participate when called upon by Transmission Provider or Transmission Owner, in Transmission Owner's Black Start Plan for the Generating Facility and Transmission Owner's Transmission System, as well as any verification testing.

4.4 Identified Must-Run Conditions. None noted for this Generating Facility.

4.5 Specific Transmission Requirements of Nuclear Units to Abide by All NRC Requirements and Regulations. Not applicable to this interconnection.

4.6 Stability Requirements, Including Output. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or Transmission Owner in the operation of the Generating Facility.

4.7 Limitations of Operations in Support of Emergency Response. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or the Transmission Owner in the operation of the Generating Facility.

5. DRAWINGS AND DOCUMENTS

General. Upon request, Transmission Owner shall provide the "as-built" drawings, information, and documents regarding the Transmission Owner's Interconnection Facilities pursuant to Article 5.11 of the GIA.

6. OPERATING LIMITS

General. In accordance with Section 9.4 of the GIA, the operating limits established for the Generating Facility under this GIA shall be as provided by Transmission Provider each quarter, as described in Appendix A. Any operating guides necessary following Commercial Operation will be established in accordance with Section 9.3.

7. USE OF RAS OR OPERATING GUIDE

General. Implementation of an Operating Guide will constitute an interim solution that will permit Interconnection Customer to obtain conditional Interconnection Service until planned for Network Upgrades are constructed. Any Operating Guide will be subject to the approval of the Transmission Owner and Transmission Provider. Minimum requirements for an Operating Guide are as indicated below.

- Transmission Owner will control Transmission Owner's breaker(s) protecting the Interconnection Customer Interconnection Facilities located at the Generating Facility and shall be able to trip the Interconnection Customer's Generating Facility.
- Protection schemes must be tested and operative.
- Interconnection Customer will operate its Generating Facility as directed by the Transmission Provider and the Transmission Owner.

- A termination date consistent with completion of Network Upgrades will be mutually agreed to as part of all Operating Guides accepted by the Transmission Owner and the Transmission Provider.

Transmission Owner does not allow the addition of an RAS (Remedial Action Scheme) to the Transmission Owner's system. The Transmission Owner will also not allow the addition of a RAS on a system, including the Generating Facility, where the purpose of that RAS is to mitigate a constraint on the Transmission Owner's system.

Original Sheet No. 133

Appendix D to GIA
Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information ("CEII") as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Original Sheet No. 134

Appendix E to GIA
Commercial Operation Date

This Appendix E is a part of this GIA between Transmission Provider, Transmission Owner and Interconnection Customer.

[Date]

Midcontinent Independent System Operator, Inc.
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Michigan Electric Transmission Company
Attn: Manager, Commercial Contracts
27175 Energy Way
Novi, MI 48377

Re: _____ Generating Facility

Dear _____:

On **[Date] [Interconnection Customer]** has completed Trial Operation of **[____]** MW of the Project **[____]** Generating Facility. This letter confirms that **[Interconnection Customer]** commenced commercial operation of **[____]** MW of the Project **[_____]** Generating Facility, effective as of **[Date plus one Calendar Day]**.

Thank you.
[Signature]

[Interconnection Customer Representative]
cc: Transmission Owner
itcagreementsmichigan@itctransco.com

Appendix F to GIA
Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
Attn: General Counsel
27175 Energy Way
Novi, MI 48377
Jdanna@itctransco.com

Interconnection Customer:

Lakeside Solar, LLC
Attn: Rafik Halim, MSEE, PE Vice President Transmission
Geronimo Power
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Billings and Payments:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
P.O. Box 673971
Detroit, MI 48267-3971

Interconnection Customer:

Geronimo Power Accounting
Attn: Jake Schroeder
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
AP@geronimopower.com

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

Phone: (317) 249-5700
Email: misotap@misoenergy.org or
MISOTransmissionAccessPlanning@misoenergy.org

Transmission Owner:

Michigan Electric Transmission Company
Attn: Planning Department – Vice President
27175 Energy
Way Novi, MI 48377

Interconnection Customer:

Lakeside Solar, LLC
Attn: Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Appendix G to GIA
Interconnection Requirements for Inverter-Based Resource Plants

Appendix G sets forth requirements and provisions specific to inverter-based resource (IBR) plants. Transmission Owner Local Planning Criteria for IBR performance may differ from Appendix G requirements. In such cases, Transmission Owner Local Planning Criteria shall supersede the Appendix G requirements and be documented in Appendix C of this GIA [1]. All other requirements of this GIA also apply to IBR plant interconnections. *IBR plants* shall meet both Applicable Reliability Standards and Appendix G requirements. Battery energy storage systems required to furnish grid-forming controls shall be exempt from specific IEEE 2800 requirements as outlined in the BPM for Generator Interconnection. Italicized terms indicate IEEE 2800-2022 defined terms[2]. IEEE 2800-2022's definitions will govern these italicized terms unless otherwise defined herein.

A. General

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 4 requirements, except for subclauses 4.1 (introduction), 4.5 (operational measurement and communication capability), 4.6 (control capability requirements), 4.8 (isolation devices), 4.9 (inadvertent energization of TS), 4.11 (interconnection integrity), and 4.12 (integration with TS grounding).

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as Transmission Provider and Transmission Owner[3] specification options noted in IEEE 2800-2022.

- Subclause 4.2.1: The *reference point of applicability* (RPA) shall be at the *point of measurement* (POM) bus with the exception of requirements specified in Clauses 7.2.2.3.4 and 7.2.2.3.5 of the standard to have the RPA at the *point of connection* (POC).

- Subclause 4.3: The Transmission Owner shall specify the nominal voltage and frequency at the RPA in Appendix C of this GIA.

- Subclause 4.10.2: The *enter service* criteria shall use the default values for *applicable voltages* and *applicable frequency* specified in the table below unless otherwise specified in Appendix C of this GIA[4].

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[1] IEEE 2800-2022 points to "weak grid" issues requiring exceptions to default values and ranges of available settings for various types of performance. IEEE 2800-2022 Annex C.2 contains discussion on characterizing weak grid areas.

[2] "IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems," in IEEE Std 2800-2022 , vol., no., pp.1-180, 22 April 2022, doi: 10.1109/IEEESTD.2022.9762253.

[3] For the purpose of this GIA, the IEEE 2800 term of *TS operator* is synonymous with Transmission Owner and the IEEE 2800 term of *TS owner* is synonymous with Transmission Planner or Transmission Owner, as applicable.

[4] MISO default values may be modified within the IEEE 2800 range of allowable settings by Transmission Owner Local Planning Criteria.

Enter service criteria	Default setting
Applicable voltage, minimum value	0.9 p.u.
Applicable voltage, maximum value	1.05 p.u.
Applicable frequency, minimum value	58.8 Hz
Applicable frequency, maximum value	60.12 Hz.

- Subclause 4.10.3: The performance during *enter service* shall use the default values specified below unless otherwise specified in Appendix C of this GIA.

  - The minimum intentional delay performance, as defined in Subclause 4.10.3, b), shall be 0 seconds.

  - The duration of the *enter service* period, as defined in Subclause 4.10.3, c), shall be 300 seconds.

B. Response to Abnormal Conditions

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 7 requirements, except for subclauses 7.2.1 (voltage protection) and 7.3.1 (mandatory frequency tripping). Where Applicable Reliability Standards require more stringent ride-through requirements compared to IEEE 2800-2022 Clause 7 requirements, those standards shall take precedence[5].

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points[6] noted in IEEE 2800-2022.

- Subclause 7.2.2.1: The Transmission Owner shall specify the nominal voltage for use by this clause. Nominal voltages may include nominal transmission system voltages that are different from standard ANSI C84.1-2016 voltages.

- Subclause 7.2.2.2: If the *IBR plant* cannot deliver both active and reactive power due to its current limit (or apparent power limit), when the *applicable voltage* is below 95%, then preference shall be given to reactive power while minimizing any reductions in active power.

- Subclause 7.2.2.3: The *IBR plant* shall give preference to reactive power unless otherwise specified in Appendix C of this GIA. In addition, the *IBR plant* shall minimize reductions in active power while carrying out the reactive current priority mode response.

[5] More stringent ride-through requirements include, but are not limited to, expanded voltage and frequency conditions or extended cumulative times under which *IBR plants* must ride-through.
[6] Decision points refer to language in the IEEE 2800-2022 standard that leaves default values, application of requirements, and other details open for the *TS Owner* or *TS Operator* to define.

- Subclause 7.2.2.3.4: The Interconnection Customer shall submit the *IBR plant* controls default relationship between the magnitude of incremental positive and negative sequence reactive currents. The Transmission Provider and Transmission Owner, through this agreement, may specify a required *IBR plant* response relationship between the incremental positive and negative sequence reactive currents.

C. Reactive Power

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 5 requirements.

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points noted in IEEE 2800-2022.

- Subclause 5.1: The *IBR plant* shall have the reactive power capabilities outlined in this clause. Consistent with section 9.6.1 of this GIA, an *IBR plant* shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the high side of the generator substation.

- Subclause 5.2.2: The voltage control dynamic performance requirements in Table 5 shall apply when the system short-circuit strength at the RPA is equal to or above the minimum short-circuit strength identified by the Transmission Provider or Transmission Owner.

- Subclause 5.2.2: The *reaction time*, as defined in Subclause 5.2.2 Table 5, shall be 250 milliseconds or less.

- Subclause 5.2.2: The maximum *step response time*, as defined in Subclause 5.2.2 Table 5, shall be 30 seconds.

- Subclause 5.2.3: The power factor control mode shall appropriately operate at all active power levels from the Inverter Based Resource Continuous Rating ("ICR") down to, but not including, zero.

D. Primary Frequency Response

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 6 requirements, except for Subclause 6.2 (fast frequency response).

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points noted in IEEE 2800-2022.

- Subclause 6.1.1: The use of primary frequency response capabilities shall be required for all *IBR plants.*
- Subclause 6.1.1: Frequency droop shall be based on the difference between nameplate capacity and zero output such that the slopes of the droop curves are always constant.
- Subclause 6.1.2: The *settling band* default value in Table 8 shall be based on the maximum of 2.5% of change or 0.5% of nameplate capacity.

The exceptions to primary frequency response requirements provided to electric storage resources in Article 9.6.4.4 of this GIA shall still apply.

TABLE 1. SUMMARY OF ADOPTION TREATMENT OF IEEE 2800-2022 SUBCLAUSES

IEEE 2800-2022 Subclause	Required by Appendix G for DPP-2022 and later	Required by Appendix G for DPP-2023 and later	Exception
4.1 Introduction			**X**
4.2 Reference Point of Applicability	**X**		
4.3 Applicable Voltages and Frequencies	**X**		
4.4 Measurement Accuracy	**X**		
4.5 Operational Measurement and Communication Capability			**X**
4.6 Control Capability			**X**
4.7 Prioritization of IBR Responses	**X**		
4.8 Isolation Devices			**X**
4.9 Inadvertent Energization of TS			**X**
4.10 Enter Service	**X**		
4.11 Interconnection Integrity			**X**
4.12 Integration with TS grounding			**X**
5.1 Reactive Power Capability		**X**	
5.2 Voltage and Reactive Power Modes		**X**	
6.1 Primary Frequency Response		**X**	
6.2 Fast Frequency Response			**X**
7.1 Introduction	**X**		
7.2.1 Voltage protection			**X**
7.2.2.1 Voltage disturbance ride-through: General	**X**		
7.2.2.2 Voltage disturbances within continuous operation	**X**		
7.2.2.3 Low- and high-voltage ride-through	**X**		

7.2.2.4 Consecutive voltage deviations ride-through		**X**	
7.2.2.5 Dynamic voltage support	**X**		
7.2.2.6 Restore output after voltage ride-through	**X**		
7.2.3 Transient overvoltage	**X**		
7.3.1 Mandatory frequency tripping			**X**
7.3.2 Frequency disturbance ride-through	**X**		
7.4 Return to service	**X**		

E. Supervisory Control and Data Acquisition (SCADA) Capability

The *IBR plant* shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed *IBR plant*, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

F. Disturbance Monitoring and Reporting Requirements

IBR plants with generating capacities of more than 20 MW must monitor and record data for all frequency ride-through events, transient low-voltage disturbances that initiated reactive current injection, reactive current injection or momentary cessation for transient high-voltage disturbances, and inverter trips. Dynamic Disturbance Recording ("DDR") data must be recorded continuously. The data may be recorded and stored in a central plant control system. The following data must be recorded:

Plant Level

(1) Plant three-phase voltage, current and power factor

(2) Status of ancillary reactive devices

(3) Status of all plant circuit breakers

(4) Status of plant controller

(5) Plant control set points

(6) Status of main plant transformer no load taps

(7) Status of main plant transformer tap changer (if applicable)

(8) Protective relay trips (relay target data)

Inverter Level Data

(1) Frequency, current, and voltage during frequency ride-through events

(2) Voltage and current during momentary cessation for transient high-voltage events (when used)

(3) Voltage and current during reactive current injection for transient low or high-voltage events

(4) Inverter alarm and fault codes

(5) DC current

(6) DC voltage

DDR Data – Plant Level

(1) One phase-to-neutral or positive sequence voltage on high-side of the main power transformer(s)

(2) Positive sequence current or phase current for the same phase as (1)

(3) Real and reactive power flows expressed on a three-phase basis corresponding to each main power transformer(s) where current measurements are required

(4) Frequency of any one of the voltages in (1)

The data must be time synchronized to a one millisecond level of resolution. All data except DDR data must be sampled at least every 10 milliseconds. DDR data must have an input sampling rate of at least 960 samples per second and an output recording rate of electrical quantities of at least 60 times per second.

The *IBR plant* shall store this data for a minimum of 60 calendar days. The *IBR plant*, upon request from MISO or the transmission owner, shall make this data available within 10 calendar days of the request.

Phasor measurement unit ("PMU") capabilities shall be used to facilitate the DDR data.

G. Applicability

IBR plants that are, or have been, interconnected to the network at the effective date of the Appendix G abnormal voltage ride-through standard are exempt from meeting the Appendix G abnormal voltage ride-through standard for the remaining life of the existing generation equipment. Except for *IBR plants* actively undergoing a Generating Facility Replacement at the effective date of this GIA that have equipment on order where the OEM has documented

performance that differs from what is required in this GIA, all individual IBR units that are replaced are required to meet the Appendix G performance requirements.

The IEEE 2800-2022 requirements cited in Section A (IEEE 2800-2022 Clause 4) and Section B (IEEE 2800-2022 Clause 7, except Subclause 7.2.2.4) of Appendix G shall apply to *IBR plants* in the DPP-2022-Cycle and beyond. For the DPP-2022-Cycle, Interconnection Customers may request exceptions confined to these sections only if specific limitations or uncertainties of equipment or plant capabilities prevent implementation of these requirements. GIAs signed or amended with inverter changes on or after January 1, 2025, are not eligible for requirement exceptions. Further, the process for establishing exceptions for these requirements shall not apply beyond the DPP-2022-Cycle.

The IEEE 2800-2022 requirements cited in Section B (IEEE 2800-2022 Subclause 7.2.2.4), Section C (IEEE 2800-2022 Clause 5), and Section D (IEEE 2800.2022 Clause 6) of Appendix G shall apply to *IBR plants* in the DPP-2023-Cycle and beyond. For the DPP-2023-Cycle, Generating Facilities Replacements, and Surplus Interconnections, Interconnection Customers may request exceptions confined to these sections only if specific limitations or uncertainties of equipment or plant capabilities prevent implementation of these requirements. GIAs signed or amended with inverter changes on or after January 1, 2026, are not eligible for requirement exceptions. Further, the process for establishing exceptions for these requirements shall not apply beyond the DPP-2023-Cycle.

Interconnection Customers requesting exceptions shall submit documentation to the Transmission Provider outlining the specific IEEE 2800-2022 subclauses pertinent to the request along with information from the manufacturer regarding the nature of the issue conforming to or assessing conformance with requirements herein. The Transmission Provider will, in good faith, accept Original Equipment Manufacturer (OEM)-documented requirement exceptions and document these exceptions in Appendix C of this GIA.

If the performance or capability exception can be mitigated through equipment firmware upgrades still under development, the Interconnection Customer shall use commercially reasonable efforts to implement the firmware upgrade within sixty (60) calendar days of commercial availability of such firmware.

The DDR and PMU requirements in the Section F, Disturbance Monitoring and Reporting Requirements of Appendix G shall apply to *IBR plants* in the DPP-2023-Cycle and beyond.

Original Sheet No. 144

Appendix H to GIA – Not Applicable
Interconnection Requirements for Provisional GIA

Provisional Agreement

This GIA is being provided in accordance with Section 11.5 of the Transmission Provider's GIP, which provides among other things, that an Interconnection Customer may request that Transmission Provider provide Interconnection Customer with a Provisional Generator Interconnection Agreement that limits the transfer of energy by Interconnection Customer commensurate with that allowed for Energy Resource Interconnection Service. Interconnection Customer requested Transmission Provider to provide a Provisional Generator Interconnection Agreement for limited operation at the discretion of Transmission Provider based upon the results of available studies (by Interconnection Customer and by Transmission Provider).

A Provisional Interconnection Study, the results of which are posted on the confidential portion of the Transmission Provider's internet website, was performed by Transmission Provider in order to confirm the facilities that are required for provisional Interconnection Service and to require them to be in place prior to commencement of service under the GIA.

Interconnection Customer represents that the Interconnection Customer facilities (including Network Upgrades, Interconnection Facilities, Distribution Upgrades, System Protection Upgrades and/or Generator Upgrades) that are necessary to commence provisional Interconnection Service and meet the requirements of the Electric Reliability Organization, or any applicable regional entity for the interconnection of a new generator are in place prior to the commencement of generation from the Generating Facility and will remain in place during the term of the service. The requisite Interconnection Studies were performed for the Generating Facility. Interconnection Customer shall meet any additional requirements (including reactive power requirements) pursuant to the results of applicable future Interconnection System Impact Studies. Until such time as the applicable Interconnection Studies and any identified facilities are completed, the output of the Generating Facility will operate within the output limit prescribed in a future, if applicable, operating guide.

The maximum permissible output of the Generating Facility under Appendix A will be updated by Transmission Provider on a quarterly basis, determined in accordance with Section 11.5 of the GIP, by finding the transfer limit of energy commensurate with the analysis for Energy Resource Interconnection Service ("ERIS"). This study shall be performed assuming the system topology represented by the base cases used to calculate Available Flowgate Capability, as described in Attachment C of the Tariff, with dispatch and optimization algorithms posted on the MISO internet site and operation above those limits will be deemed as unauthorized use of the Transmission System and subject to provisions in the Tariff surrounding that use.

Use of interim operating guide

Implementation of interim operating guide, if applicable, will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned Network Upgrades are constructed. Any interim operating

guide will be subject to the approval of Transmission Owner and Transmission Provider. Minimum requirements for an interim operating guide are as indicated below.

* Transmission Operator will have control of breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
* Protection schemes must be tested and operative
* Interconnection Customer will provide continuous communication capability with the Generator Operator
* Interconnection Customer and the owner of the Existing Generating Facility will enter into an operating agreement or similar agreement which designates, among other things, the responsibilities and authorities of each of the parties and shall be subject to the acceptance of Transmission Provider and Transmission Owner.
* A termination date consistent with completion of construction of Network Upgrades will be included as part of all operating guides accepted by Transmission Owner and Transmission Provider.

Interconnection Customer assumes all risks and liabilities with respect to changes, which may impact the Generator Interconnection Agreement including, but not limited to, change in output limits and responsibilities for future Network Upgrade and cost responsibilities that have not yet been identified on the direct connect Transmission System as well as all affected Transmission, Distribution or Generation System(s) including non-Transmission Provider Systems. Such upgrades will be determined pursuant to the Tariff and Policies in effect at the time of the Interconnection Studies.

Original Sheet No. 146

Appendix I to GIA
Requirements Applicable to Surplus Interconnection Service

Where this GIA provides for Surplus Interconnection Service, Interconnection Customer acknowledges, agrees to, and will be required to operate under the following conditions:

1) The combined Real-Time Offers, including Energy and Operating Reserves, of the Generating Facility and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement must be less than or equal to Interconnection Service limit (MW, MVAR, MVA output) provided in Exhibit I-1 (Monitoring and Consent Agreement) (hereinafter, "Interconnection Service limit"). In the event that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility exceeds such Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

   In the event that the sum of the emergency and/or economic maximum offer limits of the Generating Facility and the Existing Generating Facility exceeds the Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

2) The total MW, MVAR, MVA output at the Point of Interconnection resulting from the combined output of the Generating Facility with Surplus Interconnection Service and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement shall not at any time exceed the Interconnection Service limit.

3) The Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement is not relieved of any applicable requirements under the RAR of the Tariff.

4) The Interconnection Customer shall submit to the Transmission Provider a report by the seventh Calendar Day of each month showing the prior month's output, by 15 minute increment, the combined real-time offers and cleared energy injection. The Existing Generating Facility and the Interconnection Customer shall cooperate consistent with other provisions in the Tariff to the extent necessary to ensure accuracy of the report. Transmission Provider shall provide a template for this report.

Exhibit I-1 (Completed Monitoring and Consent Agreement - Appendix 11 of the GIP)

Exhibit I-2 (Completed Energy Displacement Agreement - Appendix 12 of the GIP)

APPENDIX 11 TO GIP

MONITORING AND CONSENT AGREEMENT

entered into by the

Lakeside Solar, LLC

And

Michigan Electric Transmission Company, LLC

entered into on the 19th day of May, 2026

MONITORING AND CONSENT AGREEMENT

Interconnection Customer plans to own, lease and/or control and operate a Surplus Interconnection Service Generating Facility and hereby consents to have the operation of the Surplus Interconnection Service Generating Facility be monitored in accordance with this Monitoring and Consent Agreement ("Agreement") as detailed in Attachment A of this Agreement and in accordance with the terms and conditions for Surplus Interconnection Service in the MISO Tariff and in accordance with the Generator Interconnection Agreement to be entered into for the Surplus Interconnection Service Generating Facility pursuant to Attachment X of the MISO Tariff. Interconnection Customer proposes to interconnect the Surplus Interconnection Service Generating Facility at the same point of interconnection as an Existing Generating Facility as detailed in Attachment A of this Agreement which interconnects to the transmission system of Transmission Owner, which system is part of the Transmission System.

Existing Generating Facility interconnection customer owns, leases and/or controls and operates an Existing Generating Facility and is offering to coordinate its Interconnection Service with the Interconnection Customer to affect a request for Surplus Interconnection Service with the Existing Generating Facility and hereby consents to have the operation of the Existing Generating Facility be monitored in accordance with this Monitoring Agreement.

Transmission Owner owns or operates that portion of the Transmission System to which the Existing Generating Facility is interconnected, whose operations are subject to the functional control of Transmission Provider, and to which Interconnection Customer proposes connecting the Surplus Interconnection Service Generating Facility at the POI of the Existing Generating Facility. Local Balancing Authority is responsible for monitoring generation in compliance with NERC Balancing Authority Reliability Standards and is therefore required to perform monitoring functions of the Surplus Interconnection Service Generating Facility. Local Balancing Authority and/or Transmission Owner may therefore be required to perform monitoring functions as set forth in this Agreement and in accordance with the terms and conditions for Surplus Interconnection Service in the MISO Tariff in accordance with a Generation Interconnection Agreement to be entered into for the Surplus Interconnection Service Generating Facility under Attachment X of the MISO Tariff.

It is expressly understood and agreed that the Surplus Interconnection Service Generating Facility and Existing Generating Facility **Interconnection Service limit (MW, MVAR, MVA**

output) shall not at any time exceed the lower of 1) the Existing Generating Facility then-effective maximum interconnection service set forth in Attachment A to the Existing Generating Facility Generation Interconnection Agreement or 2) the applicable lower demonstrated capability limit as set forth in Attachment A (hereinafter "Interconnection Service limit"); and Transmission Owner (or Operator) by default, unless the parties mutually agree otherwise, shall monitor and control at all times the net injection at the Point of Interconnection such that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility shall not exceed the Interconnection Service limit in Attachment A of this Agreement. Interconnection Customer would pay for monitoring costs (including but not limited to construction cost, capital cost, and operating and maintenance costs), unless the Interconnection Customer and Existing Generating Facility interconnection customer agree otherwise.

Interconnection Customer Reporting requirements

Monthly (or within 24 hours if the Interconnection Service limit is exceeded) by the seventh Calendar Day in the new month, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties, shall provide a report for the prior month's offered and cleared MW output, on a 15 minute interval, of the Surplus Generating Facility and the Existing Generating Facility. The report shall also include the 15 minute peak MW, MVA and MVAR output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility.

Within 24 hours of an occurrence where the Interconnection Service limit is exceeded (a.k.a. "Event") the Interconnection Customer (or another Party if mutually agreed otherwise by the parties, shall report all pertinent information regarding the occurrence to the Transmission Provider, Transmission Owner and/or Local Balancing Authority and NERC. Each 15 minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

Actions upon occurrence of an "Event"

Upon occurrence of an Event, the monitoring party shall coordinate the implementation of the interim action plan and long term action plan with the Transmission Provider, Transmission Owner, Transmission Operator and/or Local Balancing Authority. Transmission Owner shall take the following actions to implement the action plans.

1. After the occurrence of a first Event, the Transmission Owner and Transmission Provider will implement the steps identified in the interim action plan and request the Interconnection Customer to submit the long term action plan.
2. The Transmission Owner and Transmission Provider will continue to implement the interim action plan until the Interconnection Customer submits the long term action plan.
3. After the Interconnection Customer submits the long term action plan, the Transmission Owner and Transmission Provider will remove the implementation of the interim action plan and implement the long term action plan.
4. If an Event occurs after the implementation of the long term action plan, the Transmission Owner and Transmission Provider will immediately implement the interim action plan and request that the Interconnection Customer submit a cure to ensure the effectiveness of the long term action plan within 15 Business Days of the failure of the long term action plan.
    a. If the Interconnection Customer submits documentation demonstrating the cure of the deficient long term action plan, the Transmission Owner and Transmission Provider will remove the implementation of the interim action plan and implement the cured long term action plan.
    b. If the Interconnection Customer fails to provide documentation demonstrating the cure of the deficient long term action plan, the Transmission Provider and the Transmission Owner will file for termination of the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement with FERC.

<u>Interim action plan:</u>

The interim action plan shall be coordinated and developed by the Transmission Owner and Transmission Provider prior to the execution of the Surplus Interconnection Service

Generating Facility's Generator Interconnection Agreement and will be appended to the Appendix 11 of such Generator Interconnection Agreement.
The interim action plan may include one of the following items:

a) Interconnection Customer and the Existing Generating fFacility interconnection customer shall curtail the Surplus Interconnection Service Generating Facility output to zero injection after the occurrence of an Event.
b) Interconnection Customer shall open up the breakers connecting the Surplus Interconnection Service Generating Facility to the transmission system after the occurrence of an event.

Long term action plan:

An acceptable long term action plan may include the following item:

1. Interconnection Customer shall work with Transmission Owner, Existing Generating Facility and/or as applicable Local Balancing Authority to propose design for installation of the necessary controls (such as physical equipment, enhanced procedures, or operator monitoring tools) to prevent a reoccurrence of an Event.

Acceptable action plan timeline and entities that shall receive and approve the plan:

1. Within 15 Business Days of the first Event occurrence, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties) will submit a long term action plan.
2. Within 15 Business Days of receiving the long-term action plan, Transmission Owner, Transmission Operator, and Local Balancing Authorities will send out a decision Notice, coordinated among parties, of whether or not the action plans are approved. These parties will also coordinate with Transmission Provider and inform Transmission Provider of the details of the approved long-term action plan.
3. If the long-term action plan is not approved, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties where the Interconnection Service

limit is exceeded) will submit a subsequent long-term action plan within 10 Business Days.

4. After the occurrence of an Event after the implementation of the long term action plan, the Interconnection Customer shall submit a cure to ensure the effectiveness of the long term action plan within 15 Business Days.

This Agreement does not amend, modify or supplement any agreement between the owner of the Existing Generating Facility and the Transmission Provider regarding the interconnection and operation of the Existing Generating Facility nor does it modify or supplement any of the provisions in the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement.

Unless previously terminated, this Agreement shall terminate if (i) Interconnection Customer's Interconnection Request is withdrawn; or (ii) or the required executed Surplus Interconnection Service Generating Facility's Generator Interconnection Agreementterminates.

This Agreement shall become Exhibit I-1 in the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement and shall be in effect during the term of the Surplus Interconnection Service.

Notices

General. Any notice, demand or request required or permitted to be given by a Party to another Party and any instrument required or permitted to be tendered or delivered by a Party in writing to another Party may be so given, tendered or delivered, as the case may be, by depositing the same with the United States Postal Service with postage prepaid, for transmission by certified or registered mail, addressed to the Parties, or personally delivered to the Parties, at the address set out below:

To Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Attn: Director, Regional Operations
720 City Center Drive
Carmel, IN 46032

To Transmission Owner (or Operator or Local Balancing Authority):

ITC Midwest LLC
President
100 East Grand Avenue, Suite 360
Des Moines, IA 50309
Phone: (515) 639-3340
DTerry@ITCtransco.com

With copy to:

ITC Midwest LLC
Attn: General Counsel
27175 Energy Way
Novi, MI 48377
Jdanna@itctransco.com

To Interconnection Customer:

Rafik Halim, MSEE, PE Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

Jenifer Foxx
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
jfoxx@geronimopower.com

To Existing Generating Facility customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

Jenifer Foxx
8400 Normandale Lake Blvd Suite 1200

Bloomington, MN 55437
jfoxx@geronimopower.com

Billings and Payments. Billings and payments shall be sent to the addresses shown in Article 15.1 unless otherwise agreed to by the Parties.

To Transmission Owner (or Operator or Local Balancing Authority):

To Interconnection Customer:

Jake Schroeder, Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

With a copy to:

Chris Ayika
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

To Existing Generating Facility customer:

Jake Schroeder, Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

With a copy to:
Chris Ayika
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to another Party and not required by this Agreement to be given in writing may be

so given by telephone, facsimile or email to the telephone numbers and email addresses set out below:

To Transmission Provider:

Voice telephone – (317)249-5700

Facsimile telephone – (317) 249-5358

Email address – misotap@misoenergy.org

To Transmission Owner (or Operator or Local Balancing Authority:

To Interconnection Customer:

Rafik Halim, MSEE, PE
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To Existing Generating Facility customer:

Rafik Halim, MSEE, PE
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

DUNS #. If Existing Generating Facility customer and Interconnection Customer have not obtained DUNS numbers by the time this Agreement is executed, Transmission Owner and Interconnection Customer will forward their DUNS numbers within five (5) Business Days of having obtained such numbers to Transmission Provider by facsimile telephone or email to the fax number or email set out below:

Interconnection Customer

DUNS Number: Not Applicable

To Existing Generating Facility customer:

DUNS Number: Not Applicable

IN WITNESS WHEREOF, the Parties have executed this Agreement in multiple originals, each of which shall constitute and be an original Agreement among the Parties.

Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

Signed by:
By: Brian Slocum
357A7F23DA8542F...
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Local Balancing Authority

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
Transmission Provider Project No. S1081

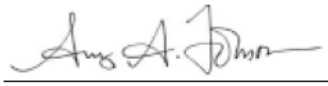
Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
If Applicable, Transmission Provider Project No. J1375

Effect of Midcontinent Independent System Operator, Inc., (“MISO**”)** signature. The Parties acknowledge and understand that the signature of the authorized officer of MISO on this Agreement is for the limited purpose of acknowledging that the representative of MISO has read the terms of this Agreement. The Parties and MISO further state that they understand that FERC desires that the Parties keep MISO fully apprised of the matters addressed herein as well as any reliability and planning issues that may arise under this Agreement, and that the signature of the officer of MISO shall not in any way be deemed to imply that MISO is taking responsibility for the actions of either Party, that MISO has any affirmative duties under this Agreement or that MISO is liable in any way under this Agreement.

The signature below of the authorized officer of MISO is for the limited purpose of acknowledging that an authorized officer of MISO has read this Agreement.

Midcontinent Independent System Operator, Inc.

By:  5/19/2026 ces
Name: Aubrey Johnson
Title: Vice President, System Planning

MONITORING AND CONSENT AGREEMENT
Attachment A

1 Surplus Interconnection Service Generating Facility Point of Interconnection (POI):
METC 138 kV Lamos Switching Station

2 Interconnection Customer's representation of the Existing Generating Facility capacity (lower of demonstrated capability or study output limit at the POI or the level in Appendix 12 EDA to be attached as GIA Appendix I-2)
(MW): 100 (MVAR): 32.9 (MVA): 3.8

3 Surplus Interconnection Service Generating Facility Interconnection Request capacity (MW): 100 (MVAR): 32.9 (MVA).3.8

4 Interconnection Service limit of the Surplus Interconnection Service Generating Facility and Existing Generating Facility capacity at the POI (shall not be greater than 2) above):
(MW): 100 (MVAR): 32.9 (MVA): 3.8

Comments:
Interconnection Customer and Transmission Owner mutually agree that the responsibility to monitor and control the net injection at the Point of Interconnection does not fall on the Transmission Owner or Transmission Operator. Interconnection Customer(s) are responsible for monitoring and controlling the net injection of generation at the Point of Interconnection. Transmission Owner will have no additional obligations for monitoring or controlling generation facilities' output under this Agreement beyond Transmission Owner's obligations under the GIAs with the Interconnection Customer and Transmission Provider.

Exhibit I-1
(Completed Monitoring and Consent Agreement
Appendix 11 of the GIP)

Exhibit I-2
(Completed Energy Displacement Agreement
Appendix 12 of the GIP)

Appendix 12 TO GIP

ENERGY DISPLACEMENT AGREEMENT

THIS ENERGY DISPLACEMENT AGREEMENT (sometimes hereinafter referred to as "Agreement") is made and entered into this 19th day of May, 2026, by and among **Lakeside Solar, LLC**, organized and existing under the laws of the State of Delaware ("Interconnection Customer"), **Lakeside Solar, LLC**, organized and existing under the laws of the State of Delaware ("Existing Generator Owner"), and **Michigan Electric Transmission Company, LLC**, a limited liability company organized and existing under the laws of the State of Michigan ("Transmission Owner or Operator"). Interconnection Customer, Existing Generator Owner, or Transmission Owner (or Operator) each may be referred to as a "Party" or collectively as the "Parties."

RECITALS

WHEREAS, Existing Generator Owner and Interconnection Customer each owns (or will own) electric facilities and is (or will be) engaged in generation and/or sale of electric power and energy; and

WHEREAS, Interconnection Customer intends to own, and operate, or manage the generating facility located in Muskegon County, and State of Michigan ("Generating Facility" or "Facility") with an expected Commercial Operation Date of 12/31/2029 pursuant to its planned Interconnection Request and will interconnect either to the facilities owned by Existing Generator Owner or to the transmission system of Michigan Electric Transmission Company, which system is part of the Transmission System; and

WHEREAS, Existing Generator Owner owns, operates, or manages the existing generating facility located in Muskegon County, and State of Michigan which interconnects to the transmission system of Michigan Electric Transmission Company, which system is part of the Transmission System.

Interconnection Customer's Generating Facility as detailed in Attachment A of this Agreement shall connect at the same Point of Interconnection as the existing generating facility.

The Generating Facility Interconnection Customer has made a Surplus Interconnection Service Interconnection Request pursuant to MISO Tariff Attachment X Generator Interconnection Process ("GIP").

The Generating Facility Interconnection Customer and existing generating facility interconnection customer shall file the financial compensation (Rates, Terms and Conditions) arrangement with FERC separately.

Existing Generator Owner, in accordance with its obligations under the Generator Interconnection Agreement when the Generator Interconnection Agreement becomes effective, shall be responsible for the maintaining the net injection at the Point of Interconnection ("POI") such that the sum of the simultaneous energy output of the Generating Facility and the existing generating facility shall not exceed the Interconnection Service limit in Attachment A of this Agreement.

The generation dispatch arrangements are shown in Attachment A. This Agreement does not amend, modify or supplement any agreement between the Existing Generator Owner and the Midcontinent Independent System Operator, Inc. ("MISO") regarding the interconnection and operation of the existing generating facility.

This Agreement shall become Exhibit I-2 in the Generator Interconnection Agreement and shall be in effect during the term of the Surplus Interconnection Service under the Generator Interconnection Agreement. Interconnection Customer's output shall be limited to zero under its Generator Interconnection Agreement during all periods for which this Agreement is not in effect.

Termination.

This Agreement shall have a termination date of no earlier than the termination date of the required Generator Interconnection Agreement; provided that sixty (60) Calendar Days prior to the Agreement termination date, the Parties agree on a new termination date that is at a minimum one year after the termination date.

Unless previously terminated, this Agreement shall terminate if (i) Interconnection Customer's Interconnection Request is withdrawn; or (ii) the required executed Generator Interconnection Agreement for the Generating Facility terminates. The existing generating facility may terminate this agreement due to Interconnection Customer -Interconnection Service limit violation events exceeding one (1) in a month or six (6) in a year. Each fifteen (15) minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

Events of Breach. A Breach of this Agreement shall include:

(a) Interconnection Service limit violation events exceeding one (1) in a month or six (6) in a year. Each 15 minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

(b) The failure to pay any amount when due;

(c) The failure to comply with any material term or condition of this Agreement, including but not limited to any material Breach of a representation, warranty or covenant made in this Agreement;

(d) If a Party (i) is adjudicated bankrupt; (ii) files a voluntary petition in bankruptcy under any provision of any federal or state bankruptcy law or shall consent to the filing of any bankruptcy or reorganization petition against it under any similar law; (iii) makes a general assignment for the benefit of its creditors; or (iv) consents to the appointment of a receiver, trustee or liquidator; or

(e) Failure of a Party to provide information or data to another Party as required under this Agreement, provided the Party entitled to the information or data under

this Agreement requires such information or data to satisfy its obligations under this Agreement.

Notice of Breach and Cure and Default. Upon the occurrence of an event of Breach, the Party not in Breach, when it becomes aware of the Breach, shall give written notice of the Breach to the Breaching Party, and Transmission Provider. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach.

Upon the occurrence described in part (d) of **Events of Breach**, the Party experiencing such occurrence shall notify the other Party and Transmission Provider in writing within seven (7) Calendar Days after the commencement of such occurrence. Upon receiving written notice of the Breach hereunder, the Breaching Party shall have a period to cure such Breach (sometimes hereinafter referred as ("Cure Period") which shall be 30 Calendar Days unless such Breach is due to an occurrence under **Events of Breach** (a), (b) or (d) in which case the cure period will be five (5) Calendar Days.

If the Breach is such that it cannot be cured within the Cure Period, the Breaching Party will commence in good faith all steps as are reasonable and appropriate to cure the Breach within such Cure Period and thereafter diligently pursue such action to completion. In the event the Breaching Party fails to:

(A) cure the Breach, or to commence reasonable and appropriate steps to cure the Breach, within the Cure Period; or,

(B) completely cure the Breach within sixty (60) Calendar Days if the Breach occurs pursuant to **Events of Breach** (c) or (e),

the Breaching Party will be in Default of this Agreement and the non-Breaching Parties may, at their option, either in concert or individually, (1) act to terminate this Agreement for cause by notifying the other Parties in writing, or (2) take whatever action at law or in equity as may appear necessary or desirable to enforce the performance or observance of any rights, remedies, obligations, agreement, or covenants under this Agreement.

Rights in the Event of Default. Notwithstanding the foregoing, upon the occurrence of an event of Default, any non Defaulting Party shall be entitled to exercise all rights and remedies it may have in equity or at law.

Notices

General. Any notice, demand or request required or permitted to be given by a Party to another Party and any instrument required or permitted to be tendered or delivered by a Party in writing to another Party may be so given, tendered or delivered, as the case may be, by depositing the same with the United States Postal Service with postage prepaid, for transmission by certified or registered mail, addressed to the Parties, or personally delivered to the Parties, at the address set out below:

To Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

To Transmission Owner (or Operator):

ITC Midwest LLC
President
100 East Grand Avenue, Suite 360
Des Moines, IA 50309
Phone: (515) 639-3340
DTerry@ITCtransco.com

With copy to:

ITC Midwest LLC
Attn: General Counsel
27175 Energy Way
Novi, MI 48377
Jdanna@itctransco.com

To Interconnection Customer:

Rafik Halim, MSEE, PE, Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

To existing generating facility customer:

Rafik Halim, MSEE, PE, Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Billings and Payments. Billings and payments shall be sent to the addresses shown in Article 15.1 unless otherwise agreed to by the Parties.

To Interconnection Customer:

Jake Schroeder, Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

With a copy to:
Rafik Halim, MSEE, PE
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

To existing generating facility customer:

Jake Schroeder, Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

With a copy to:
Chris Ayika,
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to another Party and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out below:

To Transmission Provider:

Voice telephone – (317)249-5700

Facsimile telephone – (317) 249-5358

Email address – misotap@misoenergy.org

To Transmission Owner (or Operator):

ITC Midwest LLC
President
100 East Grand Avenue, Suite 360
Des Moines, IA 50309
Phone: (515) 639-3340
DTerry@itctransco.com

To Interconnection Customer:

Rafik Halim, MSEE, PE
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To existing generating facility customer:

Rafik Halim, MSEE, PE,
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

DUNS #. If existing generating facility customer and Interconnection Customer have not obtained DUNS numbers by the time this Agreement is executed, Transmission Owner and Interconnection Customer will forward their DUNS numbers within five (5) Business Days of having obtained such numbers to Transmission Provider by facsimile telephone or email to the fax number or email set out below:

Interconnection Customer

DUNS Number: Not Applicable

To existing generating facility customer:

DUNS Number: Not Applicable

Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
Transmission Provider

Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
If Applicable, Transmission Provider Project No. J1375

Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

Signed by:
By: Brian Slocum
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Effect of Midcontinent Independent System Operator, Inc., ("MISO") signature. The Parties acknowledge and understand that the signature of the authorized officer of MISO on this Agreement is for the limited purpose of acknowledging that the representative of MISO has read the terms of this Agreement. The Parties and MISO further state that they understand that FERC desires that the Parties keep MISO fully apprised of the matters addressed herein as well as any reliability and planning issues that may arise under this Agreement, and that the signature of the officer of MISO shall not in any way be deemed to imply that MISO is taking responsibility for the actions of either Party, that MISO has any affirmative duties under this Agreement or that MISO is liable in any way under this Agreement.

The signature below of the authorized officer of MISO is for the limited purpose of acknowledging that an authorized officer of MISO has read this Agreement.

Midcontinent Independent System Operator, Inc.

5/19/2026 ces

By: 
Name: Aubrey Johnson
Title: Vice President, System Planning

ENERGY DISPLACEMENT AGREEMENT

Attachment A

1 Existing generating facility Point of Interconnection (POI): METC 138 kV Lamos Switching Station

2 Generating Facility POI: METC 138 kV Lamos Switching Station

3 Existing generating facility capacity (lower of demonstrated capability or study output limit at the POI:
(MW):100 (MVAR): 32.9 (MVA): 3.8

4 Generating Facility Interconnection Request capacity
(MW): 100 (MVAR): 32.9 (MVA): 3.8

5 Interconnection Service limit of the Generating Facility and existing generating facility capacity at the POI shall not be greater than 2) above :
(MW): 100 (MVAR): 32.9 (MVA).8

Check Only One: Transmission Owner (or Operator) ____ or existing generating facility _X__ or Generating Facility ___ shall be solely responsible for the coordinated automatic generation control of the combined output of Interconnection Customer's Generating Facility and existing generating facility.

Original Sheet No. 1

GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT ("GIA") is made and entered into this 10th day of June, 2026, by and between **Lakeside Solar, LLC**, a limited liability company, organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), and **Michigan Electric Transmission Company, LLC**, a limited liability company organized and existing under the laws of the State of Michigan ("Transmission Owner"), and the **Midcontinent Independent System Operator, Inc**., a non-profit, non-stock corporation organized and existing under the laws of the State of Delaware ("Transmission Provider"). Interconnection Customer, Transmission Owner and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Transmission Provider has functional control of the operations of the Transmission System, as defined herein and according to NERC's Rules of Procedure, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, Transmission Owner owns or operates the Transmission System, whose operations are subject to the functional control of Transmission Provider, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer, Transmission Owner and Transmission Provider have agreed to enter into this GIA, and where applicable subject to Appendix H for a Provisional Generator Interconnection Agreement, for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

10 kW Inverter Process shall mean the procedure for evaluating an Interconnection Request for a certified inverter-based Small Generating Facility no larger than 10 kW that uses the screen set forth in Section 14.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System(s) shall mean an electric transmission system or the electric system associated with an Existing Generating Facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Provider's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Interconnection Customer shall mean any entity that submits an interconnection request for a Generating Facility to a transmission system other than Transmission Provider's Transmission System that may cause the need for Affected System Network Upgrades on the Transmission Provider's Transmission System.

Affected System Network Upgrades shall mean the additions, modifications, and upgrades to Transmission Provider's Transmission System required to accommodate Affected System Interconnection Customer's proposed interconnection to a transmission system other than Transmission Provider's Transmission System.

Affected System Operator shall mean the entity that operates an Affected System.

Affected System Queue Position shall mean the queue position of an Affected System Interconnection Customer in Transmission Provider's interconnection queue relative to Transmission Provider's Interconnection Customers' Queue Position.

Affected System Study shall mean the evaluation of Affected System Interconnection Customers' proposed interconnection(s) to a transmission system other than the Transmission Provider's Transmission System that have an impact on Transmission Provider's Transmission System, as described in Section 8 of this GIP.

Affected System Study Agreement shall mean the agreement contained in Appendix 16 to the GIP that is made between Transmission Provider and host transmission provider, in absence of a JOA, JPA, or other agreement filed with the Commission, as noted in Section 8 of the GIP.

Affected System Study Report shall mean the report issued following completion of an Affected System Study.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the Parties, their respective facilities and/or the respective services they provide.

Applicable Reliability Standards shall mean the requirements and guidelines of the Electric Reliability Organization and the Balancing Authority Area of the Transmission System to which the Generating Facility is directly interconnected.

Balancing Authority shall mean an entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.

Balancing Authority Area shall mean the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Base Case Data shall mean base case power flow, short circuit and stability databases, including all underlying assumptions, and contingency lists. Such databases and lists, hereinafter referred to as Base Cases, shall include all (1) generation projects and (2) transmission projects, including merchant transmission projects that are proposed for the Transmission System for which a transmission expansion plan has been submitted and approved by the MISO Board.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday. In the event that a period specified in this GIA is calculated in Calendar Days ends on a non-business day, such period shall be deemed to conclude on the following business day.

Cluster shall mean a group of one or more Interconnection Requests that are studied together for the purpose of conducting a Group Study.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Commitment Projection shall mean a projection of the number of MW expected to commit to the JTIQ Portfolio from ERAS and all DPP study clusters that already have passed DP1 as described in Section 9.4.2.e.ii of Rate Schedule 6 (MISO SPP-JOA).

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System, not classified under Attachment FF as a Baseline Reliability Project, Market Efficiency Project, or Multi-Value Project, that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Connection Facilities shall mean the Transmission Owner's Connection Facilities and the MHVDC Connection Customer's Connection Facilities, as defined in the MHCP.

Contingent Facilities shall mean those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request's costs, timing and study findings are dependent, and if delayed or not built, could cause a need for restudies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing. Contingent Facilities may include facilities identified in MTEP that if delayed or not built could impact the timing of the Interconnection Request.

Customer Engagement Window shall mean the time period prior to the start of Definitive Planning Phase I set forth in Section 3.3.4 of the GIP.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Definitive Planning Phase shall mean the Generator Interconnection Procedures process which leads to a Generator Interconnection Agreement. An Interconnection Customer enters the Definitive Planning Phase pursuant to GIP Section 7.2. The Definitive Planning Phase includes three distinct phases (Definitive Planning Phases I, II, and III) pursuant to Section 7 of the Generator Interconnection Procedures.

Definitive Planning Phase Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, in the Definitive Planning Phase. The Definitive Planning Phase Queue Position is established based upon the date Interconnection Customer satisfies all of the requirements of GIP Section 7.2 to enter the Definitive Planning Phase. All Interconnection Requests within the same Definitive Planning Phase cycle shall have equal priority (i.e. similarly queued).

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Electric Reliability Organization shall mean the North American Electric Reliability Corporation or its successor organization.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one of the enumerated conditions or situations identified in this definition also exists.

Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an Existing Generating Facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Surplus Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation).

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Existing Generating Facility shall mean a Generating Facility that is either under construction or is in service, and has an unsuspended interconnection agreement with its host transmission provider.

Expanded Scope Analysis shall mean the analysis described in Section 9.4.2.d.iv.a of

Rate Schedule 6 (MISO-SPP JOA).

Expedited Resource Addition Study (ERAS) shall mean the temporary procedure for expediting interconnection projects identified for claimed resource adequacy and/or reliability needs.

Expedited Generator Interconnection Agreement (EGIA) shall mean the interconnection agreement for the Expedited Resource Addition Study established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 3.9 of this Attachment X. This agreement shall take the form of the Transmission Provider's *pro forma* Generator Interconnection Agreement modified for the Expedited Resource Addition Study. Unless otherwise provided in the GIP, all requirements applicable to the *pro forma* Generator Interconnection Agreement shall apply to the Expedited Generator Interconnection Agreement.

Facilities Construction Agreement (FCA) shall mean the form of facilities construction agreement, set forth in Appendix 8 to these Generator Interconnection Procedures. The FCA shall be used when an Interconnection Customer or an Affected System Interconnection Customer causes the need for the construction of Network Upgrades, Affected System Network Upgrades, or System Protection Facilities on the transmission system of the Transmission Provider.

Fast Track Process shall mean the procedure for evaluating an Interconnection Request for a certified Small Generating Facility no larger than five MW that includes the screen set forth in Section 14, customer options meeting, and optional supplemental review.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq*.

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Final System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase III.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. A Generating Facility consists of one or more generating unit(s) and/or storage device(s) which usually can operate independently and be brought online or taken offline individually.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes more than one device for the production and/or storage for later injection of electricity.

Generating Facility Modification shall mean modification to an Existing Generating Facility, including comparable replacement of only a portion of its equipment at the Existing Generating Facility.

Generating Facility Replacement shall mean replacement of one or more generating units and/or storage devices at the Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection as the generating units and/or storage devices that is/are being decommissioned and electrically disconnected.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in Attachment X of the Tariff.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an Existing Generating Facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection

Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Restudy shall mean a restudy of a Group Study conducted pursuant to Section 7.5 of the GIP

Group Study(ies) shall mean the evaluation of one or more Interconnection Requests within a Cluster as described in Section 7 of the GIP. Group Studies are divided into phases as described in section 7.3 of the GIP.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

HVDC Facilities shall mean the high voltage direct current transmission facilities, including associated alternating current facilities, if any, that are subject to Section 27A of the Tariff and that are specifically identified in (i) any Agency Agreement pertaining to such facilities between Transmission Provider and Transmission Owner that owns or operates such facilities, or (ii) in any other arrangement that permits or will permit Transmission Provider to provide HVDC Service over such facilities as set forth in Section 27A of the Tariff.

HVDC Service shall mean Firm and Non-Firm Point-To-Point Transmission Service provided by Transmission Provider on HVDC Facilities pursuant to Section 27A of the Tariff.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

Injection Rights shall mean the Transmission Provider's pre-certification of the Transmission System's capability to receive capacity and energy from the MHVDC Transmission Line at the requested Point of Connection, and in the specified MW quantity, without degrading the reliability of the Transmission System, as described in Section 16 of the GIP and Section 3.2.3 of the MHCP.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer Decision Point I shall mean the time period beginning when

the Interconnection Customer is provided the Preliminary System Impact Study results including cost estimates for upgrades and concludes after fifteen (15) Business Days.

Interconnection Customer Decision Point II shall mean the time period beginning when the Interconnection Customer is provided the Revised System Impact Study results including cost estimates for upgrades and concludes after fifteen (15) Business Days.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A of this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study(ies) shall mean a study conducted by Transmission Owner, or its agent, for Interconnection Customer(s) to determine a list of facilities (including Interconnection Customer's Interconnection Facilities or Affected System Interconnection Customer's interconnection facilities, Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and Affected System Network Upgrades, as identified in the Interconnection System Impact Study, Affected System Study, or Affected System Operator's applicable study), the cost of those facilities, and the time required to interconnect with the Transmission System or the Affected System Operator's transmission system.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean (1) an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or a request for the Expedited Resource Addition Study for new generation capacity, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an Existing Generating Facility that is interconnected with the Transmission System, or to interconnect an Existing Generating Facility that is external to the Transmission System, or to change Energy Resource Interconnection Service to Network Resource Interconnection Service for an Existing Generating Facility; or (2) an MHVDC Connection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to

obtain Injection Rights..

Interconnection Service shall mean the service provided by Transmission Provider associated with interconnecting the Generating Facility to the Transmission System, or external host transmission provider if applicable, and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection pursuant to the terms of this Generator Interconnection Agreement or Point of Delivery as set forth in the Service Agreement for Network Resource Interconnection Service for an External Generating Facility and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the forms of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection Procedures for conducting all studies required by the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Joint Operating Agreement ("JOA") shall mean an agreement between adjacent balancing authorities or transmission providers for the coordination of operations.

Joint Operating Agreement between the Midcontinent Independent System Operator, Inc. and Southwest Power Pool, Inc. (MISO-SPP JOA) shall mean Rate Schedule 6 to the MISO Tariff.

Joint Planning Agreement ("JPA") shall mean an agreement between adjacent balancing authorities or transmission providers for the coordination of planning.

Joint Targeted Interconnection Queue (JTIQ) shall refer to the study and processes described in Section 9.4.2 of Rate Schedule 6 (MISO-SPP JOA).

Joint Targeted Interconnection Queue Study ("JTIQ Study") shall mean a transmission planning study conducted jointly by SPP and MISO to facilitate the interconnection of new generator capacity in both Parties' regions.

JTIQ Commitment Group Member shall mean any JTIQ Commitment Group Member included in a Commitment Group consistent with Section 9.4 of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Commitment Group or Commitment Group shall mean a group of JTIQ Commitment Group Members that have executed a JTIQ Generator Interconnection Agreement within the twelve (12) month period ending April 30th of each year. The Commitment Group shall also include JTIQ Commitment Group Members for which a JTIQ Generator Interconnection Agreement has been filed unexecuted by SPP or the Transmission Provider and the Commission has accepted the agreement within the twelve (12) month period ending April 30th of each year.

JTIQ Generator Charge shall mean the charge to JTIQ Commitment Group Members to recover the JTIQ Commitment Group Member's share of the JTIQ Monthly Revenue Requirement for each of the JTIQ Upgrades in the JTIQ Portfolio in the Transmission Provider's Region.

JTIQ Participation Group shall mean the group of Interconnection Requests that shall consist of all interconnection customers included in the JTIQ Screening Groups whose interconnection request meets the distribution factor and impact criteria specified in Section 9.4.2(d)((ii) of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Portfolio shall mean a group of JTIQ Upgrades identified pursuant to Section 9.4 of Rate Schedule 6 (MISO-SPP JOA).

JTIQ Screening Group shall mean a group of MISO Interconnection Customers and SPP interconnection customers whose Interconnection Requests will be screened for inclusion in a JTIQ Participation Group. The JTIQ Screening Group shall consist of all interconnection customers who have submitted interconnection requests into a MISO ERAS, SPP ERAS, DPP study cluster, or SPP DISIS study cluster that: (1) has a study commencement or kick off date that is after the date that the Parties' respective Boards of Directors have approved a JTIQ Portfolio; and (2) has not commenced DPP Phase I, a MISO ERAS, the SPP ERAS or DISIS Phase One studies pursuant to each party's OATT as of the date that the Parties have declared the JTIQ Portfolio fully subscribed.

JTIQ Service Agreements shall mean the JTIQ Commitment Agreement attached to the MISO GIA as Appendix 17 and the SPP's *pro forma* agreement(s) that obligate interconnection customers to provide security for and pay the JTIQ Generator Charge for JTIQ Network Upgrades included in the applicable JTIQ Portfolio.

JTIQ Upgrade shall mean a Network Upgrade included in a JTIQ portfolio pursuant to Section 9.4 of Rate Schedule 6 (MISO-SPP JOA)**.**

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of Electric Reliability

Organization Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Local Resource Zone (LRZ) shall mean a geographic area within the Transmission Provider Region that is prescribed by the Transmission Provider, based upon the criteria in Section 68A.3, to address congestion that limits Planning Resource deliverability.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean: (1) modification to an Interconnection Request in the queue, that has a material adverse impact on the cost or timing of any other Interconnection Request with an equal or later queue priority date; or Qualified Change.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility, Interconnection Customer's Interconnection Facilities, and/or Transmission Owner's Interconnection Facilities pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Surplus Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Surplus Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA.

Multi-Party Facilities Construction Agreement (MPFCA) shall mean the form of facilities construction agreement, set forth in Appendix 9 to these Generator Interconnection Procedures. The MPFCA shall be used when multiple Interconnection Requests or interconnection requests from Affected System Interconnection Customers cause the need for the construction of Common Use Upgrades on the Transmission System and share cost responsibility for such Common Use Upgrades.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to integrate its Generating Facility with the Transmission System in the same manner as for any Generating Facility being designated as a Network Resource. Network Resource Interconnection Service does not convey transmission service. Network Resource Interconnection Service shall include any network resource interconnection service established under an agreement with, or the tariff of, a Transmission Owner prior to integration into MISO, that is determined to be deliverable through the integration deliverability study process.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the interconnection of the Generating Facility(ies) to the Transmission System. Network Upgrades shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Outage Transfer Distribution Factor (OTDF) Outage Transfer Distribution Factor, as defined by the Electric Reliability Organization.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Permissible Technological Advancement shall mean advancements to turbines, inverters, plant supervisory controls, excitation systems, or other technological advancements submitted to the Transmission Provider prior to the issuance of this draft Generator Interconnection Agreement for such project provided that such advancements does not: (1) degrade the electrical characteristics of the generating equipment; (2) does not cause any material adverse impact on the Transmission System with regard to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response; (3) does not increase the installed capacity of the Generating Facility; or (4) change the fuel source of the proposed Generating Facility.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A of the GIA, where the Interconnection Facilities connect to the Transmission System.

Potential MW Total shall mean a projection of the number of MW that may commit to the JTIQ Portfolio from all ERAS and study clusters to date, including the current study cluster(s).

Preliminary System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase I.

Pre-Queue Phase shall mean Interconnection Customer outreach and education effort undertaken prior to the submission of the Interconnection Request.

Proportional Impact Method shall mean a technical analysis conducted by Transmission Provider to determine the degree to which each Generating Facility in the Group Study contributes to the need for a specific Network Upgrade.

Provisional Generator Interconnection Agreement shall mean the interconnection agreement for Provisional Interconnection Service established between the Transmission Provider and/or the Transmission Owner and the Interconnection Customer as set forth in Section 7.9 of this Attachment X. This agreement shall take the form of the Generator Interconnection Agreement modified for provisional purposes. Unless otherwise provided in the GIP, all requirements applicable to the Generator Interconnection Agreement shall apply to the Provisional Generator Interconnection Agreement.

Provisional Interconnection Service shall mean Interconnection Service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling that Transmission System to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Provisional Generator Interconnection Agreement and the Tariff.

Provisional Interconnection Study shall mean an engineering study, performed at Interconnection Customer's request, as a condition to entering into a Provisional Generator Interconnection Agreement, that evaluates the impact of the proposed interconnection on the safety and reliability of the Transmission System and, if applicable, any Affected System. The study shall identify and detail the impacts on the Transmission System and, if applicable, an Affected System, from stability, short circuit, and voltage issues that would result if the Generating Facility were interconnected without project modifications or system modifications.

Qualified Change shall mean a planned modification to an Existing Generating Facility that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests pursuant to Section 4.1 of the GIP.

Reasonable Efforts shall mean, with respect to an action required to be attempted or taken by a Party under this Generator Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Relevant Electric Retail Regulatory Authority (RERRA) shall mean an entity that has jurisdiction over and establishes prices and/or policies for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any such entity.

Reliability Assessment Study shall mean an engineering study that evaluates the impact of a proposed Generating Facility Replacement on the reliability of Transmission System during the time period between the date that the Existing Generating Facility ceases commercial operations and the Commercial Operation Date of the Replacement Generating Facility.

Replacement Generating Facility shall mean a Generating Facility that replaces an Existing Generating Facility, or a portion thereof, at the same electrical Point of Interconnection pursuant to Section 3.7 of this Attachment X.

Replacement Impact Study shall mean an engineering study that evaluates the impact of a proposed Generating Facility Replacement on the reliability of the Transmission System.

Revised System Impact Study shall mean the Interconnection System Impact Study performed during Definitive Planning Phase II.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System and Transmission Provider conducted for the purpose of discussing the proposed Interconnection Request and any alternative interconnection options, exchanging information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, refining information and models provided by Interconnection Customer(s), discussing the Group Study materials posted to OASIS pursuant to Section 3.4 of the GIP, and analyzing such information.

Shared Interconnection Request shall mean (1) multiple Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect new Generating Facilities, or to increase the capacity of, or make a Material Modification to the operating characteristics of, Existing Generating Facilities that are interconnected with the Transmission System, or to interconnect Existing Generating Facilities that are external to the Transmission System, or to change Energy Resource Interconnection Service to Network Resource Interconnection Service for Existing Generating Facilities; or (2) multiple MHVDC Connection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to obtain Injection Rights.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s), including when the Transmission Owner elects to fund the capital cost of such a Network Upgrade or Common Use Upgrade under Section 11.3 of the GIA, and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable (*i.e.*, when the Interconnection Customer is providing the site for such facilities), the Transmission Owner's Interconnection Facilities and Network Upgrades at the POI that the Interconnection Customer will develop. Such documented right shall be one of the following: (1) ownership of a site; (2) a leasehold interest in a site; or (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site. Transmission Provider will maintain acreage requirements for each Generating Facility type on its OASIS or public website.

Small Generating Facility shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than five MW and meets the requirements of Section 14 and Appendix 3 of the GIP.

Southwest Power Pool (SPP) shall refer to the Southwest Power Pool, Inc. the Regional Transmission Organization that is the counterparty to Rate Schedule 6 (MISO-SPP JOA).

Special Protection System (SPS) shall mean an automatic protection system or remedial action scheme designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components, to maintain system reliability. Such action may include changes in demand (MW and MVar), energy (MWh and MVarh), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding, (b) fault conditions that must be isolated, (c) out-of-step relaying not designed as an integral part of an SPS, or (d) Transmission Control Devices.

Stand Alone Network Upgrades shall mean Network Upgrades, that are not part of an Affected System or a JTIQ Upgrade, that Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA. If the Transmission Provider or Transmission Owner and Interconnection Customer disagree about whether a particular Network Upgrade is a Stand Alone Network Upgrade, the Transmission Provider or Transmission Owner that disagrees with the Interconnection Customer must provide the Interconnection Customer a written technical explanation outlining why the Transmission Provider or Transmission Owner does not consider the Network Upgrade to be a Stand Alone Network Upgrade within fifteen (15) Business Days of its determination.

Substation Network Upgrades shall mean Network Upgrades that are required at or

near the Point of Interconnection and are identified in the first portion of the Interconnection Facilities Study as described in GIP Section 7.3.2.5.

Supplemental Affected System Analysis shall mean **t**he affected systems analysis described in Section 7.3.2.3.1 of this GIP and Section 9.4.2.e.iii.a.i of the Rate Schedule 6 (MISO-SPP JOA) to determine if Supplemental Affected System Upgrades are required for one or more JTIQ Participation Group member(s).

Supplemental Affected System Upgrade shall mean a Network Upgrade in addition to those required to address the impact of interconnection requests in the current study cluster as described in Section 9.4.2.e.iii.a.i of Rate Schedule 6 (MISO-SPP-JOA).

Surplus Interconnection Service shall mean any Interconnection Service that is derived from the unneeded portion of Interconnection Service established in a GIA or in agreement with, or under the tariff of, a Transmission Owner prior to integration into MISO, such that if Surplus Interconnection Service is utilized the total amount of Interconnection Service at the Point of Interconnection would remain the same.

System Planning and Analysis Phase shall mean the phase of the Generator Interconnection Procedure process, prior to January 4, 2017, which consisted of an Interconnection System Impact Study for those Interconnection Requests that were studied in this phase.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Target MW Value shall mean the projected new generation interconnection MW enabled by the JTIQ Portfolio. The Target MW Value for each JTIQ Portfolio shall be identified in Section 9.4 and related subsections of Rate Schedule 6.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

Threshold Charge shall mean the charge calculated using an estimate of plant in service value for the JTIQ Portfolio, excluding amounts funded under the GRIP Program, as described in Section 9.4.2 of Rate Schedule 6 (MISO-SPP JOA).

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and

reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Owner shall mean that Transmission Owner as defined in the Tariff, which includes an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include any Independent Transmission Company that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean the Midcontinent Independent System Operator, Inc. ("MISO"), the Regional Transmission Organization that controls or operates the transmission facilities of its transmission-owning members used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service (including HVDC Service) or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

User-Defined Model shall mean any set of programming code created by equipment manufacturers or developers that captures the latest features of controllers that are mainly software-based and represent the entities' control strategy but does not necessarily correspond to any particular generic library model, as contained in Attachment A to Appendix 1 of the GIP.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility

owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of thirty (30) years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice. This GIA shall be terminated by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, Transmission Provider shall only terminate that portion of the GIA. Notwithstanding the foregoing, in the limited circumstance that the Interconnection Request is served by a contingent Network Upgrade with an in-service date that is farther out than the Commercial Operation Date permitted under Section 4.4.4 of Attachment X, Transmission Provider shall only terminate this GIA for failure to achieve Commercial Operation by that later in-service date of the contingent Network Upgrade. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.1.1 Surplus Interconnection Service. Where this GIA provides for Surplus Interconnection Service and the Energy Displacement Agreement or the Monitoring and Consent Agreement required for Surplus Interconnection Service are no longer in effect, Interconnection Customer shall immediately cease Commercial Operation of the Generating Facility and this GIA shall be deemed terminated. In the event that the Existing Generating Facility retires and/or permanently ceases commercial

operation, the Surplus Interconnection Service provided under this GIA shall terminate except as provided in Section 3.3.1.3 of the GIP.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

For EGIAs, no termination shall become effective until Interconnection Customer has provided all security as required by Section 2.4.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Parties, as of the date of the other Parties' receipt of such notice of termination, under this GIA. In the event that this GIA is terminated by Interconnection Customer, Interconnection Customer is responsible for all financial impact that is caused as a result of this termination or the termination of Interconnection Customer's FCA(s) or MPFCA(s), such financial impact being determined through the financial impact analysis performed in accordance with Section 7.8 of Attachment X. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

In the event that this EGIA is terminated by Interconnection Customer that had an Interconnection Request studied in ERAS, Interconnection Customer is responsible for the full cost of all Network Upgrades identified in this EGIA as well as any Network Upgrades identified during the ERAS process that are to be memorialized in an agreement other that this EGIA, including any applicable FCA, MPFCA, or JTIQ Service Agreements. If the Network Upgrade costs for Network Upgrades subject to an FCA, MPFCA, or JTIQ Service Agreement have not been finalized or the Interconnection Customer has not made the payment under such agreement as of the date that termination of this EGIA is sought, Interconnection Customer shall provide the payment or security for such Network Upgrades in the amount required by the applicable agreement. If such agreement has not been executed and final costs are not available as of a date that termination is sought, Interconnection Customer shall provide such payment or security in an amount corresponding to the most recent estimate provided by the Transmission Provider during the ERAS process. Interconnection Customer shall pay or Transmission Provider shall refund, as applicable, to Interconnection Customer the difference between the amount of any estimated payment or security made pursuant to this Article and the final cost of such NU within ninety (90) Calendar Days after such final costs are invoiced to the Interconnection Customer.

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer or upgrades not yet constructed, Transmission Owner shall promptly transfer such amounts to Transmission Provider, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts. Transmission Provider will perform a financial impact analysis in accordance with Section 7.8 of Attachment X to determine the amount that should be refunded to Interconnection Customer. Transmission Provider shall refund such remaining amounts to Interconnection Customer, less the amount of Automatic Withdrawal Penalty funds received by the Interconnection Customer in accordance with Section 7.8.1 of the Attachment X and less any financial impact caused by the termination of this GIA or Interconnection Customer's FCA(s) or MPFCA(s), as determined through the analysis performed in accordance with Section 7.8 of Attachment X. If Interconnection Customer made its payment(s) through a letter of credit, surety bond, or parental guarantee, Transmission Owner will draw against that letter of credit, surety bond, or parental guarantee in an amount determined through the analysis performed in accordance with Section 7.8 of Attachment X plus the amount of any Automatic Withdrawal Penalty funds received by the Interconnection Customer in accordance with Section 7.8.1 of the Attachment X, and transfer that amount to Transmission Provider, unless Interconnection Customer funds the financial impact through another means.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs

associated with procuring such materials, equipment, or facilities. If Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 **Disconnection**. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 **Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 **Filing.** Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 **Interconnection Product Options**. Interconnection Customer has selected the following (checked) type of Interconnection Service:

Check: ____X___ SI or ____ ER and/or ____ NR (See Appendix A for details)

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product. ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, Transmission Owner shall construct facilities consistent with the studies identified in Appendix A.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis up to the amount of MW identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. After that date FERC makes effective MISO's Energy Market Tariff filed in Docket No. ER04-691-000, Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the Interconnection Service approval, and the Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission or other delivery service from the Generating Facility is assured, but Interconnection Customer may obtain Point-To-Point Transmission Service, Network Integration Transmission Service or be used for secondary network transmission service, pursuant to the Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection or to improve its ability to do so, transmission delivery service must be

obtained pursuant to the provisions of the Tariff. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network or Distribution Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service).

4.1.2.1 The Product. Transmission Provider must conduct the necessary studies and Transmission Owner shall construct the facilities identified in Appendix A of this GIA, subject to the approval of Governmental Authorities, needed to integrate the Generating Facility in the same manner as for any Generating Facility being designated as a Network Resource.

4.1.2.2 Transmission Delivery Service Implications. NR Interconnection Service allows the Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources that are interconnected to the Transmission or Distribution System, as applicable, and to be studied as a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of Transmission Service, any Network Customer can utilize Network Integration Transmission Service under the Tariff to obtain delivery of energy from the Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

NR Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission or distribution constraints on the Transmission or Distribution System, as applicable, the Generating Facility shall be subject to the applicable congestion management procedures in the Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future Transmission Service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether such Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service, such request may require additional studies and upgrades in order for Transmission Provider to grant such request. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

4.1.2.3 Conditional NR Interconnection Service. An Interconnection Customer seeking NR Interconnection Service for new or added capacity at a Generating Facility may be granted conditional NR Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's

Generating Facility. At the request of Interconnection Customer, conditional NR Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional NR Interconnection Service status may be converted to ER Interconnection Service if either of the following occurs:

1) Interconnection Customer fails to fund necessary studies and Network Upgrades required to allow the Interconnection Customer's Generating Facility to receive NR Interconnection Service upon the completion of higher queued projects involving the same common elements; or

2) The higher queued project(s) or planned and required Network Upgrades are placed in service and the Network Upgrades required to provide NR Interconnection Service status to the Interconnection Customer's Generating Facility are not in service.

In the event Interconnection Customer fails to fund the necessary studies and Network Upgrades for NR Interconnection Service, the Interconnection Customer's conditional NR Interconnection Service status shall be converted to ER Interconnection Service status unless Interconnection Customer makes a new Interconnection Request. Such new Interconnection Request shall be evaluated in accordance with the GIP and its new queue position.

Some or all of the conditional NR Interconnection Service status may be temporarily revoked if the Network Upgrades are not in service when the higher queued project(s) are placed in service. The availability of conditional NR Interconnection Service status will be determined by Transmission Provider's studies. Upon funding and completion of the Network Upgrades required to establish the Generating Facility's NR Interconnection Service status, the Generating Facility will be granted NR Interconnection Service status.

The Parties agree that the portion of the Generating Facility classified as NR Interconnection Service is the first portion of the output of the combined output of all the units at the Generating Facility except in circumstances where Interconnection Customer otherwise elects this GIA, as amended, to allocate that portion to the output of specific unit(s) at the Generating Facility, the total of which will not exceed the output eligible for NR Interconnection Service as shown by the additional studies. To the extent Interconnection Customer desires to obtain NR Interconnection Service for any portion of the Generating Facility in addition to that supported by such additional studies, Interconnection Customer will be

required to request such additional NR Interconnection Service through a separate Interconnection Request in accordance with the GIP.

4.1.3 Surplus Interconnection Service (SI).

4.1.3.1 The Product. Surplus Interconnection Service is restricted Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an Existing Generating Facility without increasing the total amount of Interconnection Service at the Point of Interconnection.

4.1.3.2 Transmission Delivery Service Implications. Surplus Interconnection Service does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.2 Provision of Service. Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards. Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of any Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that Party shall not be deemed to be in Breach of this GIA for its compliance therewith. The Party so limited shall notify the other Parties whereupon Transmission Provider shall amend this GIA in concurrence with the other Parties and submit the amendment to the Commission for approval.

4.4 No Transmission Delivery Service. The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.5 Interconnection Customer Provided Services. The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.7.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select: 1) the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, and permit acquisition of Transmission System equipment or right-of-way; and 2) either the Standard Option or

Alternate Option set forth below and such dates and selected option shall be set forth in Appendix B. If the dates designated by Interconnection Customer are not acceptable to Transmission Owner, Transmission Owner shall so notify Interconnection Customer within thirty (30) Calendar Days. Upon receipt of the notification that Interconnection Customer's designated dates are not acceptable to Transmission Owner, the Interconnection Customer shall notify Transmission Owner within thirty (30) Calendar Days whether it elects to exercise the Option to Build if it has not already elected to exercise the Option to Build.

5.1.1 Standard Option. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option. If the dates designated by Interconnection Customer are acceptable to Transmission Provider and Transmission Owner, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities by the designated dates.

If Transmission Owner subsequently fails to complete the Transmission Owner's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Owner shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each

Calendar Day that Transmission Provider refuses to grant clearances to install equipment.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.1.3 Option to Build. Pursuant to Section 7.3.2.5 & 7.3.3.5 of the GIP, Individual or Multiple Interconnection Customers shall have the option to assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by the dates originally designated by Interconnection Customer under Article 5.1.2, if the requirements of this Article 5.1.3 are met. When multiple Interconnection Customers exercise this option, multiple Interconnection Customers may agree to exercise this option provided (1) all Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades constructed under this option are only required for Interconnection Customers in a single Cluster and (2) all impacted Interconnection Customers execute and provide to Transmission Provider an agreement regarding responsibilities, and payment for, the construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades planned to be built under this option. The Parties must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option. If the dates designated by Interconnection Customer pursuant to Article 5.1 are not acceptable to Transmission Owner, the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives, or the procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if the Interconnection Customer elects to exercise the Option to Build under Article 5.1.3). If the Parties are unable to reach agreement on such terms and conditions, then, pursuant to Article 5.1.1 (Standard Option), Transmission Owner shall assume responsibility for the design, procurement and construction of all facilities other than Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades if Interconnection Customer has elected to exercise the Option to Build.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.2 General Conditions Applicable to Option to Build. If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades after receipt of all required approvals from Governmental Authorities necessary to commence construction,

(1) Interconnection Customer shall engineer, procure equipment, and construct the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner, or as required by any Governmental Authority;

(2) Interconnection Customer's engineering, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law or Governmental Authority to which Transmission Owner would be subject in the engineering, procurement or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall be entitled to review and approve the engineering design, equipment acceptance tests(including witnessing of acceptance tests), and the construction (including monitoring of construction) of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall have the right to reject any design, procurement, construction or acceptance test of any equipment that does not meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;

(5) at any time during construction, Transmission Provider and Transmission Owner shall have unrestricted access to the construction site for the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network

Upgrades to meet the standards and specifications provided by Transmission Provider and Transmission Owner;

(7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from the Interconnection Customer's construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1, Indemnity;

(8) Interconnection Customer shall transfer control of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner in accordance with Appendix B;

(10) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall approve and accept for operation and maintenance the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2 only if the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority.

(11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Owner.

(12) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, Interconnection Customer shall pay Transmission Owner the agreed upon amount of [$ PLACEHOLDER] for Transmission Owner to execute the responsibilities enumerated to Transmission Owner under Article 5.2. Transmission Owner shall invoice Interconnection Customer for this total amount to be divided on a monthly basis pursuant to Article 12.

(13) If Interconnection Customer exercises the Option to Build pursuant to Article 5.1.3, and the Transmission Owner has elected to fund the costs of Network Upgrades pursuant to Article 11.3, then prior to Interconnection Customer incurring any construction costs relating to the Option to Build and by the date specified in Appendix B, Interconnection Customer shall invoice the Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for

which the Interconnection Customer has exercised its Option to Build in accordance with Appendix B. The Transmission Owner shall be required to reimburse Interconnection Customer for the full amount of such invoiced costs by the date specified in Appendix B, which shall be prior to the date by which Interconnection Customer must make any construction payment for such Stand Alone Network Upgrades. After completion of the construction of Stand Alone Network Upgrades by the Interconnection Customer and by the date specified in Appendix B for the Interconnection Customer to transfer such Stand Alone Network Upgrades to the Transmission Owner, Interconnection Customer shall provide an invoice of the final cost of the construction of Stand Alone Upgrades and shall set forth such costs in sufficient detail to enable the Transmission Owner to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. In the event that the actual costs exceed the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Transmission Owner shall pay to Interconnection Customer the difference between the amount previously paid and the actual costs within thirty (30) Calendar Days after receipt of a final construction invoice from Interconnection Customer. In the event that the actual costs are less than the estimated costs previously invoiced by Interconnection Customer and paid by Transmission Owner, Interconnection Customer shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Transmission Owner any amount by which the actual payment by Transmission Owner for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice. Following the transfer of the Stand Alone Network Upgrades from the Interconnection Customer to the Transmission Owner, the Interconnection Customer shall make payments for such facilities to the Transmission Owner pursuant to an agreement between and among the Parties.

5.3 Liquidated Damages. The actual damages to Interconnection Customer, in the event the Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission Provider and Transmission Owner pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of the Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct.

The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) the Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Transmission Provider, Interconnection Customer or any other earlier queued Interconnection Customer who has entered into an earlier GIA with Transmission Provider and/or a Transmission Owner or with an Affected System Operator, or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure; (3) Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; (4) the delay is due to the inability of Transmission Owner to obtain all required approvals from Governmental Authorities in a timely manner for the construction of any element of the Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, or any other permit or authorization required, or any land rights or other private authorizations that may be required, and Transmission Owner has exercised Reasonable Efforts in procuring such approvals, permits, rights or authorizations; or (5) the Parties have otherwise agreed.

5.4 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures established by the Electric Reliability Organization. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.5 Equipment Procurement. If responsibility for construction of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all

of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.5.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.5.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.6.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.6.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.7 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other, with a copy to be provided to the other Parties. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.8 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.9 Other Interconnection Options.

5.9.1 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably

expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

The maximum permissible output of the Generating Facility will be updated on a quarterly basis if the Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are not in service within six (6) months following the Commercial Operation Date of the Generating Facility as specified in Appendix B of this GIA. These quarterly studies will be performed using the same methodology set forth in Section 11.5 of the GIP. These quarterly updates will end when all Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are in service.

5.9.2 Provisional Interconnection Service.

Upon the request of Interconnection Customer, and prior to completion of requisite Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities Transmission Provider may execute a Provisional Generator Interconnection Agreement or Interconnection Customer may request the filing of an unexecuted Provisional Generator Interconnection Agreement with the Interconnection Customer for limited interconnection service at the discretion of Transmission Provider based upon an evaluation that will consider the results of available studies. Transmission Provider shall determine, through available studies or additional studies as necessary, whether stability, short circuit, thermal, and/or voltage issues would arise if Interconnection Customer interconnects without modifications to the Generating Facility or Transmission Provider's system. Transmission Provider shall determine whether any Interconnection Facilities, Network Upgrades, Distribution Upgrades, or System Protection Facilities that are necessary to meet the requirements of the Electric Reliability Organization, or any applicable Regional Entity for the interconnection of a new, modified and/or expanded Generating Facility are in place prior to the commencement of interconnection service from the Generating Facility. Where available studies indicate that such Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities that are required for the interconnection of a new, modified and/or expanded Generating Facility are

not currently in place, Transmission Provider will perform a study, at the Interconnection Customer's expense, to confirm the facilities that are required for Provisional Interconnection Service. The maximum permissible output of the Generating Facility in the Provisional Generator Interconnection Agreement shall be studied and updated on a quarterly basis. Interconnection Customer assumes all risk and liabilities with respect to changes between the Provisional Generator Interconnection Agreement and the Generator Interconnection Agreement, including changes in output limits and Interconnection Facilities, Network Upgrades, Distribution Upgrades, and/or System Protection Facilities cost responsibilities.

5.10 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own or control, and install the ICIF, as set forth in Appendix A.

5.10.1 Interconnection Customer's Interconnection Facility Specifications. Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.10.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan

showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer's specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.11 Transmission Owner's Interconnection Facilities Construction. The Transmission Owner's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the "as-built" drawings, information and documents for the Transmission Owner's Interconnection Facilities specified in Appendix C to this GIA.

Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.12 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish *at no cost* to the other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.13 Lands of Other Property Owners. If any part of the Transmission Owner's Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or

Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.14 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.15 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements).Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.16 Suspension.

5.16.1 Interconnection Customer's Right to Suspend for Force Majeure Event; Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to

suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the higher of $5 million or the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A of this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.16.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.16, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and effectiveness of the cure pursuant to Article 17, the Transmission Owner's Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant

circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.16.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.16, no construction duration, timelines and schedules set forth in Appendix B shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.16, Interconnection Customer shall be responsible for only those costs specified in this Article 5.16.

5.17 Taxes.

5.17.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. To the extent that Transmission Owner is a limited liability company and not a corporation, and has elected to be taxed as a partnership, then the following shall apply: Transmission Owner represents, and the Parties acknowledge, that Transmission Owner is a limited liability company and is treated as a partnership for federal income tax purposes. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35. It is anticipated by the parties that any amounts paid by Interconnection Customer to Transmission Owner for Network Upgrades will be reimbursed to Interconnection Customer in accordance with the terms of this GIA, provided Interconnection Customer fulfills its obligations under this GIA.

5.17.2 Representations and Covenants. In accordance with IRS Notice 2016-36, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for

income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 2016-36, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 2016-36. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.17.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

5.17.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.17.5 Private Letter Ruling or Change or Clarification of Law. At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will prepare the initial draft of the request for a private letter ruling, and will certify

under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

5.17.6 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

5.17.7 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented

reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.17.8 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA, Transmission Owner shall promptly refund to Interconnection Customer the following:

any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be

entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.17.9 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.18 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.19 Modification.

5.19.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient

information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.19.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

5.19.4 Sole Interconnection: During the term of this GIA, Interconnection Customer shall not connect the Generating Facilities described in Appendix A of this GIA to the transmission facilities of any transmission provider other than the Transmission Provider, or a successor to the Transmission Provider, except as expressly allowed by the Transmission Provider's Tariff. Any connection that violates this Article 5.19.4 shall be deemed a breach of this GIA subject to

default and termination pursuant to Articles 17 and 2 of this GIA. In the event Interconnection Customer proposes to connect the Generating Facilities to the transmission system of another transmission provider, all Interconnection Service under this agreement shall terminate no later than the date on which such Generating Facilities achieve commercial operation over its connection to the other transmission provider. Interconnection Customer shall adhere to the requirements of Attachment Y to the Tariff as applicable.

ARTICLE 6. TESTING AND INSPECTION

6.1 **Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities, including control equipment to limit injection at the POI to the level of Interconnection Service set forth in Appendix A and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

6.2 **Post-Commercial Operation Date Testing and Modifications**. Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 **Right to Observe Testing.** Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.

6.4 **Right to Inspect**. Each Party shall have the right, but shall have no obligation to: (i) observe Transmission Owner's and Interconnection Customer's tests and/or inspection of any of their respective System Protection Facilities and other protective equipment, including power system stabilizers and control equipment; (ii) review the settings of the System Protection Facilities and other protective equipment; and (iii) review the maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to time as it deems necessary upon reasonable notice to the other Parties. The exercise or

non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 **General.** Each Party shall comply with the Electric Reliability Organization requirements. Unless the Interconnection Customer is utilizing shared Interconnection Customer Interconnection Facilities, or unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the "Metering Party") at the Point of Interconnection prior to any operation of the Generating Facility. Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party's option, compensated to, the Point of Interconnection. If Interconnection Customer will share Interconnection Facilities with any other projects, Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities sufficient to measure the output of such Interconnection Customer's Generating Facility separately from any other Generating Facilities with which it will share Interconnection Facilities. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Parties upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 **Check Meters.** Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check the Metering Equipment owned by the Metering Party. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider, Transmission Owner or their designees. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.

7.3 **Standards**. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 **Testing of Metering Equipment**. The Metering Party shall inspect and test Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently than every two (2) years. The Metering Party shall give reasonable notice to the other Parties of the time when any inspection or test

shall take place, and the other Parties may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent (2%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the previous test of the Metering Equipment.

7.5 Metering Data. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 Interconnection Customer Obligations. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind or solar as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals while operating under the Tariff. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the

Generating Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner.

Each Party will promptly advise the other Parties if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. Interconnection Customer whose Generating Facility contains at least one Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. Transmission Provider and Interconnection Customer whose Generating Facility contains a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. Interconnection Customer whose Generating Facility contains a Variable Energy Resource also shall submit data to Transmission Provider regarding all forced outages to the extent necessary for Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by Interconnection Customer to Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by Transmission Provider. Data requirements for meteorological and forced

outage data will be negotiated by Transmission Provider and Interconnection Customer, and will be set forth in Appendix C, Interconnection Details, of this GIA.

ARTICLE 9. OPERATIONS

9.1 **General.** Each Party shall comply with the Electric Reliability Organization requirements. Each Party shall provide to any Party all information that may reasonably be required by that Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 **Local Balancing Authority Notification**. At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.

9.3 **Transmission Provider and Transmission Owner Obligations**. Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 **Interconnection Customer Obligations**. Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C of this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

9.5 **Start-Up and Synchronization.** Consistent with the Parties' mutually acceptable

procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power and Primary Frequency Response.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Inverter-Based Resource Plants. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all inverter-based resource plants in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting inverter-based resource plants that have not yet completed a System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements apply to existing inverter-based resource plants making upgrades that require a new Generator Interconnection Agreement only where the Transmission Provider's System Impact Study shows the need for reactive power as a result of an upgrade. If

applicable, these requirements will be memorialized in Appendix C to this GIA.

Additional reactive power requirements for inverter-based resource plants are provided in Appendix G of this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Voltage Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Payments for reactive power shall be pursuant to

any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

9.6.4 Primary Frequency Response. This Section 9.6.4 shall only apply in the event that the Interconnection Request for the Generating Facility completed Definitive Planning Phase Interconnection Customer Decision Point 2 after May 15, 2018.

Interconnection Customer shall ensure the primary frequency response capability of its Generating Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Generating Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved Reliability Organization reliability standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Generating Facility, and shall be linear in the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based on an approved Electric Reliability Organization reliability standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Generating Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Generating Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved Electric Reliability Organization Reliability Standard providing for an equivalent or more stringent parameter. Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Generating Facility has been tested and confirmed during commissioning. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Interconnection Customer shall operate the Generating Facility consistent with the provisions specified in Articles 9.6.4.1 and 9.6.4.2 of this GIA. The primary frequency response requirements contained herein shall apply to both synchronous and inverter-based resource plant Generating Facilities.

9.6.4.1 Governor or Equivalent Controls. Whenever the Generating Facility is operated in parallel with the Transmission System, Interconnection Customer shall operate the Generating Facility with its governor or

equivalent controls in service and responsive to frequency. Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband parameter to: (a) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (b) implement the relevant droop and deadband settings from an approved Regional Reliability Organization reliability standard that provides for equivalent or more stringent parameters. Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Interconnection Customer needs to operate the Generating Facility with its governor or equivalent controls not in service, Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Interconnection Customer shall make Reasonable Efforts to keep outages of the Generating Facility's governor or equivalent controls to a minimum whenever the Generating Facility is operated in parallel with the Transmission System.

9.6.4.2 Timely and Sustained Response. Interconnection Customer shall ensure that the Generating Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Generating Facility has operating capability in the direction needed to correct the frequency deviation. Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Generating Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved reliability standard with equivalent or more stringent requirements shall supersede the above requirements.

9.6.4.3 Exemptions. Generating Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from Articles 9.6.4, 9.6.4.1, and 9.6.4.2 of this GIA. Generating Facilities that are

behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in Article 9.6.4, but shall be otherwise exempt from the operating requirements in Articles 9.6.4, 9.6.4.1, 9.6.4.2, and 9.6.4.4 of this GIA.

9.6.4.4 Electric Storage Resources. Interconnection Customer interconnecting an electric storage resource shall establish an operating range in Appendix C that specifies a minimum state of charge and a maximum state of charge between which the electric storage resource will be required to provide primary frequency response consistent with the conditions set forth in Articles 9.6.4, 9.6.4.1, 9.6.4.2 and 9.6.4.3 of this GIA. Appendix C shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the electric storage resource; (5) operational limitations of the electric storage resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Appendix C must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Interconnection Customer's electric storage resource is required to provide timely and sustained primary frequency response consistent with Article 9.6.4.2 of this GIA when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the electric storage resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System.

9.6.4.5 Inverter-Based Resource Plants. Additional primary frequency response requirements for inverter-based resource plants, including electric storage resources, are provided in Appendix G of this GIA.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Interconnection Customer and Transmission Owner may each in accordance with Good Utility Practice in coordination with the other Party and Transmission Provider remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify one another and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Parties of such removal.

9.7.1.2 Outage Schedules. Transmission Provider shall post scheduled outages of transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

Transmission Provider shall compensate, pursuant to applicable Transmission Provider tariff or rate schedule, Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent the Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

Costs shall be determined by negotiation between Transmission Provider and Interconnection Customer prior to implementation of the voluntary change in outage schedules, or if such request is made by or on behalf of a Transmission Customer requesting firm service, costs and recovery of costs shall be determined through a bilateral agreement between the Transmission Customer and Interconnection Customer. Voluntary

changes to outage schedules under this Article 9.7.1.2 are separate from actions and compensation required under Article 13 and for which costs are recovered in accordance with Transmission Provider's applicable tariff or rate schedule.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects a Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Parties, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Parties explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission

Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Ride Through Capability and Performance. The Transmission System is designed to automatically activate a load-shed program as required by the Electric Reliability Organization in the event of an underfrequency system disturbance. Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Generating Facility as required by the Electric Reliability Organization to ensure frequency "ride through" capability of the Transmission System. Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. Interconnection Customer shall also implement under-voltage and over-voltage relay set points, or equivalent electronic controls, as required by the Electric Reliability Organization to ensure voltage "ride through" capability of the Transmission System. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other Generating Facilities in the Balancing Authority Area on a comparable basis. For abnormal frequency conditions and voltage conditions within the "no trip zone" defined by Reliability Standard PRC-024-3 or successor mandatory ride through reliability standards, the non-synchronous Generating Facility must ensure that, within any physical limitations of the Generating Facility, its control and protection settings are configured or set to (1) continue active power production during disturbance and post disturbance periods at pre-disturbance levels, unless providing primary frequency response or fast frequency response; (2) minimize reductions in active power and remain within dynamic voltage and current limits, if reactive power priority mode is enabled, unless providing primary frequency response or fast frequency response; (3) not artificially limit dynamic reactive power capability during disturbances; and (4) return to pre-disturbance active power levels without artificial ramp rate limits if active power is reduced, unless providing primary frequency response or fast frequency response.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Owner shall install at Interconnection Customer's expense any Transmission Owner's System Protection Facilities that may be required on the Transmission Owner's Interconnection Facilities or the Transmission Owner's transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer's Interconnection Facilities.

9.7.4.2 Interconnection Customer's and Transmission Owner's System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution

System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict between ANSI Standard C84.1, and any applicable superseding electric industry standard, the applicable superseding electric industry standard shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Parties a copy of its switching and tagging rules that are applicable to the other Parties' activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution System, as applicable, and shall be used for no other purpose.

9.9.2 Other Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more Parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer

and any non-Party users based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to Section 12 of the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Owner Obligations. Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.2 Interconnection Customer Obligations. Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.3 Coordination. The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems. Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses. Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of

Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall design, procure, construct, install, own and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A at its sole expense.

11.2 Transmission Owner's Interconnection Facilities. Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Owner's Interconnection Facilities described in Appendix A at the sole expense of Interconnection Customer.

11.3 Network Upgrades, System Protection Facilities and Distribution Upgrades. Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades described in Appendix A. Interconnection Customer shall be responsible for all costs related to Distribution Upgrades and/or Generator Upgrades. As required by Section 7.3.2.1 and 7.3.3.1 of Attachment X, Transmission Owner shall have provided Transmission Provider with written notice if Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer. In the event that the Transmission Owner elects to fund the capital costs of the Network Upgrades and/or Transmission Owner's System Protection Facilities, then the Parties shall enter into a Facilities Service Agreement. The Facilities Service Agreement shall take the form of the *pro forma* Facilities Service Agreement that is included as Appendix 14 of Attachment X to the MISO Tariff .

11.3.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades. Network Upgrades, System Protection Facilities and Distribution Upgrades that are required to accommodate the Generating Facility may be modified because (1) a higher queued Interconnection Request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued Interconnection Request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued Interconnection Request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued Interconnection Request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification pursuant to Section 4.4 of the GIP, (7) a GIA with an effective date prior to this GIA is terminated, (8) when ordered to restudy by FERC, or (9) the Network Upgrade Facilities Study for a Network Upgrade, which is to be included in this

GIA, is completed after execution of this GIA. The higher queued Interconnection Requests that could impact the Network Upgrades, System Protection Facilities and Distribution Upgrades required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A.

11.3.2 Agreement to Restudy and Cost Reallocation. In the event that one of the contingencies listed in Article 11.3.1 occurs, at any time before the Network Upgrades, Common Use Upgrades, Shared Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine, in its discretion, that a restudy is required. If a restudy is required, Transmission Provider will provide notice to Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.3.2.

11.3.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider. Where applicable, payments to fund Shared Network Upgrade(s) that are made to Transmission Provider by Interconnection Customer will be disbursed by Transmission Provider to the appropriate entities that funded the Shared Network Upgrades in accordance with Attachment X and Attachment FF of the Tariff. In the event that Interconnection Customer fails to meet its obligation to fund Shared Network Upgrades, Transmission Owner and Transmission Provider shall not be responsible for the Interconnection Customer's funding obligation.

11.4 Transmission Credits.

11.4.1 Repayment of Amounts Advanced for Network Upgrades. Interconnection Customer shall be entitled to a cash repayment by Transmission Owner(s) and the Affected System Owner(s) that own the Network Upgrades, of the amount paid respectively to Transmission Owner and Affected System Operator, if any, for the Network Upgrades, as provided under Attachment FF of this Tariff and including any tax gross-up or other tax-related payments associated with the repayable portion of the Network Upgrades, and not repaid to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection

Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under the Tariff and Affected System's Tariff for Transmission Services with respect to the Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. § 35.19 (a)(2)(iii) from the date of any payment for Network Upgrades through the date on which Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interest shall not accrue during periods in which Interconnection Customer has suspended construction pursuant to Article 11 or the Network Upgrades have been determined not to be needed pursuant to this Article 11.4.1. Interconnection Customer may assign such repayment rights to any person.

If the Generating Facility is designated a Network Resource under the Tariff, or if there are otherwise no incremental payments for Transmission Service resulting from the use of the Generating Facility by Transmission Customer, and in the absence of another mutually agreeable payment schedule any repayments provided under Attachment FF shall be established equal to the applicable rate for Firm Point-To-Point Transmission Service for the pricing zone where the Network Load is located multiplied by the portion of the demonstrated output of the Generating Facility designated as a Network Resource by the Network Customer(s) or in the absence of such designation, equal to the monthly firm single system-wide rate defined under Schedule 7 of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to Network Customer(s) and consistent with studies pursuant to Section 3.2.2.2 of the GIP.

Notwithstanding the foregoing, as applicable and consistent with the provisions of Attachment FF of this Tariff, Interconnection Customer, Transmission Provider, Transmission Owner, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Owner and Affected System Operator take one of the following actions no later than five (5) years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Owner or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

If the Generating Facility is installed in phases, the amount eligible for refund as each phase achieves Commercial Operation will be reduced by the proportional amount of generation capacity not yet installed. However, all facilities in Appendix A other than the Generating Facility shall be built without

consideration for the phasing of the Generating Facility as though the entire Generating Facility will be placed in Commercial Operation for the full output or increased output of the Generating Facility constructed by Interconnection Customer under this GIA.

If the Generating Facility fails to achieve Commercial Operation, but it or another generating facility is later constructed and makes use of the Network Upgrades, Transmission Owner and Affected System Operator shall at that time reimburse Interconnection Customer for the remaining applicable amounts that may be refundable pursuant to Attachment FF of this Tariff that were advanced for the Network Upgrades on their respective systems as described above. Before any such reimbursement can occur, Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which the reimbursement must be made.

11.4.2 Special Provisions for Transmission Provider as an Affected System to be covered under Separate Agreements. When the Transmission Owner's Transmission or Distribution System (including for this Article 11.4.2 independent distribution systems connected to the Transmission System) is an Affected System for an interconnection in another electric system, Transmission Provider will coordinate the performance of Interconnection Studies with the other system. Transmission Provider will determine if any Network Upgrades or Distribution Upgrades, which may be required on the Transmission System as a result of the interconnection, would not have been needed but for the interconnection. Unless Transmission Owner provides, under the interconnection agreement between Interconnection Customer and the other system, for the repayment of amounts advanced to Transmission Provider or an impacted Transmission Owner for Network Upgrades, Interconnection Customer, Transmission Provider, and the impacted Transmission Owner(s) shall enter into an agreement that provides for such repayment by Transmission Owner(s) as directed by Transmission Provider. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the Affected System Operator as well as the payment of refunds by the Affected System Operator.

11.4.3 Notwithstanding any other provision of this GIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades, including the right to obtain cash reimbursement or transmission credits for transmission service that is not associated with the Generating Facility.

11.5 Initial Payment. For upgrades that the Transmission Owner has elected to self-fund, the

Interconnection Customer is responsible for making the initial payment for the total cost of Network Upgrades (excluding JTIQ Upgrades) or Transmission Owner's System Protection Facilities in the form of security pursuant to Article 11.6. For upgrades where the Transmission Owner did not elect to self-fund, the Interconnection Customer shall elect (and provide its election to the Transmission Provider within five days of the commencement of negotiation of the GIA pursuant to Section 11.2 of the GIP) to make either 1) an initial payment equal to twenty (20) percent of the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date is less than or equal to five (5) years of the initial payment date); or 2) an initial payment equal to ten (10) percent of the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date exceeds the initial payment date by more than five (5) years); or 3) the total cost of Network Upgrades (excluding JTIQ Upgrades), Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades in the form of security pursuant to Article 11.6. The initial payment shall be provided to Transmission Owner by Interconnection Customer pursuant to this Article 11.5 within the later of a) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or b) forty-five (45) Calendar Days of acceptance by FERC if the GIA is filed unexecuted and the payment is being protested by Interconnection Customer, or c) forty-five (45) Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer. If the Interconnection Customer made its milestone payments in the form of cash and the Interconnection Customer elects a cash initial payment, then the Transmission Provider shall transfer those funds to the Transmission Owner on the Interconnection Customer's behalf.

11.6 Provision of Security. Unless a milestone cash payment schedule is provided in Appendix B, Interconnection Customer shall, at least forty-five (45) Calendar Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of a facility, not otherwise funded under Article 11.5, provide additional security. Additionally, the Interconnection Customer will be required to provide security more than forty-five (45) Calendar Days in advance if requested by Transmission Owner because regulatory approvals are required for the construction of such facilities. Interconnection Customer shall provide Transmission Owner, at Interconnection Customer's selection, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Owner and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment, as specified in Appendix B of this GIA, shall be in an amount sufficient to cover the applicable costs and cost commitments, in addition to those funded under Article 11.5, required of the Party responsible for building the facilities pursuant to the construction schedule developed in Appendix B for designing, engineering, seeking regulatory approval from any Governmental Authority, constructing, procuring and installing the applicable portion of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution

Upgrades or Stand-Alone Network Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Owner for these purposes. Transmission Owner must use the milestone payments required under the GIP before requiring Interconnection Customer to submit additional security. Transmission Owner must specify, in Appendix B of this GIA, the dates for which Interconnection Customer must provide additional security for construction of each discrete portion of Transmission Owner's Interconnection Facilities, Network Upgrades, or Distribution Upgrades and Interconnection Customer must provide such additional security.

In addition:

11.6.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.6.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.4 If the Shared Network Upgrade is not in service, Interconnection Customer will not be required to make a payment under Schedule 26-B until the Shared Network Upgrade is in service, but Interconnection Customer will provide, as applicable, an Irrevocable Letter of Credit to fund any Shared Network Upgrade pursuant to Attachment FF of the Tariff. The Irrevocable Letter of Credit shall be in an amount sufficient to cover the Interconnection Customer’s share of the applicable costs and cost commitments associated with the Shared Network Upgrades. Transmission Provider may periodically adjust the Interconnection Customer’s share of the applicable costs and cost commitment of Shared Network Upgrades and may require Interconnection Customer to adjust the amount of the Irrevocable Letter of Credit accordingly.

11.7 Interconnection Customer Compensation. If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Article 13.4 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

11.8 Provision of Security for JTIQ Upgrades. If the Transmission Provider determines that the Interconnection Request meets the distribution factor and impact criteria specified in Section 9.4.2(d)((ii) of Rate Schedule 6 (MISO SPP JOA) and is included in the JTIQ Participation Group, Interconnection Customer shall be required to provide security in accordance with Attachment X, Appendix 18 (MISO JTIQ Commitment Agreement) and SPP’s JTIQ Service Agreement.

ARTICLE 12. INVOICE

12.1 General. Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice. Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Owner shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.

12.3 Payment. Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.

12.4 Disputes. In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, the Electric Reliability Organization, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the other Parties promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Parties, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 General. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require

the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 Interconnection Customer Authority. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.6 of this GIA, no Party shall be liable to any other for any action it takes in responding to an Emergency

Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978.

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other Parties and any instrument required or permitted to be tendered or delivered by a Party in writing to the other Parties shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by any Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Parties in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 A Party shall not be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of another Party. Upon a Breach, the non-Breaching Party or Parties shall give written notice of such Breach to the Breaching Party with a copy to the other Party if one Party gives notice of such Breach. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Breach notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete

such cure within ninety (90) Calendar Days from receipt of the Breach notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Termination. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party or Parties shall terminate this GIA, subject to Article 2.3.2 of this GIA, by written notice to the Breaching Party, with a copy to the other Party if one Party gives notice of termination, and be relieved of any further obligation hereunder and, whether or not that Party(ies) terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is (they are) entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

17.1.3 Cross-Default. Pursuant to Article 11.3 of this GIA, the Parties shall enter into a Facilities Service Agreement if the Transmission Owner has elected to fund the capital for the Network Upgrades and/or Transmission Owner's System Protection Facilities. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the Facilities Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA. If a default under this GIA results from the Interconnection Customer's breach of the Facilities Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the Facilities Service Agreement and this GIA.

Pursuant to Section 11.3 of the GIP, an Interconnection Customer included in a JTIQ Participation Group shall execute or request the unexecuted filing both of the Transmission Provider's JTIQ Commitment Agreement and the JTIQ Service Agreement included in SPP's tariff. Notwithstanding anything to the contrary contained in this GIA, a breach by Interconnection Customer of any provision, covenant, or other term or condition contained in the JTIQ Commitment Agreement or SPP's JTIQ Service Agreement shall be considered a breach under this GIA. Such breach shall be subject to the terms of Article 17 of this GIA provided, however, that the manner and timing of cure of such breach shall adhere to the requirements of the applicable agreement and cure in accordance with the provisions of such agreement shall also cure the breach of this GI. If a default under this GIA results from the Interconnection Customer's breach of the JTIQ Commitment Agreement or SPP JTIQ Service Agreement and subsequent failure to cure, the Transmission Owner and Transmission Provider shall be entitled, but in no event required, to apply all rights and remedies available by reason of default under the JTIQ Commitment Agreement, SPP JTIQ Service Agreement, and this GIA.

17.2 Violation of Operating Assumptions for Generating Facilities. If Transmission

Provider requires Interconnection Customer to memorialize the operating assumptions for the charging behavior of the Generating Facility that includes at least one electric storage resource in Appendix A of this GIA, Transmission Provider may consider Interconnection Customer to be in Breach of the GIA if Interconnection Customer fails to operate the Generating Facility in accordance with those operating assumptions for charging behavior. However, if Interconnection Customer operates contrary to the operating assumptions for charging behavior specified in Appendix A of this GIA at the direction of Transmission Provider, Transmission Provider shall not consider Interconnection Customer in Breach of this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to another Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of Interconnection Service, except as provided in this Tariff. The provisions set forth in the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Parties harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such Indemnified Party may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with

counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate for generators not eligible for the Fast Track Process in GIP Section 14. The requirement for generators eligible for the Fast Track Process in GIP Section 14 is a minimum combined single limit of Five Million Dollars ($5,000,000) per occurrence/Five Million Dollars ($5,000,000) aggregate..

18.4.5 The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Parties, their parents, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days' advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.

18.4.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

18.4.7 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.

18.4.8 The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by any Party only with the written consent of the other Parties; provided that a Party may assign this GIA without the consent of the other Parties to any Affiliate of the assigning Party with an equal or greater credit rating

and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.5 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 **Severability**. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if Interconnection Customer (or any non-Party, but only if such non-Party is not acting at the direction of either Transmission Provider or Transmission Owner) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 **Comparability**. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 **Confidentiality.** Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by a Party to another Party prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed

orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by the receiving Party, the disclosing Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term**.** During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. No Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing

Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

22.1.4 Rights. Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by a Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties. By providing Confidential Information, no Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Party obligates itself to provide any particular information or Confidential Information to another Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care. Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use Confidential Information solely to fulfill its obligations to another Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure. If a court or a Governmental Authority or entity with the right, power, and apparent authority to do so requests or requires any Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies**.** The Parties agree that monetary damages would be inadequate to

compensate a Party for another Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State**.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Parties to this GIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Parties to this GIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information that Party claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or

if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect another Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Parties copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 **Information Acquisition**. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 **Information Submission by Transmission Provider and Transmission Owner** The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 **Updated Information Submission by Interconnection Customer**. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission

Owner a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice, such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating

requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the "disclosing Party") shall make available to the other Parties information that is in the possession of the disclosing Party and is necessary in order for the other Parties to: (i) verify the costs incurred by the disclosing Party for which another Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. A Party (the "notifying Party") shall notify the other Parties when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Article shall not entitle any Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Parties, to audit at its own expense the other Parties' accounts and records pertaining to the Parties' performance or the Parties' satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Parties' costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records. Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to a Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the Party or from whom the overpayment or underpayment is owed together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event any Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "disputing Party") shall provide the other Parties with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the non-disputing Parties. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the non-disputing Parties' receipt of the

Notice of Dispute, such claim or dispute shall be submitted for resolution in accordance with the dispute resolution procedures of the Tariff.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority**.** Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. {RESERVED}

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect. This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.1.1 Reversion. If offered pursuant to an Agency Agreement under which this GIA is executed by Transmission Provider as agent for the relevant Transmission Owner, in the event that the relevant Agency Agreement terminates, any HVDC Service offered by Transmission Provider under this GIA shall revert to the relevant Transmission Owner and Transmission Provider shall be released from all obligations and responsibilities under this GIA.

30.2 Conflicts. In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation. This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including."

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by any Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts. This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by all of the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by all of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the

other Parties.

IN WITNESS WHEREOF, the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

Transmission Provider
Midcontinent Independent System Operator, Inc.

By: _____
Name: Aubrey Johnson
Title: Vice President, System Planning

June 10, 2026 kkh

Transmission Owner
Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp, a Michigan corporation, its sole manager

By: Brian Slocum
257A7E23DA6542F...
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Interconnection Customer
Lakeside Solar, LLC

By: _____
Name: Rafik Halim
Title: Vice President, Transmission & RTO Po

APPENDICES TO GIA

Appendix A Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrades
Appendix B Milestones
Appendix B-1 Pre-Certification Generation Test Notification Form
Appendix C Interconnection Details
Appendix D Security Arrangements Details
Appendix E Commercial Operation Date
Appendix F Addresses for Delivery of Notices and Billings
Appendix G Interconnection Requirements for Inverter-Based Resource Plants
Appendix H Interconnection Requirements for Provisional GIA
Appendix I Requirements Applicable to Surplus Interconnection Service

Appendix A to GIA

Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrades

Preamble:
Coordinated Output – means the combined total of the S1082 Project output plus the J1587 output cannot exceed the J1587 output limit of 100 MW, nor can the S1082 Project exceed its maximum 50 MW net output.

Surplus Interconnection:
This Coordinated Output service requires the Interconnection Customer to always have in effect a Monitoring and Consent Agreement with the Existing Generating Facility J1587 that is in Commercial Operation and remains in Commercial Operation at the same POI. At all times power requirements at the POI and Generator Step Up transformer shall meet the same real and reactive output requirements as if only the J1587 Generating Facility was operating at that output level.

The real time Coordinated Output of the J1587 and the S1082 project shall be monitored and if the output of the J1587 and the S1082 exceeds 100 MW at any time, the output of the Interconnection Customer's Generating Facility shall be reduced to zero until the Interconnection Customer implements corrective action acceptable to the Transmission Provider and Transmission Owner.

1. Description of Generating Facility

Interconnection Customer shall install a 73.92 MVA facility, rated at 54.8352 MW gross and 50 MW / (400 MWh) net, with all studies performed at or below these outputs. The Generating Facility is composed of fifty-six (56) Tesla Megapack 2XL inverter units in a battery energy storage system (BESS) rated at 1.32 MVA / 0.9792 MW with an energy rating of (3.7037) MWh each. Interconnection Service provided under this agreement is 50 MW of conditional ERIS and/or NRIS that will become 50 MW of ERIS and/or NRIS upon completion of all Network Upgrades under this GIA and transmission assumptions listed in Table A10-1 of Exhibit A10.

The BESS was studied as charging from the Transmission System and limited to a maximum not to exceed charging load of 50 MW on the Transmission System over any time duration.

Interconnection Customer shall install a switchyard with the appropriate protection equipment coordinated per Appendix C to this GIA.

2. Interconnection Facilities

(a) Point of Interconnection. The Point of Interconnection shall be at the point

i. The Point of Interconnection shall be at the tie point between the 138 kV disconnect switches 8M6 and 8W4 at Position WM8 in the Transmission Owner's Lamos switching station.
ii. The Point of Change of Ownership will be at the dead-end on the entrance structure at Transmission Owner's Lamos station.
iii. The Metering Equipment will be at S1082 collector station, compensated to the POI. See Exhibit A2.

(b) Interconnection Facilities (including metering equipment) to be constructed by Interconnection Customer.

One (1) generator step-up transformer 138/34.5 kV 72/96/120 MVA Z=9.0% and one (1) 138 kV, 1200 A 31.5kA circuit breaker are constructed and owned by J1375 and shared with S1081.

An approximately 0.1 miles of 795 kcmil Condor generator lead line is constructed and owned by J1375 and shared with J1587, S1081 and S1082.

Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities for project S1082 per GIA 7.1.

Interconnection Customer is responsible for coordinating and obtaining station service supply for the Interconnection Customer Interconnection Facilities and the Generating Facility. The Interconnection Customer will coordinate station supply with the local service territory provider to address normal and emergency back-up station power needs for Interconnection Customer Interconnection Facilities and for Generating Facility during construction and operation of those facilities. Net metering of Station Service power may be obtained per the requirements of Transmission Provider's Schedule 20.

(c) Transmission Owner Interconnection Facilities (including metering equipment) to be constructed by Transmission Owner.
None.

3. Network Upgrades

(a) Stand-Alone Network Upgrades to be installed by Transmission Owner.
None.

(b) Network Upgrades to be installed by Transmission Owner.
None.

(c) Shared Network Upgrade(s) to be funded by Interconnection Customer.
None.

(d) Substation Network Upgrades to be installed by Transmission Owner.

None.

4. System Protection Facilities

(a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer.
None.

(b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner.
None.

5. Distribution Upgrades

(a) Distribution Upgrades to be constructed by Transmission Owner.
None.

6. Contingency List
None.

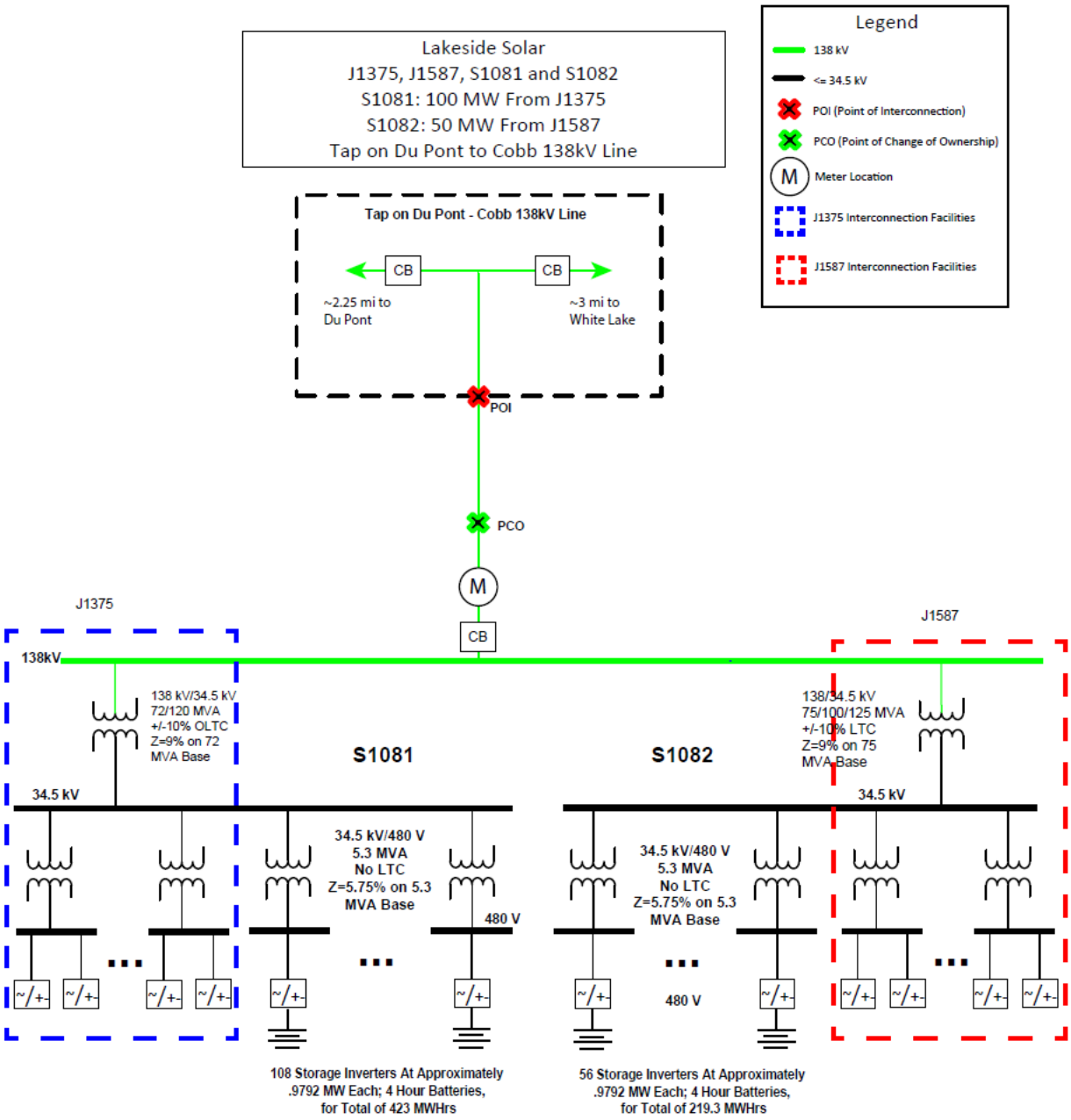
7. Affected System Upgrades List
None.

8. JTIQ Upgrades
None.

9. Exhibits – The following exhibits are included:

A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram
A2. Transmission Owner One-Line
A3. General Arrangement Drawing
A4. Transmission Owner Plan and Profile
A5. Facilities to be Constructed by Transmission Owner
A6. Detailed Costs of Facilities to be Constructed by Transmission Owner {Reserved}
A7. Network Upgrades to be Constructed by Interconnection Customer
A8. Transmission Owner's Interconnection Facilities to be Constructed by Interconnection Customer
A9. Facilities Subject to Transmission Owner Reimbursement {Reserved}
A10. Contingent Facilities
A11. Interconnection Customer Milestones {Reserved}
A12. Construction and Coordination Schedules {Reserved}
A13. Permits, Licenses, Regulatory Approvals and Authorization {Reserved}
A14. Interconnection and Operating Guidelines

Exhibit A1. Interconnection Customer One-Line and Site Map
A1-1: Interconnection Customer One-Line Diagram



Original Sheet No. 99

Exhibit A2. Transmission Owner One-Line

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 100

Exhibit A3. General Arrangement Drawing

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 101

Exhibit A4. Transmission Owner Plan and Profile

CUI//CEII MATERIAL – DO NOT RELEASE

Original Sheet No. 102

Exhibit A5. Facilities to be Constructed by Transmission Owner

None.

Original Sheet No. 103

Exhibit A6. Detailed Costs of Facilities to be Constructed by Transmission Owner

{Reserved}

Exhibit A7. Network Upgrades to be Constructed by Interconnection Customer

No Transmission Owner Interconnection Facilities or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Original Sheet No. 105

Exhibit A8. Transmission Owner's Interconnection Facilities to be Constructed by Interconnection Customer

No Transmission Owner Interconnection Facilities or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Exhibit A9. Facilities Subject to Transmission Owner Reimbursement

{Reserved}

Exhibit A10. Contingent Facilities

Table A10-1 describes transmission assumptions modeled in the studies that were deemed necessary to allow for the Interconnection Service as described in Appendix A of this GIA and is not related to Article 11.3.1, i.e., does not describe projects associated with a higher queued and/or similarly queued Interconnection Requests. Nevertheless, if the transmission assumptions are not completed or significantly modified, the Interconnection Service granted under this GIA may be restricted until such time as the Interconnection Customer funds a study to determine the applicable ERIS and NRIS level that results due to the changes in Table A10-1.

A list of higher-queued and/or similarly queued study projects are in Tables A10-2 and A10-3.

Table A10-1: Transmission Assumptions

MTEP ID	Facility ID	Facility	Description	Expected Completion Date
None.				

Table A10-2: Prior Queued Projects

MISO Higher Queued Project #	Service Type	TO	County, State	Point Of Interconnection	Pmax (MW)	Fuel Type
None.						

Table A10-3: Similarly Queued Projects

MISO Higher Queued Project #	Service Type	TO	County, State	Point Of Interconnection	Pmax (MW)	Fuel Type
None.						

Original Sheet No. 108

Exhibit A11. Interconnection Customer Milestones

{Reserved}

Original Sheet No. 109

Exhibit A12. Construction and Coordination Schedules

{Reserved}

Original Sheet No. 110

Exhibit A13. Permits, Licenses, Regulatory Approvals and Authorization

{Reserved}

Exhibit A14. Interconnection and Operating Guidelines

A14-1 Voltage Guidelines

Reactive power, voltage regulation and operating requirements will be per Transmission Operator (TOP) and Transmission Provider directives. Interconnection Customer will operate the Generating Facility to a voltage schedule target of 141 kV (1.0217 pu) within a bandwidth of +/- 3 kV (0.0217 pu) at the Point of Interconnection (POI). The Interconnection Customer will regulate the Generating Facility's voltage to the specified voltage set-point within the defined bandwidth stated above using an automatic voltage controller. The Generating Facility shall be designed to eliminate reactive power injection into or withdrawal from the system, measured at the high side of the generator substation, when the Generating Facility is not producing real power. This includes reactive power injection caused by collector systems.

The above voltage schedule is subject to change. If the need for a change is identified, it will be done within the limits of the GIA provisions stated in Section 9.6 and the Generating Facility's power factor design criteria. If a schedule change is needed, appropriate written documentation of the change will be provided to the Interconnection Customer.

The Interconnection Customer is required to have a generator operator available for 24/7 communication with the TOP. The TOP may, at any time request a variance from the schedule in response to system operating/security requirements.

Original Sheet No. 112

Appendix B to GIA
Milestones

1. Selected Option pursuant to Article 5.1: Not Applicable.

2. Milestones: The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP.

A. Interconnection Customer Milestones

No.	Description	Date
1a.	Provide initial payment to Transmission Owner (GIA 11.5).	Not Applicable.
1b.	Provide security, *i.e.*, a guarantee, surety bond, letter of credit or other reasonably acceptable form of security to Transmission Owner (GIA 11.6).	Not Applicable.
1c.	Enter into a Facilities Service Agreement ("FSA") as may be applicable, with Transmission Owner for the Network Upgrades associated with this GIA.	Not Applicable.
1d.	Enter into amendment of this GIA, if required, for Interconnection Requests that did not elect optional negotiation period adjustment for Interconnection Facilities Study pursuant to GIA Section 11.3.1.	Not Applicable.
1e.	Enter into SPP JTIQ Service Agreement (if included in JTIQ Participation Group) pursuant to GIP Section 11.1.	Not Applicable.
1f.	Enter into any agreement required by an Affected System for the study, construction, or funding of a network upgrade to mitigate impacts (for Interconnection Requests processed through ERAS) pursuant to GIP Section 3.5.2.	Not Applicable.
1g.	Demonstrate 100% Site Control (if not provided earlier due to qualifying regulatory limitations) or the GIA may be terminated per Article 2 of this GIA and the Interconnection Customer may be subject to Withdrawal Penalties per Section 7.6.2.1.1 of the GIP (Calculation of the Automatic Withdrawal Penalty).	Within 180 Calendar Days of the Effective Date.
2.	Provide Certificate of Insurance (GIA 18.4.9).	Within 60 Calendar Days of execution of the GIA; thereafter, within 90 Calendar Days of end of fiscal year or insurance renewal date.

3.	Provide evidence of one or more of the following milestones being achieved: (1) execution of contract for (a) fuel supply or transport; (b) cooling water supply; (c) engineering procurement of major equipment or construction; (d) execution of a contract for the sale of electric energy or capacity from the Generating Facility, or a statement signed by an officer or authorized agent of Interconnection Customer attesting that the Generating Facility is included in an applicable state resource adequacy plan; or other information that Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource; or (2) documentation of application for state or local air, water, land, or federal nuclear or hydroelectric permits and that the application is proceeding per regulations (GIP 11.3).	Within 180 Calendar Days of Effective Date.
4.	Provide security in the amount of $_____ to Transmission Owner to commence design, equipment procurement and construction for Interconnection Facilities (GIA 5.5 and 5.6).	Not Applicable.
5.	Invoice Transmission Owner for the estimated amount to be expended by the Interconnection Customer to construct any Stand Alone Network Upgrades for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
6.	Pre-construction meeting.	As may be agreed to by the Parties.
7.	Provide initial design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	180 Calendar Days prior to initial synchronization date.
8.	Provide final design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.10.1).	90 Calendar Days prior to initial synchronization date.
9.	Deliver to Transmission Owner and Transmission Provider "as-built" drawings, information and documents regarding Interconnection Customer's Interconnection Facilities (GIA 5.10.3).	Within 120 Calendar Days of Commercial Operation Date.
10.	Provide Transmission Owner final cost invoices to construct Stand Alone Network Upgrades for which the Interconnection Customer has exercised its	Not Applicable.

	Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	
11.	Notify Transmission Provider and Transmission Owner in writing of Local Balancing Authority where Generating Facility is located (GIA 9.2).	Three months prior to Initial Synchronization Date.
12.	Pre-energization meeting.	As may be agreed to by the Parties.
13.	Initial Synchronization Date.	10/31/2029
14.	Commercial Operation Date.	12/31/2029
15.	Interconnection Customer shall provide the Parties with notice on the status of the Generating Facility, including COD, under Article 15 of this GIA and shall also send such notice by email to ResourceIntegration@misoenergy.org. Notification shall include Interconnection Customer's name, and as applicable Market Participant(s) name(s), and project number.	6 months prior to Initial Synchronization Date.
16.	Interconnection Customer shall provide notice to the Parties of a test plan in advance of conducting tests for the Generating Facility. The notice shall be in the form below and should be provided under Article 15 of this GIA, and a copy of such notice should be emailed to ResourceIntegration@misoenergy.org**.**	5 Business Days prior to testing.
17.	In the event the Interconnection Customer makes any modifications to the design of the site layouts or interconnection facility routes after execution of this GIA, Interconnection Customer shall notify the Parties of such changes immediately upon identifying the need for such changes. After providing such notification, the Interconnection Customer shall provide to Transmission Provider evidence of continued Site Control for land sufficient to accommodate the changes in site layouts and/or interconnection facility routes (GIP 7.2.2).	90 Calendar Days after Interconnection Customer provides notice to Parties.
18.	Interconnection Customer to provide Transmission Owner and Transmission Provider with completed Appendix E Commercial Operation declaration.	As of Commercial Operation.
19.	Interconnection Customer to complete Generator Modeling Form and provide to Transmission Owner.	60 Days prior to the In Service Date.
20.	Interconnection Customer to provide valid parameterized PSCAD model of the inverter and the plant controller.	Within 90 Days of GIA execution.

B. Transmission Owner Milestones

No.	Description	Date
0.	Transmission Owner to enter Network Upgrade information into Transmission Provider's MTEP database and model on demand.	Not Applicable.
1.	Provide Certificate of Insurance (GIA 18.4.9).	Not Applicable.
2.	• Commence design of Interconnection Facilities (GIA 5.5 et seq.). • Commence equipment procurement.	Not Applicable.
3.	Commence construction of Interconnection Facilities (GIA 5.6 et seq.).	Not Applicable.
4.	Comment on Interconnection Customer's final design and specifications.	Within 30 Calendar Days of Interconnection Customer's submission of final design and specifications.
5.	Upon request, deliver to Interconnection Customer and Transmission Provider "as-built" drawings, information and documents regarding Transmission Owner's Interconnection Facilities (GIA 5.11).	Not Applicable.
6.	Provide payment for invoiced estimated costs to construct for which the Interconnection Customer has exercised its Option to Build if the Transmission Owner has elected to Self Fund (GIA 5.2.13).	Not Applicable.
7.	Provide Interconnection Customer final cost invoices (GIA 12.2 *et seq.*).	Not Applicable.
8.	Refund overpayment of estimated costs (GIA 12.2).	Not Applicable.
9.	In-Service Date/Backfeed Date.	05/12/2029
10.	Provide Generator Modeling Form to Interconnection Customer.	Prior to GIA execution.
11.	Transmission Owner will promptly provide Notice to Interconnection Customer and Transmission Provider if it reasonably expects it cannot meet specified dates for facilities described in Article 5.1.1 of this GIA. See Exhibit A12 for Transmission Owner's construction schedule.	As Provisioned in Article 5.1.1.

C. Affected System Owner Milestones

Task	Date Due
None.	Not Applicable.

Original Sheet No. 116

Appendix B-1 to GIA
Pre-Certification Generation Test Notification Form

The following form would need to be submitted to MISO Real Time Operations at least five (5) Business Days prior to the first date of testing.

Project Number:

Project Name:

Point of Interconnection:

Dispatcher Contact Information:

Date	Start Time (in EST)	End Time (in EST)	Expected MW Output	Expected MVAR Output (Only needed if beyond normal power factor)

Original Sheet No. 117

Appendix C to GIA
Interconnection Details

1. GENERAL INTERCONNECTION AND OPERATING GUIDELINES

1.1 **Applicability**. These guidelines are applicable for all generation types, synchronous and Inverter Based Resources ("IBR"). Additionally, IBR references are applicable to Grid Following ("GFL") and Grid Forming ("GFM") technology. Where necessary, sections will be specific to the generation type and/or IBR technology. IBR plants shall meet Appendix C performance requirements as required per Table C-1. Generating Facilities Replacement and Surplus Interconnections shall follow DPP-2023 Requirements.

Appendix C Subclause	**Required by Appendix C for DPP-2021**	**Required by Appendix C for DPP-2022**	**Required by Appendix C for DPP-2023 and later**
1.13.1 Current Priority Operating Mode	**X**		
1.13.2 Analog Measurement Window	**X**	**X**	**X**
1.13.3 Current Blocking	**X**		
1.13.4.1 Reference Point of Applicability	**X**	**X**	**X**
1.13.4.2 AC Voltage Protection - Continuous	**X**		
1.13.4.3 AC Voltage Protection - Transient	**X**		
1.13.4.4 Frequency Protection	**X**		

1.13.4.5 AC Overcurrent Protection	**X**	**X**	**X**
1.13.4.6 Rate-of-change-of-frequency	**X**	**X**	**X**
1.13.4.7 Phase lock loop (PLL)	**X**		
1.13.5 Active Power-Frequency Control	**X**	**X**	
1.13.6 Reactive Power-Voltage Control	**X**	**X**	
1.13.7 Current Injection During Ride-Through	**X**	**X**	**X**
1.13.8 Battery Energy Storage Systems ("BESS") and GFM Requirements.	**X**	**X**	

Table C-1

1.2 Applicable Standards. In addition to applicable design standards identified in the GIA, Interconnection Customer agrees to comply with the most recent Transmission Owner substation/transmission/protection design guides, standards, and specifications, where applicable, for the design of and procurement for this interconnection. The Transmission Owner design guides, standards, and specifications are available upon request.

If Transmission Owner design guides, standards or specifications do not address a particular item or issue, Interconnection Customers shall use any other nationally or regionally recognized standard, guide or specification. If there is a conflict between any other standard, guide or specification used by the Interconnection Customers and the Transmission Owner's design guides, standards and material/construction specifications, Transmission Owner's design guides, standards and specifications shall apply.

1.3 Communication Requirements. Interconnection Customer shall provide analog and digital signals including hardened voice communications, as requested by the

Transmission Owner and/or the Transmission Provider for RTU/frame relay/or public switched telephone systems, as further defined during detailed engineering and design of the Interconnection Facilities. Interconnection Customer agrees to transmit these signals to Transmission Owner's control building or to such other location as specified by the Transmission Owner during the detailed design of the Interconnection Facilities and Network Upgrades. Transmission Owner shall provide Interconnection Customer with the necessary substation information at the Transmission Owner's signals demarcation point. Interconnection Customer will pay all costs associated with receiving such information from Transmission Owner. The specific location of the demarcation point will be established during the detailed design of the Interconnection Facilities.

1.4 Metering Requirement. Interconnection Customer shall be responsible for all interconnection metering.

1.5 Grounding Requirements. Interconnection Customer shall design, install, and maintain grounding facilities to ground the Interconnection Customer's Interconnection Facilities, in accordance with Applicable Reliability Standards and Good Utility Practice. Interconnection Customer shall be responsible for detailed modeling and evaluation of the interconnected grounding system at the location of the Transmission Owner's Interconnection Facilities and Interconnection Customer's Interconnection Facilities. If Transmission Owner so chooses, Transmission Owner shall have the right to approve the grounding system design to ensure that the grounding system properly protects the Transmission Owner's Interconnection Facilities.

1.6 Transmission Line and Substation Connection Configurations. The Parties agree that the connections between Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be as configured in Exhibit A2-2. Exact transmission line locations will be developed by Transmission Owner during the detailed design and regulatory process. Interconnection Customer shall provide the space necessary for the Transmission Owner's placement of the transmission line facilities.

1.7 Unit Stability Requirements. Interconnection Customer agrees to operate its Generating Facility in accordance with the stability requirements identified in the Interconnection Evaluation Study and Interconnection Facilities Study reports, or their equivalent, prepared for this interconnection and which have been posted on the Transmission Provider OASIS. Interconnection Customer agrees to operate its Generating Facility within the operating requirements of the Transmission System, and the rules of the NERC, Reliability Coordinator and Transmission Provider.

1.8 Equipment Ratings. Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of the facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study in order that the Interconnection Customer's Interconnection Facilities appropriately coordinate with the Transmission Owner's

Interconnection Facilities.

1.9 Short Circuit Requirements. Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of such items. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study.

1.10 Synchronizing Requirements. In addition to requirements defined in Section 2 of this Appendix C, at the Transmission Owner's discretion, Transmission System bus potentials will be furnished which may be used by Interconnection Customer for synchronizing the combined Generating Facility to Transmission Owner's Transmission System. This potential will be provided to the Interconnection Customer at the Transmission Owner's signal demarcation point, as necessary.

1.11 Generation Control and Modeling Verification Requirements.

1.11.1 Generator Control. In addition to the requirements set forth elsewhere in Appendix C, the Generating Facility shall be designed and installed with voltage and var controls. These controls shall comply with any Applicable Reliability Standards, industry standards, or Good Utility Practice. The Interconnection Customer, prior to completion of the Generating Facility, shall contact the Transmission Owner for the information required to properly design the phase of the Generating Facility. Interconnection Customer further agrees to comply with any control requirements as specified in the Interconnection Facilities Study and as directed by the Transmission Operator, and shall design and construct each generating unit of its Generating Facility, if more than one unit, to include the capability to install power system stabilizers if later required.

Interconnection Customer will provide Transmission Owner with Generating Facility and Interconnection Customer Interconnection Facilities' operating control setpoints, prior to Commercial Operation of the Generating Facility. Generating Facility and Interconnection Customer Interconnection Facilities and those facilities' operating control setpoints shall accurately reflect the modeling data provided by the Interconnection Customer for use in the Interconnection Studies.

1.11.2 Generator Control Modifications.

If operating control setpoints for Interconnection Customer's facilities deviate from the control setpoints evaluated in the Interconnection Studies, Transmission Owner may request Interconnection Customer change operating control setpoints, and Interconnection Customer shall revise

setpoints as requested. After commissioning, the Interconnection Customer shall notify Transmission Owner prior to revising its operating control setpoints or operating characteristics. Changes to Interconnection Customer control setpoints will be subject to Transmission Planner or Planning Coordinator review and approval. Operation of the Generating Facility with operating control setpoints other than those evaluated in the Interconnection Studies or construction of the Generating Facility inconsistent with the modeling of the Generating Facility in the Interconnection Studies may have a material adverse impact on the Transmission System and may be considered a Material Modification.

1.11.3 Modeling Information. The Interconnection Customer shall provide the Transmission Owner all necessary short circuit, power flow, stability dynamic, harmonic modeling information, facility ratings, and momentary current blocking utilization for the Generating Facility and Interconnection Customer Interconnection Facilities. This modeling information shall be provided prior to energization and subsequently prior to changes being made, in such time as to allow the Transmission Owner to evaluate.

1.12 Power Factor Design Criteria. Interconnection Customer's Generating Facility is designed to be capable of operating within a power factor between 0.95 leading to 0.95 lagging at the high side of the Interconnection Customer's substation's step-up transformer. Interconnection Customer agrees to operate its Generating Facility, as directed, to produce or absorb reactive power at the Point(s) of Interconnection within the design limitations of the Generating Facility.

1.13 Inverter Based Resource Requirements.

1.13.1 Current Priority Operating Mode. Unless otherwise agreed upon and noted, under normal operation, IBR generating facilities shall operate in an "Active Current Priority" or an equivalent mode. During fault ride-through, IBR generating facilities shall switch to operate in a "Reactive Current Priority" or an equivalent mode. Post fault, the IBR generating facilities shall return to operating in an "Active Current Priority" or an equivalent mode.

1.13.2 Analog Measurement Window. The following is applicable to all frequency and voltage elements in section 1.13 of Appendix C of this GIA. Frequency tripping calculations shall be over a six-cycle window or greater. Voltage and current tripping calculations shall utilize RMS measured values over a one-cycle or greater window.

1.13.3 Current Blocking. Current Blocking has also been referred to as momentary cessation throughout the utility industry. The Interconnection Customer's facilities shall continue current injection inside the "No Trip" zone of the frequency and voltage ride through curves of PRC-024. They

also shall continue to inject current inside the "May Trip: zone of the frequency and voltage ride through curves of PRC-024 up to the capabilities of the Generating Facility. Current Blocking shall only be permitted if identified as necessary through Interconnection Studies.

1.13.4 Fault Ride-Through and Protection

1.13.4.1 Reference Point of Applicability ("RPA") – Except where stated otherwise "RPA" for all technical, minimum requirements for interconnection, capability and performance referenced in sections, tables, or figures of this Appendix C shall be the Point of Measurement ("POM") as shown in Figure C-2. Nominal voltage for use in Appendix G, Section B subclause 7.2.2.1 shall be the nominal voltage at the POI.

1.13.4.2 AC Voltage Protection - Continuous. IBR plant and feeder protection shall ride through continuous voltage disturbances per Table 11 and Table 12 of IEEE 2800-2022 (Table C-2 & C-3).

Table 11 —Voltage ride-through requirements at the RPA for IBR plants with auxiliary equipment that cause ride-through limitations[89]

Applicable voltage (p.u.) at the RPA	Operating mode/response	Minimum ride-through time (s) (design criteria)
V > 1.20	May ride-through or may trip	NA
V > 1.10	Mandatory operation	1.0
V > 1.05	Continuous operation[90]	1800
V < 0.90	Mandatory operation	3.00
V < 0.70	Mandatory operation	2.50
V < 0.50	Mandatory operation	1.20
V < 0.25	Mandatory operation	0.16
V < 0.10	Permissive operation[91]	0.16

Table 12 —Voltage ride-through requirements at the RPA for IBR plants without auxiliary equipment that cause ride-through limitations

Applicable voltage (p.u.) at the RPA	Operating mode/response	Minimum ride-through time (s) (design criteria)
V > 1.20	May ride-through or may trip	NA
V > 1.10	Mandatory operation	1.0
V > 1.05	Continuous operation[90]	1800
V < 0.90	Mandatory operation	6.00
V < 0.70	Mandatory operation	3.00
V < 0.50	Mandatory operation	1.20
V < 0.25	Mandatory operation	0.32
V < 0.10	Permissive operation[91]	0.32

NOTE 1—For interconnection at 500 kV system nominal voltage, the minimum ride-through time is infinite when applicable voltage is > 1.05 per unit and ≤ 1.10 per unit at 500 kV base.

NOTE 2—For isolated IBR, regardless of their energy resource, interconnecting via a dedicated VSC-HVDC transmission facility, the voltage ride-through requirements specified in Table 12 applies.

NOTE 3—For IBR plants consisting of photovoltaic (PV) and ESS that do not use auxiliary equipment that causes ride-through limitations, as determined during the *IBR plant* design evaluation in Clause 12, the voltage ride-through requirements specified in Table 12 applies.

NOTE 4—The nominal system voltage as defined in ANSI C84.1 is used as a base to derive per unit values in Table 11 and Table 12. The respective maximum voltage in ANSI C84.1 is adopted as a high-voltage limit for the *continuous operation region*. When the TS is normally operated outside of *continuous operation region*, the *TS owner* should provide a base voltage value and respective *continuous operation range* for purposes of voltage ride-through requirements.

NOTE 5—In case of hybrid IBR plants consisting of various IBR technologies, some combination of voltage ride-through capability requirements specified in Table 11 and Table 12 may need to be applied. In such a circumstance, the capability shall be based mutual agreement between TS owner and IBR owner.

Table C-2 & C-3[1]

1.13.4.3 AC Voltage Protection - Transient. The IBR plant and feeder protection shall ride through transient overvoltage disturbances and/or switching transients per Table 14 of IEEE 2800-2022

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 11 & Table 12: Voltage ride-through requirements at the RPA for IBR plants with and without auxiliary equipment that cause ride-through limitations

(Table C-4).

Table 14—Transient overvoltage ride-through requirements at the RPA

Voltage[c] (p.u.) at the RPA	Minimum ride-through time (ms)[d] (design criteria)[b]
V > 1.80	See footnote[a]
V > 1.70	0.2
V > 1.60	1.0
V > 1.40	3.0
V > 1.20	15.0

[a] Appropriate surge protection shall be applied at the RPA as well as within the *IBR plant*, including *IBR unit* terminals (POC), as necessary.
[b] The minimum ride-through times specified in Table 14 apply to both 50 Hz and 60 Hz systems.
[c] Specified voltage magnitudes are the residual voltages with surge arresters applied.
[d] Cumulative time over a 1-min time window.

Table C-4[1]

1.13.4.4 Frequency Protection. The IBR plant frequency protection shall ride through frequency excursions as specified in Figure 12 and Table 15 of IEEE 2800-2022. (Figure C-1 & Table C-5)

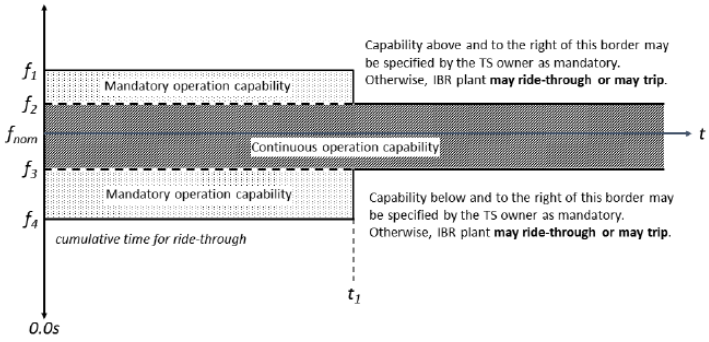


Figure 12—Frequency ride-through capability requirements for *IBR plant*

Table 15—Frequency ride-through capability for an *IBR plant* (see Figure 12)

Frequency range (Hz)	Percent from f_{nom}	Minimum time (s) (design criteria)	Operation
f_1, f_4	+3, −5	299.0 (t_1)	Mandatory operation
f_2, f_3	+2, −2	∞	Continuous operation

Figure C-1, Table C-5[2]

1.13.4.5 AC Voltage and Overcurrent Protection. If utilized this element shall not limit the Generating Facility ride-through

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 14: Transient overvoltage ride-through requirements at the RPA

[2] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Figure 12 & Table 15: Frequency ride-through capability requirements for IBR plant

capabilities and as applicable shall be coordinated with the Transmission Owners protection schemes.

1.13.4.6 Rate-of-change-of-frequency. Inverter rate-of-change-of-frequency (ROCOF) protection shall be disabled unless an equipment limitation exists that requires the inverter to trip on high ROCOF

1.13.4.7 Phase lock loop (PLL). The IBR plant shall ride through positive sequence phase angle differences at the applicable voltage within the sub-cycle-to-cycle time frame of less than or equal to 25 electrical degrees per IEEE 2800-2022 section 7.3.2.4.

1.13.5 Active Power-Frequency Control

1.13.5.1 Droop. The control system shall have an adjustable proportional droop with a default value of 5 percent. The droop response shall include capabilities to respond to both underfrequency and over-frequency directions. Droop should be based on the difference between maximum nameplate and zero output (Article 9.6.4).

1.13.5.2 Ramp Rates. The closed-loop dynamic response of the active power-frequency control system of the overall Generating Facility shall meet or exceed the performance criteria specified in Table C-6.

Parameter	Units	Performance Target
Reaction time	Seconds	0.50
Rise time	Seconds	4.0
Settling time	Seconds	10.0
Damping Ratio	Unitless	0.3
Settling band	% of change	Max (2.5% of change or 0.5% of nameplate capacity

Table C-6[1]

1.13.6 Reactive Power-Voltage Control

1.13.6.1 Plant Large Disturbance Voltage Performance.

1.13.6.1.1 The reactive current-voltage control should be stable for all expected and studied conditions performed throughout the interconnection process.

1.13.6.1.2 The reactive current-voltage control of the overall Generating Facility shall meet or exceed the performance criteria (up to the generator capability) in Table C-7. The controls should be tuned by default to meet these criteria unless identified in the Interconnection Studies.

Parameter	Performance target
Reaction time	< 250 ms
Maximum step response time	30 s
Damping	> 0.3

Table C-7[2]

1.13.7 Current Injection During Ride-Through.

1.13.7.1 Specific to this section only, the requirements are applicable at the Point of Connection ("POC"). Reference Figure C-2 of this Appendix.

1.13.7.2 For balanced faults, the IBR shall inject reactive current dependent on the terminal voltage. The difference between

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

[2] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 13: Voltage ride-through performance requirements

reactive current injection during a fault and pre-fault reactive current output shall be incremental and shall not be negative. (i.e. reactive current during a fault shall be higher than pre-fault)

1.13.7.3 For unbalanced faults, the IBR shall inject both positive sequence reactive current as well as negative sequence current. The negative sequence current shall lead the negative sequence voltage using the criteria below:

1.13.7.3.1 Type 4 – between 90 – 100 degrees

1.13.7.3.2 Type 3 – between 90 – 150 degrees

1.13.7.4 The Interconnection Customer shall make necessary modifications to the control systems of the Generation Facility as applicable and as requested by the Transmission Owner at any time and up to the capability of the equipment to inject current at the proper magnitude and/or angle for the system.

1.13.8 Battery Energy Storage Systems ("BESS") and GFM Requirements. Battery energy storage systems connecting to ITC facilities may be required to have Grid Forming capabilities when warranted by study. Given the rapid pace of the change in the generation fleet, Interconnection Customers connecting BESS are strongly encouraged to request manufacturers of its BESS to include GFM capabilities.

1.13.8.1 In the event a BESS is required to have GFM capabilities, the performance characteristics indicated below may be required. These characteristics would be provided by the BESS within the GFM BESS equipment's rating limits.

1.13.8.1.1 GFM-Specific Voltage and Frequency Support: GFM shall provide autonomous, near-instantaneous frequency and voltage support by maintaining a nearly constant internal voltage phasor in the sub-transient time frame, including:

1.13.8.1.1.1 Phase Jump Performance: GFM shall resist near-instantaneous voltage magnitude and phase angle changes by providing appropriate levels of active and reactive power output in the sub-transient time frame.

1.13.8.1.1.2 System Strength Support: GFM shall help reduce the sensitivity of voltage change for a given change in current in the sub-transient time scale.

1.13.8.1.2 Ability to Stably Operate with Loss of Last Synchronous Machine: GFM shall be able to stably operate through and following the disconnection of the last synchronous machine in its portion of the power grid.

1.14 Energization, Inspection and Testing Requirements. Before Notice of Commercial Operation is given per Appendix E, Interconnection Customer shall demonstrate to the Transmission Provider and Transmission Owner, if requested by Transmission Owner, through witnessed tests and/or certified test documentation, that the combined Generating Facility will not have adverse impact on the operation of the Transmission System. Such tests and inspections shall include pre-energization testing of equipment connected to the transmission bus, protection and control systems and pre-commercial testing of the governor, excitation and/or power system stabilizer controls. Specific test requirements and documentation need to be arranged with Transmission Owner prior to tests being performed. Protection and control systems include, but are not limited to, AC auxiliary, DC systems, relaying systems, potential and current circuits, and communication systems.

1.15 If applicable, the unique requirements, if any, of the Transmission Owner to which the Generating Facility will be physically interconnected. None identified.

1.16 Other. Interconnection Customer shall provide all necessary easements over all property owned, leased or otherwise controlled by Interconnection Customer, including easements for ingress/egress by Transmission Owner for access to all Transmission Owner's Interconnection Facilities and Network Upgrades that are on the property of Interconnection Customer. Specific real estate requirements will be determined during the final design. Interconnection Customer agrees to grant Transmission Owner reasonable easements in a form that is acceptable to Transmission Owner. It is expressly understood and agreed that Transmission Owner may, during the term of the GIA, make changes to its Transmission System. Interconnection Customer agrees to make any modifications, additions or changes to the Interconnection Customer's Interconnection Facilities that are reasonably necessary or required as a result of such change, modification or addition to Transmission Owner's Transmission System and at Interconnection Customer's sole cost and expense.

2. SPECIFIC SYSTEM PROTECTION REQUIREMENTS

General. The Transmission Owner will construct a protective relaying scheme to protect the Transmission System from faults occurring on the Interconnection Customer's Interconnection Facilities or the Generating Facility and from faults occurring on the Transmission Owner's Interconnection Facilities and Transmission System. Reclosing of generation to the ITC transmission system is typically not allowed. At the Interconnection Customer's request, reclosing may be considered by Transmission Owner provided the

operations of the system, the protection of the system, and all other system constraints can be adjusted to accommodate the reclosing request. This will be done solely at the Interconnection Customer's liability. The Interconnection Customer shall not implement any anti-islanding protection schemes that limit ride-through capability. Interconnection Customer will be responsible for providing protection for the Generating Facility and all associated equipment from faults occurring on its facilities and from faults or other electrical disturbances occurring on the Transmission Owner's Transmission System or any interconnected system. The Interconnection Customer will be responsible for removing any fault contribution of the Generating Facility to any short circuit occurring on the Transmission Owner's Transmission System or any interconnected system not otherwise isolated by the Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission Owner, as applicable. For example, when the only source behind a transmission line fault is the generator, the local transmission line relaying may not trip and will require the Generating Facility to clear the disturbance. The Generating Facility protection needs to be coordinated with the Transmission Owner prior to implementation and as applicable shall meet the frequency, rate of change of frequency, voltage, overcurrent, and ride-through requirements of section 1.13 of Appendix C of this GIA.

In accordance with Good Utility Practice, Interconnection Customer shall design protection schemes such that no single component failure will prevent the isolation of faults for failed equipment. Meeting this requirement generally means providing redundant or backup protective schemes, with separate sensing sources, separate trip paths, dual trip coils on breakers, breaker failure, separate control power where no single DC breaker tripping disables both protection schemes. Where redundant batteries are not present, both monitoring and reporting to a Control Center for both open circuit and low voltage DC alarming is required.

2.1 Changes to Relay Firmware. Firmware changes on interconnecting line relays shall be coordinated with and receive approval by the Transmission Owner prior to being placed into service.

3. SPECIFIC TELEMETRY REQUIREMENTS.

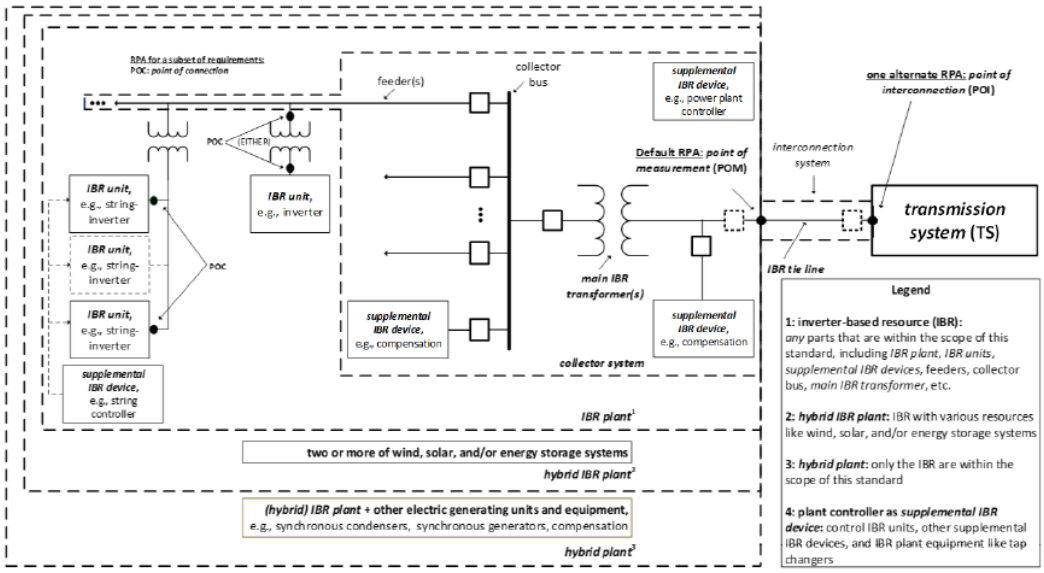
General: Telemetry is required for the monitoring and status of Interconnection Customer's equipment in a format that is acceptable to the Transmission Owner. Details of the specific telemetry requirements will be provided during the detailed design of the facilities. Interconnection Customer shall install and pay the installation cost and monthly communication costs of all required telemetry for the Generating Facility and provide the data to the Transmission Owner, typically via ICCP. In general, Transmission Owner requires continuous telemetry of the following:

3.1 Status of all circuit breaker(s) capable of disconnecting the Generating Facility from the Transmission Owner's Transmission System.

3.2 Instantaneous RMS MW, MVAR, phase voltages, and plant bus frequency compensated the substation high voltage terminals POM. For IBR facilities, data

should be aggregated to the POM.

3.3 As applicable, each IBR shall monitor and retain plant SCADA records and digital fault recorder recordings that will include but not limited to logging of all breaker statuses, relaying trips, and control operations throughout the Plant per IEEE 2800-2022 Section 11 Table 19 (Table C-8 below). This information shall be shared with the Transmission Owner as requested within 10 Business Days of the request to support post-event analysis. Refer to Figure 1 of IEEE 2800-2022 (Figure C-2) for what is included as "Plant" for this section.



NOTE 1—The POM is the default RPA. Moving the RPA from the POM to the POI may exceed the technical minimum requirements specified in this standard and may require deliberate consideration of the pros and cons. For example, the ability of *IBR plants* to meet the performance requirements in this standard may be impacted if the *IBR owner* is not allowed to install their measurement and control equipment at the POI substation.[21]

NOTE 2—The POC may be at either side of the *IBR unit* transformer, if present.

NOTE 3—A *supplemental IBR device*, e.g., reactive power compensation equipment, plant controller, and other examples as listed in NOTE 1 of the definition in 3.1, may be used to achieve compliance with the requirements of this standard at the RPA. In case where synchronous condenser is used as a *supplemental IBR device*, refer to a general exemption in 1.4.

NOTE 4—More complex IBR connection setups that include multiple IBR tie lines to one or to multiple POIs in the TS may be found in the practice for reliability or other reasons.

NOTE 5—Other electric generating units and equipment, e.g., synchronous condensers, synchronous generators with the exception of synchronous generators connected to the TS via an inverter, and compensation that is not associated with an IBR, are outside the scope of this standard.

Figure C-2[1]

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Figure 1: Illustration of defined terms for ac-connected inverter-based resources (IBRs).

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Plant SCADA data (CSV file)	The plant SCADA system is often a lower resolution repository of information that, at minimum, shall include the following data points: Measurements — *Point of measurement* voltage and medium-voltage *collector system* voltages — *Point of measurement* frequency — *IBR plant* active and reactive power output — *IBR units* active and reactive power output of individual[147] — Shunt dynamic device reactive power output Signals — External control signals from the *TS operator* (BA, RTO, RC, etc.) — External automatic generation control signals — Active and reactive power commands sent to *IBR units*	One record per s	1 year	One year	Subclause 4.4, Table 1

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Plant equipment status (tabular log file)	— All breaker statuses, including change of status log — Shunt (dynamic or static) reactive compensation device statuses — Substation transformer status (main step-up and *collector system*) — Status of on load tap changer — Medium-voltage *collector system* statuses — Status of individual *IBR units* — Time stamp — Time synchronization (e.g., GPS status word) or status of the GPS clock signal	Static, as changed	1 year	NA	Not applicable
Unit functional settings	— *IBR unit* autonomous functions parameter settings[148]	Static, as changed	1 year	NA	Not applicable
Sequence of events recording (SER) data (tabular log file, time tag shall have an accuracy of one millisecond or less)	SER devices should be sized to capture and store hundreds or thousands of event records and logs. SER event records can be triggered for many different reasons but at minimum, shall include the following: — Event date/time stamp (synchronized to common reference, e.g., Coordinated Universal Time [UTC]) — Event type (status changes, synchronization status, configuration change, etc.) — Sequence number (for potential overwriting)	Static, as changed	90 days	NA	Not applicable
Digital fault recording (DFR) data (COMTRADE format and tabular log file)	This data shall be captured for at least the plant-level (e.g., at the *point of measurement*) response to BPS events. It is typically high resolution (kHz) point-on-wave data (transient) and triggered based on configured settings. Data points shall include: — Time stamp — Phase-to-ground voltage for each phase — Bus frequency (as measured/calculated by the recording device) — Each phase current and residual or neutral current — Calculated active and reactive power output — If applicable, dynamic reactive device voltage, frequency, current, and power output — Applicable binary status	≥ 128 samples per cycle, triggered	90 days	5 s COMTRADE data, (split between pre-fault and post-fault data needs to be mutually agreed upon with the *TS owner/TS operator*)	Subclause 4.4, Table 2
Dynamic disturbance recorder (DDR) data (COMTRADE format and tabular log file)	A DDR shall capture the specified plant-level data continuously at the *point of measurement*. This data can be used for multiple purposes including event analysis and disturbance-based model verification. Data points shall include: — Time stamp — Bus voltage phasor (phase quantities and positive-sequence) — Bus frequency — Current phasor (phase quantities and positive-sequence) — Calculated active and reactive power output	Input: ≥ 960 samples per s output: ≥ 60 times (records) per s, continuous[149]	1 year	NA[149]	Subclause 4.4, Table 2
Inverter fault codes and dynamic recordings (CSV file and tabular log file)	For grid BPS faults/events which trigger ride-through operation of an *IBR unit* or cause it to trip, the following information shall be recorded at *IBR units* for analysis: — All major and minor fault codes — All fault and alarm status words — Change of operating mode — High- and low-voltage ride-through — High- and low-frequency ride-through — PLL loss of synchronism — DC current and voltage — AC phase currents and voltage — Pulse width modulation index (if applicable) — Control system command values, reference values, and feedback signals	Many kHz, triggered	90 days	5-s data, (split between pre-fault and post-fault data needs to be mutually agreed upon with the *TS owner/TS operator*)	Stated by *IBR owner*
Power quality—flicker (PQDIF format)	Plant-level P_{st} and P_{lt} using a flicker meter that is compliant with IEC 61000-4-15 and IEC 61000-4-30	10 min	90 days	NA	IEC 61000-4-30

Provision data type	Measurement/data points (as applicable)	Recording rate	Retention	Duration	Measurement (as applicable)
Power quality—RVC (PQDIF format)	Plant-level RVC (DeltaV/V) using a PQ meter that is compliant with IEC 61000-4-30 (IEC RMS value measured by one cycle, updated every half cycle)	NA	90 days	NA	IEC 61000-4-30[150]
Power quality—Very short-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50). Unless required by the *TS owner*, very short-term harmonics measurements are optional.	3 s	10 days	NA	IEC 61000-4-7 and IEC 61000-4-30
Power quality—short-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50).	10 min	90 days	NA	IEC 61000-4-7 and IEC 61000-4-30
Power quality—long-term harmonics (COMTRADE or PQDIF format)	Plant level, both voltage and current harmonics as applicable (total distortion and individual harmonics up to order 50).	95 weekly percentile (per IEEE Std 519)	1 year	NA	IEC 61000-4-7 and IEC 61000-4-30

Table C-8[1]

3.4 Instantaneous revenue quality MW and MVAR; and cumulative revenue quality MWhr and MVARhr at all (or possibly corrected to) Points of Interconnection with Transmission Owner and from the Generating Facility.

3.5 Status of auxiliary station service circuit breaker(s).

3.6 Instantaneous bus voltage(s).

3.7 Transfer trip communication and generation site transfer trip communication status.

3.8 Changes in energy production of the Generating Facility.

3.9 Status indication of automatic voltage regulator equipment.

3.10 Other telemetry as required and mutually agreed upon by the Interconnection Customer and Transmission Owner.

4. SPECIFIC OPERATIONAL REQUIREMENTS.

4.1 System Protection Facilities (Relays As They Relate To Operations). Interconnection Customer shall notify Transmission Owner in advance of planned protection system work and immediately following discovery of protection system failures, which may affect Transmission Owner's system. Interconnection Customer shall report all generator protective relay events to the Transmission Owner system control center, immediately following Interconnection Customer's discovery of the event.

[1] IEEE 2800-2022 Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems: Table 19: Measurement data – type, points, sampling rate, retention and duration.

4.2 Data Reporting Requirements. Interconnection Customer shall supply all information regarding events and status of equipment within the Facility upon request for any event that noticeably affects the operation of the Transmission System. Interconnection Customer shall provide outage schedules, daily/hourly load profiles, and other data upon request of Transmission Owner.

4.3 Emergency Operations, Including System Restoration and Black Start Arrangements. Interconnection Customer is not able to operate as a Black Start Unit as of the effective date of this GIA. However, in accordance with Good Utility Practice, Interconnection Customer agrees to participate when called upon by Transmission Provider or Transmission Owner, in Transmission Owner's Black Start Plan for the Generating Facility and Transmission Owner's Transmission System, as well as any verification testing.

4.4 Identified Must-Run Conditions. None noted for this Generating Facility.

4.5 Specific Transmission Requirements of Nuclear Units to Abide by All NRC Requirements and Regulations. Not applicable to this interconnection.

4.6 Stability Requirements, Including Output. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or Transmission Owner in the operation of the Generating Facility.

4.7 Limitations of Operations in Support of Emergency Response. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Transmission Dispatch Center or ("TDC"), Transmission Provider and/or the Transmission Owner in the operation of the Generating Facility.

5. DRAWINGS AND DOCUMENTS

General. Upon request, Transmission Owner shall provide the "as-built" drawings, information, and documents regarding the Transmission Owner's Interconnection Facilities pursuant to Article 5.11 of the GIA.

6. OPERATING LIMITS

General. In accordance with Section 9.4 of the GIA, the operating limits established for the Generating Facility under this GIA shall be as provided by Transmission Provider each quarter, as described in Appendix A. Any operating guides necessary following Commercial Operation will be established in accordance with Section 9.3.

7. USE OF RAS OR OPERATING GUIDE

General. Implementation of an Operating Guide will constitute an interim solution that

will permit Interconnection Customer to obtain conditional Interconnection Service until planned for Network Upgrades are constructed. Any Operating Guide will be subject to the approval of the Transmission Owner and Transmission Provider. Minimum requirements for an Operating Guide are as indicated below.

- Transmission Owner will control Transmission Owner's breaker(s) protecting the Interconnection Customer Interconnection Facilities located at the Generating Facility and shall be able to trip the Interconnection Customer's Generating Facility.
- Protection schemes must be tested and operative.
- Interconnection Customer will operate its Generating Facility as directed by the Transmission Provider and the Transmission Owner.
- A termination date consistent with completion of Network Upgrades will be mutually agreed to as part of all Operating Guides accepted by the Transmission Owner and the Transmission Provider.

Transmission Owner does not allow the addition of an RAS (Remedial Action Scheme) to the Transmission Owner's system. The Transmission Owner will also not allow the addition of a RAS on a system, including the Generating Facility, where the purpose of that RAS is to mitigate a constraint on the Transmission Owner's system.

Original Sheet No. 135

Appendix D to GIA
Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information ("CEII") as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Original Sheet No. 136

Appendix E to GIA
Commercial Operation Date

This Appendix E is a part of this GIA between Transmission Provider, Transmission Owner and Interconnection Customer.

[Date]

Midcontinent Independent System Operator, Inc.
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Michigan Electric Transmission Company
Attn: Manager, Commercial Contracts
27175 Energy Way
Novi, MI 48377

Re: _____ Generating Facility

Dear _____:

On **[Date] [Interconnection Customer]** has completed Trial Operation of **[____]** MW of the Project **[____]** Generating Facility. This letter confirms that **[Interconnection Customer]** commenced commercial operation of **[____]** MW of the Project **[_____]** Generating Facility, effective as of **[Date plus one Calendar Day]**.

Thank you.
[Signature]

[Interconnection Customer Representative]
cc: Transmission Owner
itcagreementsmichigan@itctransco.com

Original Sheet No. 137

Appendix F to GIA
Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
Attn: General Counsel
27175 Energy Way
Novi, MI 48377
Jdanna@itctransco.com

Interconnection Customer:

Lakeside Solar, LLC
Attn: Rafik Halim, MSEE, PE – Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

With copy to

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Devon Pehrson
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Dpehrson@geronimopower.com

Nitin Kushwaha
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Email: Nkushwaha@geronimopower.com

Billings and Payments:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Michigan Electric Transmission Company
P.O. Box 673971
Detroit, MI 48267-3971

Interconnection Customer:

Geronimo Power
Attn: Jake Schroeder
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

Chris Ayika
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Cayika@geronimopower.com

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

Phone: (317) 249-5700
Email: misotap@misoenergy.org or
MISOTransmissionAccessPlanning@misoenergy.org

Transmission Owner:

Michigan Electric Transmission Company, LLC
Attn: Planning Department – Vice President
27175 Energy Way
Novi, MI 48377
itcagreementsmichigan@itctransco.com

Interconnection Customer:

Lakeside Solar, LLC
Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

Devon Pehrson
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 358-5696
Dpehrson@geronimopower.com

Nitin Kushwaha
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (612) 895-2809
Nkushwaha@geronimopower.com

Appendix G to GIA
Interconnection Requirements for Inverter-Based Resource Plants

Appendix G sets forth requirements and provisions specific to inverter-based resource (IBR) plants. Transmission Owner Local Planning Criteria for IBR performance may differ from Appendix G requirements. In such cases, Transmission Owner Local Planning Criteria shall supersede the Appendix G requirements and be documented in Appendix C of this GIA [1]. All other requirements of this GIA also apply to IBR plant interconnections. *IBR plants* shall meet both Applicable Reliability Standards and Appendix G requirements. Battery energy storage systems required to furnish grid-forming controls shall be exempt from specific IEEE 2800 requirements as outlined in the BPM for Generator Interconnection. Italicized terms indicate IEEE 2800-2022 defined terms[2]. IEEE 2800-2022's definitions will govern these italicized terms unless otherwise defined herein.

A. General

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 4 requirements, except for subclauses 4.1 (introduction), 4.5 (operational measurement and communication capability), 4.6 (control capability requirements), 4.8 (isolation devices), 4.9 (inadvertent energization of TS), 4.11 (interconnection integrity), and 4.12 (integration with TS grounding).

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as Transmission Provider and Transmission Owner[3] specification options noted in IEEE 2800-2022.

- Subclause 4.2.1: The *reference point of applicability* (RPA) shall be at the *point of measurement* (POM) bus with the exception of requirements specified in Clauses 7.2.2.3.4 and 7.2.2.3.5 of the standard to have the RPA at the *point of connection* (POC).

- Subclause 4.3: The Transmission Owner shall specify the nominal voltage and frequency at the RPA in Appendix C of this GIA.

- Subclause 4.10.2: The *enter service* criteria shall use the default values for *applicable voltages* and *applicable frequency* specified in the table below unless otherwise specified in Appendix C of this GIA[4].

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[1] IEEE 2800-2022 points to "weak grid" issues requiring exceptions to default values and ranges of available settings for various types of performance. IEEE 2800-2022 Annex C.2 contains discussion on characterizing weak grid areas.

[2] "IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems," in IEEE Std 2800-2022 , vol., no., pp.1-180, 22 April 2022, doi: 10.1109/IEEESTD.2022.9762253.

[3] For the purpose of this GIA, the IEEE 2800 term of *TS operator* is synonymous with Transmission Owner and the IEEE 2800 term of *TS owner* is synonymous with Transmission Planner or Transmission Owner, as applicable.

[4] MISO default values may be modified within the IEEE 2800 range of allowable settings by Transmission Owner Local Planning Criteria.

Enter service criteria	Default setting
Applicable voltage, minimum value	0.9 p.u.
Applicable voltage, maximum value	1.05 p.u.
Applicable frequency, minimum value	58.8 Hz
Applicable frequency, maximum value	60.12 Hz.

- Subclause 4.10.3: The performance during *enter service* shall use the default values specified below unless otherwise specified in Appendix C of this GIA.

  - The minimum intentional delay performance, as defined in Subclause 4.10.3, b), shall be 0 seconds.

  - The duration of the *enter service* period, as defined in Subclause 4.10.3, c), shall be 300 seconds.

B. Response to Abnormal Conditions

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 7 requirements, except for subclauses 7.2.1 (voltage protection) and 7.3.1 (mandatory frequency tripping). Where Applicable Reliability Standards require more stringent ride-through requirements compared to IEEE 2800-2022 Clause 7 requirements, those standards shall take precedence[5].

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points[6] noted in IEEE 2800-2022.

- Subclause 7.2.2.1: The Transmission Owner shall specify the nominal voltage for use by this clause. Nominal voltages may include nominal transmission system voltages that are different from standard ANSI C84.1-2016 voltages.

- Subclause 7.2.2.2: If the *IBR plant* cannot deliver both active and reactive power due to its current limit (or apparent power limit), when the *applicable voltage* is below 95%, then preference shall be given to reactive power while minimizing any reductions in active power.

- Subclause 7.2.2.3: The *IBR plant* shall give preference to reactive power unless otherwise specified in Appendix C of this GIA. In addition, the *IBR plant* shall minimize reductions in active power while carrying out the reactive current priority mode response.

[5] More stringent ride-through requirements include, but are not limited to, expanded voltage and frequency conditions or extended cumulative times under which *IBR plants* must ride-through.
[6] Decision points refer to language in the IEEE 2800-2022 standard that leaves default values, application of requirements, and other details open for the *TS Owner* or *TS Operator* to define.

- Subclause 7.2.2.3.4: The Interconnection Customer shall submit the *IBR plant* controls default relationship between the magnitude of incremental positive and negative sequence reactive currents. The Transmission Provider and Transmission Owner, through this agreement, may specify a required *IBR plant* response relationship between the incremental positive and negative sequence reactive currents.

C. Reactive Power

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 5 requirements.

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points noted in IEEE 2800-2022.

- Subclause 5.1: The *IBR plant* shall have the reactive power capabilities outlined in this clause. Consistent with section 9.6.1 of this GIA, an *IBR plant* shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the high side of the generator substation.

- Subclause 5.2.2: The voltage control dynamic performance requirements in Table 5 shall apply when the system short-circuit strength at the RPA is equal to or above the minimum short-circuit strength identified by the Transmission Provider or Transmission Owner.

- Subclause 5.2.2: The *reaction time*, as defined in Subclause 5.2.2 Table 5, shall be 250 milliseconds or less.

- Subclause 5.2.2: The maximum *step response time*, as defined in Subclause 5.2.2 Table 5, shall be 30 seconds.

- Subclause 5.2.3: The power factor control mode shall appropriately operate at all active power levels from the Inverter Based Resource Continuous Rating ("ICR") down to, but not including, zero.

D. Primary Frequency Response

The *IBR plant* shall adhere to IEEE 2800-2022 Clause 6 requirements, except for Subclause 6.2 (fast frequency response).

Within the adopted IEEE 2800-2022 Subclauses, the following requirements shall be incorporated as the Transmission Provider and Transmission Owner decision points noted in IEEE 2800-2022.

- Subclause 6.1.1: The use of primary frequency response capabilities shall be required for all *IBR plants.*
- Subclause 6.1.1: Frequency droop shall be based on the difference between nameplate capacity and zero output such that the slopes of the droop curves are always constant.
- Subclause 6.1.2: The *settling band* default value in Table 8 shall be based on the maximum of 2.5% of change or 0.5% of nameplate capacity.

The exceptions to primary frequency response requirements provided to electric storage resources in Article 9.6.4.4 of this GIA shall still apply.

TABLE 1. SUMMARY OF ADOPTION TREATMENT OF IEEE 2800-2022 SUBCLAUSES

IEEE 2800-2022 Subclause	**Required by Appendix G for DPP-2022 and later**	**Required by Appendix G for DPP-2023 and later**	**Exception**
4.1 Introduction			**X**
4.2 Reference Point of Applicability	**X**		
4.3 Applicable Voltages and Frequencies	**X**		
4.4 Measurement Accuracy	**X**		
4.5 Operational Measurement and Communication Capability			**X**
4.6 Control Capability			**X**
4.7 Prioritization of IBR Responses	**X**		
4.8 Isolation Devices			**X**
4.9 Inadvertent Energization of TS			**X**
4.10 Enter Service	**X**		
4.11 Interconnection Integrity			**X**
4.12 Integration with TS grounding			**X**
5.1 Reactive Power Capability		**X**	
5.2 Voltage and Reactive Power Modes		**X**	
6.1 Primary Frequency Response		**X**	
6.2 Fast Frequency Response			**X**
7.1 Introduction	**X**		
7.2.1 Voltage protection			**X**
7.2.2.1 Voltage disturbance ride-through: General	**X**		
7.2.2.2 Voltage disturbances within continuous operation	**X**		
7.2.2.3 Low- and high-voltage ride-through	**X**		

7.2.2.4 Consecutive voltage deviations ride-through		**X**	
7.2.2.5 Dynamic voltage support	**X**		
7.2.2.6 Restore output after voltage ride-through	**X**		
7.2.3 Transient overvoltage	**X**		
7.3.1 Mandatory frequency tripping			**X**
7.3.2 Frequency disturbance ride-through	**X**		
7.4 Return to service	**X**		

E. Supervisory Control and Data Acquisition (SCADA) Capability

The *IBR plant* shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed *IBR plant*, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

F. Disturbance Monitoring and Reporting Requirements

IBR plants with generating capacities of more than 20 MW must monitor and record data for all frequency ride-through events, transient low-voltage disturbances that initiated reactive current injection, reactive current injection or momentary cessation for transient high-voltage disturbances, and inverter trips. Dynamic Disturbance Recording ("DDR") data must be recorded continuously. The data may be recorded and stored in a central plant control system. The following data must be recorded:

Plant Level

(1) Plant three-phase voltage, current and power factor

(2) Status of ancillary reactive devices

(3) Status of all plant circuit breakers

(4) Status of plant controller

(5) Plant control set points

(6) Status of main plant transformer no load taps

(7) Status of main plant transformer tap changer (if applicable)

(8) Protective relay trips (relay target data)

Inverter Level Data

(1) Frequency, current, and voltage during frequency ride-through events

(2) Voltage and current during momentary cessation for transient high-voltage events (when used)

(3) Voltage and current during reactive current injection for transient low or high-voltage events

(4) Inverter alarm and fault codes

(5) DC current

(6) DC voltage

DDR Data – Plant Level

(1) One phase-to-neutral or positive sequence voltage on high-side of the main power transformer(s)

(2) Positive sequence current or phase current for the same phase as (1)

(3) Real and reactive power flows expressed on a three-phase basis corresponding to each main power transformer(s) where current measurements are required

(4) Frequency of any one of the voltages in (1)

The data must be time synchronized to a one millisecond level of resolution. All data except DDR data must be sampled at least every 10 milliseconds. DDR data must have an input sampling rate of at least 960 samples per second and an output recording rate of electrical quantities of at least 60 times per second.

The *IBR plant* shall store this data for a minimum of 60 calendar days. The *IBR plant*, upon request from MISO or the transmission owner, shall make this data available within 10 calendar days of the request.

Phasor measurement unit ("PMU") capabilities shall be used to facilitate the DDR data.

G. Applicability

IBR plants that are, or have been, interconnected to the network at the effective date of the Appendix G abnormal voltage ride-through standard are exempt from meeting the Appendix G abnormal voltage ride-through standard for the remaining life of the existing generation equipment. Except for *IBR plants* actively undergoing a Generating Facility Replacement at the effective date of this GIA that have equipment on order where the OEM has documented

performance that differs from what is required in this GIA, all individual IBR units that are replaced are required to meet the Appendix G performance requirements.

The IEEE 2800-2022 requirements cited in Section A (IEEE 2800-2022 Clause 4) and Section B (IEEE 2800-2022 Clause 7, except Subclause 7.2.2.4) of Appendix G shall apply to *IBR plants* in the DPP-2022-Cycle and beyond. For the DPP-2022-Cycle, Interconnection Customers may request exceptions confined to these sections only if specific limitations or uncertainties of equipment or plant capabilities prevent implementation of these requirements. GIAs signed or amended with inverter changes on or after January 1, 2025, are not eligible for requirement exceptions. Further, the process for establishing exceptions for these requirements shall not apply beyond the DPP-2022-Cycle.

The IEEE 2800-2022 requirements cited in Section B (IEEE 2800-2022 Subclause 7.2.2.4), Section C (IEEE 2800-2022 Clause 5), and Section D (IEEE 2800.2022 Clause 6) of Appendix G shall apply to *IBR plants* in the DPP-2023-Cycle and beyond. For the DPP-2023-Cycle, Generating Facilities Replacements, and Surplus Interconnections, Interconnection Customers may request exceptions confined to these sections only if specific limitations or uncertainties of equipment or plant capabilities prevent implementation of these requirements. GIAs signed or amended with inverter changes on or after January 1, 2026, are not eligible for requirement exceptions. Further, the process for establishing exceptions for these requirements shall not apply beyond the DPP-2023-Cycle.

Interconnection Customers requesting exceptions shall submit documentation to the Transmission Provider outlining the specific IEEE 2800-2022 subclauses pertinent to the request along with information from the manufacturer regarding the nature of the issue conforming to or assessing conformance with requirements herein. The Transmission Provider will, in good faith, accept Original Equipment Manufacturer (OEM)-documented requirement exceptions and document these exceptions in Appendix C of this GIA.

If the performance or capability exception can be mitigated through equipment firmware upgrades still under development, the Interconnection Customer shall use commercially reasonable efforts to implement the firmware upgrade within sixty (60) calendar days of commercial availability of such firmware.

The DDR and PMU requirements in the Section F, Disturbance Monitoring and Reporting Requirements of Appendix G shall apply to *IBR plants* in the DPP-2023-Cycle and beyond.

Original Sheet No. 147

Appendix H to GIA – Not Applicable
Interconnection Requirements for Provisional GIA

Provisional Agreement

This GIA is being provided in accordance with Section 11.5 of the Transmission Provider's GIP, which provides among other things, that an Interconnection Customer may request that Transmission Provider provide Interconnection Customer with a Provisional Generator Interconnection Agreement that limits the transfer of energy by Interconnection Customer commensurate with that allowed for Energy Resource Interconnection Service. Interconnection Customer requested Transmission Provider to provide a Provisional Generator Interconnection Agreement for limited operation at the discretion of Transmission Provider based upon the results of available studies (by Interconnection Customer and by Transmission Provider).

A Provisional Interconnection Study, the results of which are posted on the confidential portion of the Transmission Provider's internet website, was performed by Transmission Provider in order to confirm the facilities that are required for provisional Interconnection Service and to require them to be in place prior to commencement of service under the GIA.

Interconnection Customer represents that the Interconnection Customer facilities (including Network Upgrades, Interconnection Facilities, Distribution Upgrades, System Protection Upgrades and/or Generator Upgrades) that are necessary to commence provisional Interconnection Service and meet the requirements of the Electric Reliability Organization, or any applicable regional entity for the interconnection of a new generator are in place prior to the commencement of generation from the Generating Facility and will remain in place during the term of the service. The requisite Interconnection Studies were performed for the Generating Facility. Interconnection Customer shall meet any additional requirements (including reactive power requirements) pursuant to the results of applicable future Interconnection System Impact Studies. Until such time as the applicable Interconnection Studies and any identified facilities are completed, the output of the Generating Facility will operate within the output limit prescribed in a future, if applicable, operating guide.

The maximum permissible output of the Generating Facility under Appendix A will be updated by Transmission Provider on a quarterly basis, determined in accordance with Section 11.5 of the GIP, by finding the transfer limit of energy commensurate with the analysis for Energy Resource Interconnection Service ("ERIS"). This study shall be performed assuming the system topology represented by the base cases used to calculate Available Flowgate Capability, as described in Attachment C of the Tariff, with dispatch and optimization algorithms posted on the MISO internet site and operation above those limits will be deemed as unauthorized use of the Transmission System and subject to provisions in the Tariff surrounding that use.

Use of interim operating guide

Implementation of interim operating guide, if applicable, will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned Network Upgrades are constructed. Any interim operating

guide will be subject to the approval of Transmission Owner and Transmission Provider. Minimum requirements for an interim operating guide are as indicated below.

* Transmission Operator will have control of breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
* Protection schemes must be tested and operative
* Interconnection Customer will provide continuous communication capability with the Generator Operator
* Interconnection Customer and the owner of the Existing Generating Facility will enter into an operating agreement or similar agreement which designates, among other things, the responsibilities and authorities of each of the parties and shall be subject to the acceptance of Transmission Provider and Transmission Owner.
* A termination date consistent with completion of construction of Network Upgrades will be included as part of all operating guides accepted by Transmission Owner and Transmission Provider.

Interconnection Customer assumes all risks and liabilities with respect to changes, which may impact the Generator Interconnection Agreement including, but not limited to, change in output limits and responsibilities for future Network Upgrade and cost responsibilities that have not yet been identified on the direct connect Transmission System as well as all affected Transmission, Distribution or Generation System(s) including non-Transmission Provider Systems. Such upgrades will be determined pursuant to the Tariff and Policies in effect at the time of the Interconnection Studies.

Original Sheet No. 149

Appendix I to GIA
Requirements Applicable to Surplus Interconnection Service

Where this GIA provides for Surplus Interconnection Service, Interconnection Customer acknowledges, agrees to, and will be required to operate under the following conditions:

1) The combined Real-Time Offers, including Energy and Operating Reserves, of the Generating Facility and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement must be less than or equal to Interconnection Service limit (MW, MVAR, MVA output) provided in Exhibit I-1 (Monitoring and Consent Agreement) (hereinafter, "Interconnection Service limit"). In the event that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility exceeds such Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

   In the event that the sum of the emergency and/or economic maximum offer limits of the Generating Facility and the Existing Generating Facility exceeds the Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

2) The total MW, MVAR, MVA output at the Point of Interconnection resulting from the combined output of the Generating Facility with Surplus Interconnection Service and the Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement shall not at any time exceed the Interconnection Service limit.

3) The Existing Generating Facility with which Interconnection Customer has an executed Energy Displacement Agreement is not relieved of any applicable requirements under the RAR of the Tariff.

4) The Interconnection Customer shall submit to the Transmission Provider a report by the seventh Calendar Day of each month showing the prior month's output, by 15 minute increment, the combined real-time offers and cleared energy injection. The Existing Generating Facility and the Interconnection Customer shall cooperate consistent with other provisions in the Tariff to the extent necessary to ensure accuracy of the report. Transmission Provider shall provide a template for this report.

Exhibit I-1 (Completed Monitoring and Consent Agreement - Appendix 11 of the GIP)

Exhibit I-2 (Completed Energy Displacement Agreement - Appendix 12 of the GIP)

Exhibit I-1
(Completed Monitoring and Consent Agreement
Appendix 11 of the GIP)

APPENDIX 11 TO GIP

MONITORING AND CONSENT AGREEMENT

entered into by the

Lakeside Solar, LLC

And

Michigan Electric Transmission Company, LLC

entered into on the 19th day of May, 2026

MONITORING AND CONSENT AGREEMENT

Interconnection Customer plans to own, lease and/or control and operate a Surplus Interconnection Service Generating Facility and hereby consents to have the operation of the Surplus Interconnection Service Generating Facility be monitored in accordance with this Monitoring and Consent Agreement ("Agreement") as detailed in Attachment A of this Agreement and in accordance with the terms and conditions for Surplus Interconnection Service in the MISO Tariff and in accordance with the Generator Interconnection Agreement to be entered into for the Surplus Interconnection Service Generating Facility pursuant to Attachment X of the MISO Tariff. Interconnection Customer proposes to interconnect the Surplus Interconnection Service Generating Facility at the same point of interconnection as an Existing Generating Facility as detailed in Attachment A of this Agreement which interconnects to the transmission system of Transmission Owner, which system is part of the Transmission System.

Existing Generating Facility interconnection customer owns, leases and/or controls and operates an Existing Generating Facility and is offering to coordinate its Interconnection Service with the Interconnection Customer to affect a request for Surplus Interconnection Service with the Existing Generating Facility and hereby consents to have the operation of the Existing Generating Facility be monitored in accordance with this Monitoring Agreement.

Transmission Owner owns or operates that portion of the Transmission System to which the Existing Generating Facility is interconnected, whose operations are subject to the functional control of Transmission Provider, and to which Interconnection Customer proposes connecting the Surplus Interconnection Service Generating Facility at the POI of the Existing Generating Facility. Local Balancing Authority is responsible for monitoring generation in compliance with NERC Balancing Authority Reliability Standards and is therefore required to perform monitoring functions of the Surplus Interconnection Service Generating Facility. Local Balancing Authority and/or Transmission Owner may therefore be required to perform monitoring functions as set forth in this Agreement and in accordance with the terms and conditions for Surplus Interconnection Service in the MISO Tariff in accordance with a Generation Interconnection Agreement to be entered into for the Surplus Interconnection Service Generating Facility under Attachment X of the MISO Tariff.

It is expressly understood and agreed that the Surplus Interconnection Service Generating Facility and Existing Generating Facility **Interconnection Service limit (MW, MVAR, MVA**

output) shall not at any time exceed the lower of 1) the Existing Generating Facility then-effective maximum interconnection service set forth in Attachment A to the Existing Generating Facility Generation Interconnection Agreement or 2) the applicable lower demonstrated capability limit as set forth in Attachment A (hereinafter "Interconnection Service limit"); and Transmission Owner (or Operator) by default, unless the parties mutually agree otherwise, shall monitor and control at all times the net injection at the Point of Interconnection such that the sum of the simultaneous energy output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility shall not exceed the Interconnection Service limit in Attachment A of this Agreement. Interconnection Customer would pay for monitoring costs (including but not limited to construction cost, capital cost, and operating and maintenance costs), unless the Interconnection Customer and Existing Generating Facility interconnection customer agree otherwise.

Interconnection Customer Reporting requirements

Monthly (or within 24 hours if the Interconnection Service limit is exceeded) by the seventh Calendar Day in the new month, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties, shall provide a report for the prior month's offered and cleared MW output, on a 15 minute interval, of the Surplus Generating Facility and the Existing Generating Facility. The report shall also include the 15 minute peak MW, MVA and MVAR output of the Surplus Interconnection Service Generating Facility and the Existing Generating Facility.

Within 24 hours of an occurrence where the Interconnection Service limit is exceeded (a.k.a. "Event") the Interconnection Customer (or another Party if mutually agreed otherwise by the parties, shall report all pertinent information regarding the occurrence to the Transmission Provider, Transmission Owner and/or Local Balancing Authority and NERC. Each 15 minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

Actions upon occurrence of an "Event"

Upon occurrence of an Event, the monitoring party shall coordinate the implementation of the interim action plan and long term action plan with the Transmission Provider, Transmission Owner, Transmission Operator and/or Local Balancing Authority. Transmission Owner shall take the following actions to implement the action plans.

1. After the occurrence of a first Event, the Transmission Owner and Transmission Provider will implement the steps identified in the interim action plan and request the Interconnection Customer to submit the long term action plan.
2. The Transmission Owner and Transmission Provider will continue to implement the interim action plan until the Interconnection Customer submits the long term action plan.
3. After the Interconnection Customer submits the long term action plan, the Transmission Owner and Transmission Provider will remove the implementation of the interim action plan and implement the long term action plan.
4. If an Event occurs after the implementation of the long term action plan, the Transmission Owner and Transmission Provider will immediately implement the interim action plan and request that the Interconnection Customer submit a cure to ensure the effectiveness of the long term action plan within 15 Business Days of the failure of the long term action plan.
    a. If the Interconnection Customer submits documentation demonstrating the cure of the deficient long term action plan, the Transmission Owner and Transmission Provider will remove the implementation of the interim action plan and implement the cured long term action plan.
    b. If the Interconnection Customer fails to provide documentation demonstrating the cure of the deficient long term action plan, the Transmission Provider and the Transmission Owner will file for termination of the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement with FERC.

<u>Interim action plan:</u>

The interim action plan shall be coordinated and developed by the Transmission Owner and Transmission Provider prior to the execution of the Surplus Interconnection Service

Generating Facility's Generator Interconnection Agreement and will be appended to the Appendix 11 of such Generator Interconnection Agreement.
The interim action plan may include one of the following items:

a) Interconnection Customer and the Existing Generating fFacility interconnection customer shall curtail the Surplus Interconnection Service Generating Facility output to zero injection after the occurrence of an Event.
b) Interconnection Customer shall open up the breakers connecting the Surplus Interconnection Service Generating Facility to the transmission system after the occurrence of an event.

Long term action plan:

An acceptable long term action plan may include the following item:

1. Interconnection Customer shall work with Transmission Owner, Existing Generating Facility and/or as applicable Local Balancing Authority to propose design for installation of the necessary controls (such as physical equipment, enhanced procedures, or operator monitoring tools) to prevent a reoccurrence of an Event.

Acceptable action plan timeline and entities that shall receive and approve the plan:

1. Within 15 Business Days of the first Event occurrence, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties) will submit a long term action plan.
2. Within 15 Business Days of receiving the long-term action plan, Transmission Owner, Transmission Operator, and Local Balancing Authorities will send out a decision Notice, coordinated among parties, of whether or not the action plans are approved. These parties will also coordinate with Transmission Provider and inform Transmission Provider of the details of the approved long-term action plan.
3. If the long-term action plan is not approved, the Interconnection Customer (or another Party if mutually agreed otherwise by the parties where the Interconnection Service

limit is exceeded) will submit a subsequent long-term action plan within 10 Business Days.

4. After the occurrence of an Event after the implementation of the long term action plan, the Interconnection Customer shall submit a cure to ensure the effectiveness of the long term action plan within 15 Business Days.

This Agreement does not amend, modify or supplement any agreement between the owner of the Existing Generating Facility and the Transmission Provider regarding the interconnection and operation of the Existing Generating Facility nor does it modify or supplement any of the provisions in the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement.

Unless previously terminated, this Agreement shall terminate if (i) Interconnection Customer's Interconnection Request is withdrawn; or (ii) or the required executed Surplus Interconnection Service Generating Facility's Generator Interconnection Agreementterminates.

This Agreement shall become Exhibit I-1 in the Surplus Interconnection Service Generating Facility's Generator Interconnection Agreement and shall be in effect during the term of the Surplus Interconnection Service.

Notices

General. Any notice, demand or request required or permitted to be given by a Party to another Party and any instrument required or permitted to be tendered or delivered by a Party in writing to another Party may be so given, tendered or delivered, as the case may be, by depositing the same with the United States Postal Service with postage prepaid, for transmission by certified or registered mail, addressed to the Parties, or personally delivered to the Parties, at the address set out below:

To Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Attn: Director, Regional Operations
720 City Center Drive
Carmel, IN 46032

To Transmission Owner (or Operator or Local Balancing Authority):

To Interconnection Customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To Existing Generating Facility customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

Billings and Payments. Billings and payments shall be sent to the addresses shown in Article 15.1 unless otherwise agreed to by the Parties.

To Transmission Owner (or Operator or Local Balancing Authority):

To Interconnection Customer:

Jake Schroeder
Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (763) 438-2281
Email: JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To Existing Generating Facility customer:

Jake Schroeder
Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
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Email: JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to another Party and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out below:

To Transmission Provider:

Voice telephone – (317)249-5700

Facsimile telephone – (317) 249-5358

Email address – misotap@misoenergy.org

To Transmission Owner (or Operator or Local Balancing Authority:

To Interconnection Customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To Existing Generating Facility customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

DUNS #. If Existing Generating Facility customer and Interconnection Customer have not obtained DUNS numbers by the time this Agreement is executed, Transmission Owner and Interconnection Customer will forward their DUNS numbers within five (5)

Business Days of having obtained such numbers to Transmission Provider by facsimile telephone or email to the fax number or email set out below:

Interconnection Customer

DUNS Number: Not Applicable

To Existing Generating Facility customer:

DUNS Number: Not Applicable

IN WITNESS WHEREOF, the Parties have executed this Agreement in multiple originals, each of which shall constitute and be an original Agreement among the Parties.

Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

Signed by:
Brian Slocum
3574752DA8542F...
By: _____
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Local Balancing Authority

By: _____
Name: _____
Title: _____

Lakeside Solar, LLC

By: _____
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
Transmission Provider Project No. S1082

Lakeside Solar, LLC

By: _____
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
If Applicable, Transmission Provider Project No. J1587

Effect of Midcontinent Independent System Operator, Inc., ("MISO"**)** signature. The Parties acknowledge and understand that the signature of the authorized officer of MISO on this Agreement is for the limited purpose of acknowledging that the representative of MISO has read the terms of this Agreement. The Parties and MISO further state that they understand that FERC desires that the Parties keep MISO fully apprised of the matters addressed herein as well as any reliability and planning issues that may arise under this Agreement, and that the signature of the officer of MISO shall not in any way be deemed to imply that MISO is taking responsibility for the actions of either Party, that MISO has any affirmative duties under this Agreement or that MISO is liable in any way under this Agreement.

The signature below of the authorized officer of MISO is for the limited purpose of acknowledging that an authorized officer of MISO has read this Agreement.

Midcontinent Independent System Operator, Inc.

By:  5/19/2026 ces
Name: Aubrey Johnson
Title: Vice President, System Planning

MONITORING AND CONSENT AGREEMENT
Attachment A

Surplus Interconnection Service Generating Facility Point of Interconnection (POI): METC 138 kV Lamos Switching station

1 Interconnection Customer's representation of the Existing Generating Facility capacity (lower of demonstrated capability or study output limit at the POI or the level in Appendix 12 EDA to be attached as GIA Appendix I-2)
(MW): 100 (MVAR): 32.9 (MVA): 3.8

2 Surplus Interconnection Service Generating Facility Interconnection Request capacity (MW): 50 (MVAR): 16.4 (MVA): 1.32

3 Interconnection Service limit of the Surplus Interconnection Service Generating Facility and Existing Generating Facility capacity at the POI (shall not be greater than 2) above):
(MW): 100 (MVAR): 32.9 (MVA): 3.8

Comments:
Interconnection Customer and Transmission Owner mutually agree that the responsibility to monitor and control the net injection at the Point of Interconnection does not fall on the Transmission Owner or Transmission Operator. Interconnection Customer(s) are responsible for monitoring and controlling the net injection of generation at the Point of Interconnection. Transmission Owner will have no additional obligations for monitoring or controlling generation facilities' output under this Agreement beyond Transmission Owner's obligations under the GIAs with the Interconnection Customer and Transmission Provider.

Exhibit I-2
(Completed Energy Displacement Agreement
Appendix 12 of the GIP)

Appendix 12 TO GIP

ENERGY DISPLACEMENT AGREEMENT

THIS ENERGY DISPLACEMENT AGREEMENT (sometimes hereinafter referred to as "Agreement") is made and entered into this 19th day of May, 2026, by and among **Lakeside Solar, LLC**, a limited liability company organized and existing under the laws of the State of Delaware ("Interconnection Customer"), **Lakeside Solar, LLC**, organized and existing under the laws of the State of Delaware ("Existing Generator Owner"), and **Michigan Electric Transmission Company, LLC**, a limited liability company organized and existing under the laws of the State of Michigan ("Transmission Owner or Operator"). Interconnection Customer, Existing Generator Owner, or Transmission Owner (or Operator) each may be referred to as a "Party" or collectively as the "Parties."

RECITALS

WHEREAS, Existing Generator Owner and Interconnection Customer each owns (or will own) electric facilities and is (or will be) engaged in generation and/or sale of electric power and energy; and

WHEREAS, Interconnection Customer intends to own, and operate, or manage the generating facility located in Muskegon County, and State of Michigan ("Generating Facility" or "Facility") with an expected Commercial Operation Date of 12/31/2029 pursuant to its planned Interconnection Request and will interconnect either to the facilities owned by Existing Generator Owner or to the transmission system of Michigan Electric Transmission Company , which system is part of the Transmission System; and

WHEREAS, Existing Generator Owner owns, operates, or manages the existing generating facility located in Muskegon County, and State of Michigan which interconnects to the transmission system of Michigan Electric Transmission Company, which system is part of the Transmission System.

Interconnection Customer's Generating Facility as detailed in Attachment A of this Agreement shall connect at the same Point of Interconnection as the existing generating facility.

The Generating Facility Interconnection Customer has made a Surplus Interconnection Service Interconnection Request pursuant to MISO Tariff Attachment X Generator Interconnection Process ("GIP").

The Generating Facility Interconnection Customer and existing generating facility interconnection customer shall file the financial compensation (Rates, Terms and Conditions) arrangement with FERC separately.

Existing Generator Owner, in accordance with its obligations under the Generator Interconnection Agreement when the Generator Interconnection Agreement becomes effective, shall be responsible for the maintaining the net injection at the Point of Interconnection ("POI") such that the sum of the simultaneous energy output of the Generating Facility and the existing generating facility shall not exceed the Interconnection Service limit in Attachment A of this Agreement.

The generation dispatch arrangements are shown in Attachment A. This Agreement does not amend, modify or supplement any agreement between the Existing Generator Owner and the Midcontinent Independent System Operator, Inc. ("MISO") regarding the interconnection and operation of the existing generating facility.

This Agreement shall become Exhibit I-2 in the Generator Interconnection Agreement and shall be in effect during the term of the Surplus Interconnection Service under the Generator Interconnection Agreement. Interconnection Customer's output shall be limited to zero under its Generator Interconnection Agreement during all periods for which this Agreement is not in effect.

Termination.

This Agreement shall have a termination date of **no earlier than the termination date of the required Generator Interconnection Agreement**; provided that sixty (60) Calendar Days prior to the Agreement termination date, the Parties agree on a new termination date that is at a minimum one year after the termination date.

Unless previously terminated, this Agreement shall terminate if (i) Interconnection Customer's Interconnection Request is withdrawn; or (ii) the required executed Generator Interconnection Agreement for the Generating Facility terminates. The existing generating facility may terminate this agreement due to Interconnection Customer -Interconnection Service limit violation events exceeding one (1) in a month or six (6) in a year. Each fifteen (15) minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

Events of Breach. A Breach of this Agreement shall include:

(a) Interconnection Service limit violation events exceeding one (1) in a month or six (6) in a year. Each 15 minute interval where the Interconnection Service limit is exceeded shall be defined as a reliability service limit violation event.

(b) The failure to pay any amount when due;

(c) The failure to comply with any material term or condition of this Agreement, including but not limited to any material Breach of a representation, warranty or covenant made in this Agreement;

(d) If a Party (i) is adjudicated bankrupt; (ii) files a voluntary petition in bankruptcy under any provision of any federal or state bankruptcy law or shall consent to the filing of any bankruptcy or reorganization petition against it under any similar law; (iii) makes a general assignment for the benefit of its creditors; or (iv) consents to the appointment of a receiver, trustee or liquidator; or

(e) Failure of a Party to provide information or data to another Party as required under this Agreement, provided the Party entitled to the information or data under

this Agreement requires such information or data to satisfy its obligations under this Agreement.

Notice of Breach and Cure and Default. Upon the occurrence of an event of Breach, the Party not in Breach, when it becomes aware of the Breach, shall give written notice of the Breach to the Breaching Party, and Transmission Provider. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach.

Upon the occurrence described in part (d) of **Events of Breach**, the Party experiencing such occurrence shall notify the other Party and Transmission Provider in writing within seven (7) Calendar Days after the commencement of such occurrence. Upon receiving written notice of the Breach hereunder, the Breaching Party shall have a period to cure such Breach (sometimes hereinafter referred as ("Cure Period") which shall be 30 Calendar Days unless such Breach is due to an occurrence under **Events of Breach** (a), (b) or (d) in which case the cure period will be five (5) Calendar Days.

If the Breach is such that it cannot be cured within the Cure Period, the Breaching Party will commence in good faith all steps as are reasonable and appropriate to cure the Breach within such Cure Period and thereafter diligently pursue such action to completion. In the event the Breaching Party fails to:

(A) cure the Breach, or to commence reasonable and appropriate steps to cure the Breach, within the Cure Period; or,

(B) completely cure the Breach within sixty (60) Calendar Days if the Breach occurs pursuant to **Events of Breach** (c) or (e),

the Breaching Party will be in Default of this Agreement and the non-Breaching Parties may, at their option, either in concert or individually, (1) act to terminate this Agreement for cause by notifying the other Parties in writing, or (2) take whatever action at law or in equity as may appear necessary or desirable to enforce the performance or observance of any rights, remedies, obligations, agreement, or covenants under this Agreement.

Rights in the Event of Default. Notwithstanding the foregoing, upon the occurrence of an event of Default, any non Defaulting Party shall be entitled to exercise all rights and remedies it may have in equity or at law.

Notices

General. Any notice, demand or request required or permitted to be given by a Party to another Party and any instrument required or permitted to be tendered or delivered by a Party in writing to another Party may be so given, tendered or delivered, as the case may be, by depositing the same with the United States Postal Service with postage prepaid, for transmission by certified or registered mail, addressed to the Parties, or personally delivered to the Parties, at the address set out below:

To Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

To Transmission Owner (or Operator):

To Interconnection Customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To existing generating facility customer:

Rafik Halim, MSEE, PE
Vice President Transmission

8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

Billings and Payments. Billings and payments shall be sent to the addresses shown in Article 15.1 unless otherwise agreed to by the Parties.

To Interconnection Customer:

Jake Schroeder
Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (763) 438-2281
Email: JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

To existing generating facility customer:

Jake Schroeder
Sr. Director Corporate finance
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (763) 438-2281
Email: JSchroeder@geronimopower.com
Geronimo Power Accounts Payable
AP@geronimopower.com

Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to another Party and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out below:

To Transmission Provider:

Voice telephone – (317)249-5700

Facsimile telephone – (317) 249-5358

Email address – misotap@misoenergy.org

To Transmission Owner (or Operator):

To Interconnection Customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Email: Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031
Cayika@geronimopower.com

To existing generating facility customer:

Rafik Halim, MSEE, PE
Vice President Transmission
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 206-5377
Rhalim@geronimopower.com

Chris Ayika, PE, PMP
8400 Normandale Lake Blvd Suite 1200
Bloomington, MN 55437
Phone: (952) 641-4031

DUNS #. If existing generating facility customer and Interconnection Customer have not obtained DUNS numbers by the time this Agreement is executed, Transmission Owner and Interconnection Customer will forward their DUNS numbers within five (5) Business

Days of having obtained such numbers to Transmission Provider by facsimile telephone or email to the fax number or email set out below:

Interconnection Customer

DUNS Number: Not Applicable

To existing generating facility customer:

DUNS Number: Not Applicable

Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
Transmission Provider Project No. J1587

Lakeside Solar, LLC

By: Rafik Halim
Name: Rafik Halim
Title: Vice President, Transmission & RTO Policy
If Applicable, Transmission Provider Project No. S1082

Michigan Electric Transmission Company, LLC, a Michigan limited liability company
By: ITC Holdings Corp., a Michigan corporation, its sole manager

Signed by:
By: Brian Slocum
Name: Brian Slocum
Title: SVP, Chief Operating Officer

Effect of Midcontinent Independent System Operator, Inc., ("MISO") signature. The Parties acknowledge and understand that the signature of the authorized officer of MISO on this Agreement is for the limited purpose of acknowledging that the representative of MISO has read the terms of this Agreement. The Parties and MISO further state that they understand that FERC desires that the Parties keep MISO fully apprised of the matters addressed herein as well as any reliability and planning issues that may arise under this Agreement, and that the signature of the officer of MISO shall not in any way be deemed to imply that MISO is taking responsibility for the actions of either Party, that MISO has any affirmative duties under this Agreement or that MISO is liable in any way under this Agreement.

The signature below of the authorized officer of MISO is for the limited purpose of acknowledging that an authorized officer of MISO has read this Agreement.

Midcontinent Independent System Operator, Inc.

By: _____ 5/19/2026
Name: Aubrey Johnson
Title: Vice President, System Planning

ENERGY DISPLACEMENT AGREEMENT

Attachment A

1 Existing generating facility Point of Interconnection (POI): METC 138 kV Lamos Switching station

2 Generating Facility POI: METC 138 kV Lamos Switching station

3 Existing generating facility capacity (lower of demonstrated capability or study output limit at the POI:
(MW): 100 MW (MVAR): 32.9 (MVA): 3.8

4 Generating Facility Interconnection Request capacity
(MW): 50 (MVAR): 16.4 (MVA): 1.38

5 Interconnection Service limit of the Generating Facility and existing generating facility capacity at the POI shall not be greater than 2) above :
(MW): 100 MW (MVAR): 32.9 (MVA): 3.8

Check Only One: Transmission Owner (or Operator) ____ or existing generating facility _X__ or Generating Facility _X__ shall be solely responsible for the coordinated automatic generation control of the combined output of Interconnection Customer's Generating Facility and existing generating facility.