

Potomac LAW GROUP

Potomac Law Group PLLC

1300 Pennsylvania Avenue N.W., Suite 700 | Washington, D.C. 20004
T 202.204.3005 | F 202.318.7707 | www.potomacclaw.com

September 16, 2024

Ms. Lisa Felice
Executive Secretary
Michigan Public Service Commission
7109 W. Saginaw Highway
P.O. Box 30221
Lansing, MI 48909

Re: **MPSC Case No. U-21482**

Dear Ms. Felice:

Attached for electronic filing in the above-referenced matter, please find the Direct Testimony and Exhibits of Dr. Laura S. Sherman on behalf of the Michigan Energy Innovation Business Council, the Institute for Energy Innovation and Advanced Energy United, together with the Proof of Service. Thank you for your assistance in this matter.

Very truly yours,

Justin K. Ooms

JKO/srd

Enclosure

c. All parties of record.

STATE OF MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Application of DTE	)	
ELECTRIC COMPANY for approval of	)	
Interconnection Procedures and Waivers from	)	Case No. U-21482
Interconnection and Distributed Generation	)	
Standards R 460.901a et. seq.	)	

DIRECT TESTIMONY OF DR. LAURA S. SHERMAN

ON BEHALF OF

THE MICHIGAN ENERGY INNOVATION BUSINESS COUNCIL,

INSTITUTE FOR ENERGY INNOVATION,

AND

ADVANCED ENERGY UNITED

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. State your name, business name and address.**

3 A. My name is Dr. Laura S. Sherman, and I am the President of the Michigan Energy
4 Innovation Business Council (“Michigan EIBC”) and the Institute for Energy Innovation
5 (“IEI”), located at 115 West Allegan, Suite 710, Lansing, Michigan 48933.

6
7 **Q. On whose behalf are you appearing in this case?**

8 A. I am appearing here as an expert witness on behalf of Michigan EIBC, IEI, and Advanced
9 Energy United (“United”), collectively referred to as “MEIU.”

10
11 **Q. Summarize your educational background.**

12 A. I have a Ph.D. from the University of Michigan Earth and Environmental Sciences
13 Department, conferred in May 2012. I also have a Bachelor of Science degree from
14 Stanford University in Geological and Environmental Sciences, conferred in June 2005.

15
16 **Q. Summarize your experience in the field of electric utility regulation.**

17 A. Since April 2019, I have served as the President of Michigan EIBC and IEI. Prior to that,
18 starting in February 2017, I was a Senior Consultant at 5 Lakes Energy focusing on energy
19 policy and utility regulation. I also served as the Vice President for Policy Development
20 for the Michigan EIBC and IEI. In these capacities, I have written testimony in many non-
21 adjudicated dockets before the Michigan Public Service Commission (“Commission” or
22 “MPSC”). From 2014–2016, I served as a Policy Advisor on energy, environment, and
23 agriculture issues to Senator Michael Bennet (D-CO) in the U.S. Senate. In that capacity,

1 I provided policy expertise, conducted research, developed legislation, and analyzed
2 regulations. Prior to that, my doctoral (2007–2012) and postdoctoral (2012–2014) research
3 was focused on the tracing of pollutants emitted during energy generation. My work
4 experience is set forth in detail in my résumé, attached as Exhibit MEIU-1 (LSS-1).

5
6 **Q. Summarize your professional development coursework in the field of electric utility**
7 **regulation.**

8 A. In August 2017, I completed the Electric Utility Consultants Inc. (“EUCI”) course titled
9 “Optimizing the Interconnection Process for Renewables & Storage: A National Forum for
10 Addressing Process and Technical Issues.” In December 2017, I completed the EUCI
11 course titled “The Electric Vehicle-Utility Industry Nexus.” In January 2018, I completed
12 the EUCI course titled “Evolution of Electricity Markets: Disruptive Innovation &
13 Economic Impacts: Highly Interactive Course Designed to Provide A Practical Overview
14 of Evolving U.S. Power Markets.”

15
16 **Q. Have you testified before this Commission or as an expert in any other proceeding?**

17 A. Yes. I previously testified as an expert witness in the following cases:

- 18 ● U-20134 (Consumers Energy Company [“Consumers Energy”] general electric rate
19 case);
- 20 ● U-20165 (Consumers Energy Integrated Resource Plan case);
- 21 ● U-20162 (DTE Electric Company [“DTE Electric,” “DTE” or the “Company”] general
22 electric rate case);
- 23 ● U-20471 (DTE Electric Integrated Resource Plan [“IRP”] case);

- 1 • U-18232 (DTE Electric Renewable Energy Plan case);
- 2 • U-20649 (Consumers Energy Voluntary Green Pricing Program case);
- 3 • Consolidated U-20713 (DTE Electric Voluntary Green Pricing Program case)/U-20851
- 4 (DTE Electric Renewable Energy Plan case);
- 5 • U-20693 (Consumers Energy general electric rate case);
- 6 • U-21090 (Consumers Energy IRP case);
- 7 • U-21131 (Consumers Energy Legally Enforceable Obligation case);
- 8 • U-21134 (Consumers Energy Voluntary Green Pricing Program case);
- 9 • U-20836 (DTE Electric general electric rate case);
- 10 • U-21224 (Consumers Energy general electric rate case);
- 11 • U-21172 (DTE Electric Voluntary Green Pricing Program case);
- 12 • U-21193 (DTE Electric IRP case);
- 13 • U-21297 (DTE Electric general electric rate case);
- 14 • U-21374 (Consumers Energy Voluntary Green Pricing Program case);
- 15 • U-21389 (Consumers Energy general electric rate case); and
- 16 • U-21534 (DTE Electric general electric rate case).

17

18 **Q. Have you provided analysis in support of testimony or comments in any other utility**

19 **regulatory proceeding?**

20 A. Yes, I have provided comments with input from Michigan EIBC member companies in a

21 number of different proceedings including:

- 22 • U-18351 and U-18352 (development of voluntary green pricing programs);

- 1 ● U-20095 (Public Utility Regulatory Policies Act of 1978 [“PURPA”] regulations and
- 2 capacity determinations);
- 3 ● U-18383 (development of a distributed generation [“DG”] tariff);
- 4 ● U-18361 (code of conduct rules);
- 5 ● U-20147 (distribution system planning and utility distribution system plans);
- 6 ● U-20905 (implementation of Federal Energy Regulatory Commission [“FERC”] Order
- 7 872);
- 8 ● U-20890 (Interconnection and Distributed Generation Standards);
- 9 ● U-20898 (utility business models);
- 10 ● U-21099 (demand response aggregation);
- 11 ● U-21219 and U-18461 (IRP Filing Requirements and Planning Parameters);
- 12 ● U-20959 (customer data access);
- 13 ● U-21251 (grid system data access);
- 14 ● U-21400 (performance-based regulation/reliability metrics);
- 15 ● U-21547 (implementation of Public Act [“PA”] 233 regarding wind/solar/storage
- 16 siting);
- 17 ● U-21568 (implementation of PA 235 regarding the renewable portfolio standard);
- 18 ● U-21569 (implementation of PA 235 regarding the DG Program);
- 19 ● U-21567 (implementation of PA 299 regarding energy waste reduction and
- 20 electrification);
- 21 ● U-21571 (implementation of PA 235 regarding the energy storage mandate); and
- 22 ● U-21653 (DTE Electric Expedited Pilot Review Workplan).

1 In addition to this work, I have been involved on behalf of Michigan EIBC in multiple
2 workgroup proceedings at the Commission, including those focused on electric vehicle
3 (“EV”) deployment, DG tariffs, IRP requirements, energy waste reduction, distribution
4 system planning, development of interconnection standards and procedures, and renewable
5 energy siting procedures. I was involved on behalf of Michigan EIBC/IEI in the MI Power
6 Grid workshop proceedings at the Commission, including those focused on new
7 technologies and business models, customer data access, updating the state’s
8 interconnection rules, demand response, distribution system planning, pilot programs,
9 competitive procurement, advanced planning, and updating the IRP parameters and filing
10 requirements.

11
12 **Q. Please summarize your experiences working with advanced energy companies on**
13 **issues related to electric utility regulation.**

14 A I have served as the President of Michigan EIBC and IEI since April 2019. Prior to that,
15 from November 2017 through April 2019, I served as Vice President of Policy
16 Development for Michigan EIBC and IEI. In these roles, I have led the trade organization’s
17 work on regulatory and legislative issues. As described above, I have participated in many
18 workgroups at the Commission and written comments in a number of non-adjudicated
19 cases. I also communicate formally and informally with Michigan EIBC member
20 companies about each regulatory proceeding to understand how the advanced energy
21 industry is affected by each proposed rule or case.

22

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my direct testimony is to describe, based on my experiences as the President
3 of Michigan EIBC and IEI, concerns with certain aspects of the Company’s proposed
4 Interconnection Procedures.

5
6 **Q. Are you sponsoring any exhibits?**

7 A. Yes, I am sponsoring the following exhibits:

- 8 • Exhibit MEIU-1 (LSS-1): Résumé of Dr. Laura S. Sherman
- 9 • Exhibit MEIU-2 (LSS-2): Discovery response MEIUDE-1.7a
- 10 • Exhibit MEIU-3 (LSS-3): Discovery response MEIUDE-1.16a
- 11 • Exhibit MEIU-4 (LSS-4): Discovery response attachment U-21482 MEIUDE-1.1b-
12 01 InterconnectionQueue 06-05-2024
- 13 • Exhibit MEIU-5 (LSS-5): RLC Engineering Report, “System Impact Study (SIS)
14 Elements and Best Practices,” August 28, 2024.

15
16 **II. LIMITED EXPORT DERS**

17 **A. INTERCONNECTION STANDARDS BACKGROUND**

18 **Q. Were you involved in the development of the Michigan Interconnection and**
19 **Distributed Generation Standards (“MIXDG rules”), which became effective on**
20 **April 23, 2023?**

21 A. Yes, on behalf of Michigan EIBC/IEI, I was deeply involved in the development of the
22 MIXDG rules. Beginning in 2018, as an expert witness on behalf of Michigan EIBC in the
23 Consumers Energy general electric rate case (Case No. U-20134), I advocated for the
24 adoption of a pre-application process, simplified screening process (i.e., a “fast track”

1 screening process), supplemental review process for projects that do not pass the fast track
2 screening process, fully electronic application and payment systems, and publicly
3 available, up-to-date hosting capacity maps.¹ Later in 2018, the Commission opened a
4 stakeholder process in Case No. U-20344 to update the state’s interconnection standards. I
5 participated in stakeholder meetings throughout 2019, submitting comments on behalf of
6 Michigan EIBC on every partial draft released by the Commission Staff. The Commission
7 Staff issued its first draft proposed ruleset on August 28, 2019 and I submitted informal
8 comments on that draft on behalf of Michigan EIBC.² A second draft was issued on
9 February 28, 2020 and I again submitted informal comments on behalf of Michigan EIBC.
10 On September 9, 2021, the Commission issued an Order in Case No. U-20890 with an
11 opportunity for formal comment on the proposed (now called) MIXDG rules.³ I again
12 submitted comments on behalf of Michigan EIBC on these Commission draft rules.⁴ On
13 March 17, 2022, the Commission issued an Order in Case No. U-20890 approving the
14 MIXDG rules and providing for their submission to the Michigan Office of Administrative
15 Hearings and Rules for the formal approval process.⁵
16

¹ Revised Direct Testimony of Dr. Laura S. Sherman on behalf of the Michigan Energy Innovation Business Council, Case No. U-20134, September 11, 2018.

² Comments of the Michigan Energy Innovation Business Council, *Final Staff Strawman Proposal – Subject to Change*, August 28, 2019, September 30, 2019.

³ September 9, 2021 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0001.

⁴ Comments of the Michigan Energy Innovation Business Council, Case No. U-20890, Filing Nos. U-20890-0008 & -0009, November 1, 2021.

⁵ March 17, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0021.

1 **Q. What did the Company file in response to the March 17, 2022 Commission Order in**
2 **Case No. U-20890?**

3 A. On April 14, 2022, DTE Electric and Consumers Energy filed a joint petition for rehearing
4 in Case No. U-20890 (“Joint Petition”) alleging both that the Commission’s proceedings
5 regarding the MIXDG rules violated due process and that the rules themselves would allow
6 unsafe electrical conditions.⁶

7
8 As to the due process concerns, according to the utilities, on December 7, 2021, Sunrun
9 submitted a redlined version of the draft MIXDG rules after the November 1, 2021 deadline
10 “proposing for the first-time numerous changes that the Commission ultimately adopted.”⁷
11 There were no reply comments allowed on this redline filed on December 7, 2021. The
12 utilities also argued that the dispute resolution process in the draft MIXDG rules was
13 inappropriate and did not provide adequate due process.

14
15 As to the substantive concerns, the utilities expressed concerns in the Joint Petition about
16 limited export distributed energy resources (“DERs”) and the possibility of inadvertent
17 export from such systems, alleging that such export would result in safety and reliability
18 issues.⁸ In the case of limited export DERs, control software limits the export of electricity
19 to the grid from the system at a specified capacity. The MIXDG rules as approved by the
20 Commission on March 17, 2022 included in R 460.980 the ability for applicants to limit

⁶ DTE Electric Company and Consumers Energy Company’s Joint Petition for Rehearing, Case No. U-20890, Filing No. U-20890-0023 (“Joint Petition”), April 14, 2022.

⁷ *Id.*, pp. 2–3.

⁸ *Id.*, pp. 7–9.

1 export from DERs utilizing a power control system and inverter as long as the technology
2 could “[halt] energy production within 2 seconds if the period of continuous export exceeds
3 30 seconds.”⁹

4
5 According to the Joint Petition,

6 The proposed rules effectively allow 32 seconds of dangerous operation
7 until the project needs to come back into compliance. This short amount of
8 time can cause a transformer to fail catastrophically (potentially including
9 a fire) and seriously impact power quality to adjacent customers (potentially
10 including appliance failures).¹⁰

11 The Joint Petition further stated that the Commission

12 essentially adopted Sunrun’s late-filed proposed definition for “limited
13 export” (which is now a new definition in R 460.901b(k) meaning “the
14 exporting capability of a DER whose generating capacity is limited by the
15 use of any configuration or operating mode”). In combination with the
16 definitions changing what is a material modification, this effectively creates
17 a situation where behind-the-meter battery storage and generation can be
18 expanded in an effectively unlimited manner as long as the limited export
19 value remains the same.¹¹

20 Finally, the Joint Petition argued that the initial fee caps established by the Commission in
21 the final MIXDG rules were unreasonable and that the utilities

22 cannot be required to provide services without full compensation nor
23 relinquish its property rights in proprietary business information (including

⁹ March 17, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0021, Exhibit B, R 460.980.

¹⁰ Joint Petition, p. 8.

¹¹ *Id.*, p. 12.

1 but not limited to electrical system information) without just
2 compensation.¹²

3
4 **Q. Did the Commission grant the Joint Petition?**

5 A. Yes. On May 12, 2022, the Commission granted the Joint Petition and indicated that it
6 would establish a second opportunity for public comment on the MIXDG rules,
7 acknowledging “that Sunrun’s redlined rule version was untimely and thus finds that
8 consideration of that filing was in error.”¹³ However, the Commission did not comment in
9 the Order on the merits of the substantive claims made by the utilities. In the Order, the
10 Commission noted that it received

11 timely comments on the MIXDG rules from 11 commenters, some of whom
12 also submitted a redlined version of the draft MIXDG rules. Sunrun Inc.
13 (Sunrun) submitted timely written comments and a redlined version of the
14 draft rules. However, the ruleset submitted by Sunrun on November 1,
15 2021, contained no redlining (that is, no revisions). The Staff informed
16 Sunrun that the submitted rules contained no redlining. Sunrun submitted a
17 redlined version of the draft MIXDG rules on December 7, 2021.¹⁴
18

19 A subsequent Order issued on May 26, 2022, established a public hearing on June 22, 2022,
20 and a comment period ending June 27, 2022.

21

¹² *Id.*, p. 20.

¹³ May 12, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0029, p. 10.

¹⁴ *Id.*, p. 3.

1 **Q. Were the issues raised by Sunrun new in the context of the development of the**
2 **MIXDG rules?**

3 A. No, not in the least. I had raised these same limited export issues related to energy storage
4 systems on behalf of Michigan EIBC numerous times throughout the development of the
5 MIXDG rules during the Staff workgroups and the formal Commission comment period.
6 These issues were also raised by the Environmental Law and Policy Center, Ecology
7 Center, and Vote Solar (together called the Clean Energy Organizations or “CEOs”). As
8 noted by the Commission in its May 12, 2022 Order,

9 The CEOs argue that they proposed the identical definition for “limited
10 export” in their November 1, 2021 comments as was proposed by Sunrun
11 in its untimely redlined version. CEOs’ answer, p. 3. The CEOs note that in
12 their comments they proposed that the Commission include “specific
13 standards for the utilities to follow as detailed in the 2019 Model
14 Interconnection Rules from IREC [Interstate Renewable Energy Council],”
15 and they note that these model rules contain the same definitions as appear
16 in the approved rule version. CEOs’ answer, p. 3, quoting CEOs’ comments
17 and citing the March 17 order, p. 7. Thus, they argue:

18 the Commission adopted in the MIXDG rule the IREC definitions
19 suggested by the CEO in its timely-filed comments. To remove this
20 definition because Sunrun filed those same comments past deadline
21 albeit as specific redlines rather than general comments – would
22 violate the CEO’s due process rights.

23 CEO’s answer, p. 3. The CEOs state that the IREC model rules have been
24 adopted by 10 states and are in the process of adoption in four others. They
25 note that use of the IREC model rules was also suggested by the Michigan
26 Energy Innovation Business Council (MEIBC). *See*, March 17 order, p.
27 29.¹⁵

28
29
30 The Commission continued:

31 The Commission observes that, with respect to the changes made to Rule
32 980 regarding limited export and non-exporting generating facilities,
33 MEIBC made the same comment as Sunrun and presented the same
34 language in its associated redlined draft rule version (both timely filed) but

¹⁵ *Id.*, p. 8.

1 suggested that it be placed between R 460.920 and R 460.922 rather than in
2 Rule 980. *See*, filing #U-20890-0009, pp. 14-15; March 17 order, pp. 4-5.
3 While MEIBC did not include the associated definitions that appear in R
4 460.901a and R 460.901b in its redlined rule version, both MEIBC and the
5 CEOs advocated use of the 2019 Model Interconnection Procedures
6 published by IREC (a publicly available document), which contains these
7 same definitions. March 17 order, pp. 7-8; CEOs’ comments, p. 2; MEIBC’s
8 comments, p. 3.¹⁶
9

10 **Q. Were the concerns expressed by the utilities in the Joint Petition with respect to safety**
11 **and reliability valid?**

12 A. No. For a number of reasons, these arguments were and remain invalid. As described
13 above, throughout the process to develop the final MIXDG rules, I recommended on behalf
14 of Michigan EIBC that the Commission include specific limited export standards as
15 detailed in the 2019 Model Interconnection Rules from IREC. Those model rules follow
16 guidance provided by FERC Order 845, which allows an interconnection customer to
17 request service at a lower level than the nameplate generating facility capacity with the
18 proper control technologies in place.

19
20 Overall, the maximum amount of inadvertent export from a limited export system for a
21 short period of time as allowed in the MIXDG rules is not sufficient to cause damage to
22 conductors or lasting thermal impacts. According to the Storage Interconnection
23 Committee of the Building a Technically Reliable Interconnection Evolution for Storage
24 (“BATRIES”) Project Team, which conducted testing of power control systems, most are

¹⁶ *Id.*, p. 9.

1 able to respond very quickly (i.e., within 10 seconds)¹⁷ and these potential short periods of
2 inadvertent export cannot cause catastrophic thermal failures as suggested by the utilities.
3 Utility infrastructure is designed to safely be operated in overload conditions, especially
4 for these very short time periods, to ensure grid flexibility in meeting unexpected needs.

5
6 In addition, the standards proposed by the Commission for limited export DERs in the
7 MIXDG rules were aligned with national certifications and codes from the Underwriters
8 Laboratory (“UL”) and the Institute of Electrical and Electronics Engineers (“IEEE”).
9 Currently, the UL 1741 Certification Requirement Decision (“CRD”) for power control
10 systems requires a response time of under 30 seconds to instances of inadvertent export.¹⁸
11 Section 4.6.2 of the IEEE 1547-2018 indicates that “The DER shall limit its active power
12 output to not greater than the active power limit set point in no more than 30 s or in the
13 time it takes for the primary energy source to reduce its active power output to achieve the
14 requirements of the active power limit set point, whichever is greater.”¹⁹

15
16 Finally, the standards proposed at the time by the Commission for limited export DERs in
17 the MIXDG rules were also aligned with the Model Interconnection Procedures from

¹⁷ Building a Technically Reliable Interconnection Evolution for Storage (“BATRIES”) Project Team, Storage Interconnection Team, “Toolkit & Guidance for the Interconnection of Energy Storage & Solar-Plus-Storage,” March 2022, available at: <https://energystorageinterconnection.org/resources/batrics-toolkit/>.

¹⁸ *Id.*, p. 160.

¹⁹ *Id.*, pp. 82–83.

1 IREC²⁰ and standards from multiple other states including Arizona,²¹ Colorado,²² Illinois,²³
2 Nevada,²⁴ Maryland,²⁵ Minnesota,²⁶ and Hawaii.²⁷ According to a memo written by Brian
3 Lydic, Chief Regulatory Engineer at IREC, and submitted as an Exhibit to comments from
4 the CEO in Case No. U-20890, power control software had been used for more than six
5 years in the U.S. (specifically in California and Hawaii) with “no known safety or
6 reliability issues” due to inadvertent export.²⁸

7
8 **Q. What did the Commission order with respect to these issues after the second public**
9 **comment period?**

²⁰ Interstate Renewable Energy Council, “Model Interconnection Procedures,” 2019, available at <https://irecusa.org/resources/irec-model-interconnection-procedures-2019/>.

²¹ Arizona Administrative Code § 14-2-2603 E(4), available at <https://casetext.com/regulation/arizona-administrative-code/title-14-public-service-corporations-corporations-and-associations-securities-regulation/chapter-2-corporation-commission-fixed-utilities/article-26-interconnection-of-distributed-generation-facilities/section-r14-2-2603-types-of-generating-facilities>.

²² Colorado Code of Regulations § 723-3-3853 c(I), available at <https://casetext.com/regulation/colorado-administrative-code/department-700-department-of-regulatory-agencies/division-723-public-utilities-commission/rule-4-ccr-723-3-rules-regulating-electric-utilities/interconnection-procedures-and-standards/section-4-ccr-723-3-3853-general-interconnection-procedures>.

²³ Illinois Commerce Commission, Docket 20-0700, Final Order, May 25, 2022, available at <https://www.icc.illinois.gov/docket/P2020-0700/documents/324414>.

²⁴ Nevada Public Utilities Commission, Docket 17-06014, Nevada Power Company Rule 15 § 1.4(b), available at https://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2015_THRU_PRESENT/2017-6/29210.pdf.

²⁵ Maryland Code Regulations, 20.50.09.06 P(2), available at <https://www.law.cornell.edu/regulations/maryland/COMAR-20-50-09-06>.

²⁶ State of Minnesota Technical Interconnection and Interoperability Requirements, January 22, 2020, available at https://mn.gov/puc/assets/TIIR%20w%20CORRECTED%20Interim%20Implementation%20Guidance_tcm14-431321.pdf, p. 33.

²⁷ Hawaii Public Utilities Commission, Rule 22, Sheet 44B-1 to Sheet 44B-2 (Appendix II), available at https://www.hawaiianelectric.com/documents/billing_and_payment/rates/hawaiian_electric_rules/22.pdf.

²⁸ Memorandum from Brian Lydic to IREC, Comments of the CEO, Case No. U-20890, Filing No. U-20890-0041, June 27, 2022, Attachment A.

1 A. On October 5, 2022, the Commission issued an Order formally adopting the MIXDG rules
2 with minor changes. The Commission declined the utilities’ recommendations to remove
3 definitions of “export capacity” and “limited export” from the final MIXDG rules (R
4 460.901a(aa) and R 460.901b(k))²⁹ and declined to adopt the Company’s recommendation
5 to base definitions of the size categories of projects (i.e., “Levels”) on nameplate capacity.³⁰
6 In addition, the Commission declined to adopt the Company’s recommendation to base
7 eligibility for the fast track screening process on nameplate capacity, instead noting “that
8 page 61 of the Interconnection Toolkit states that ‘Fast Track eligibility should be modified
9 so that it is evaluated on the basis of the project’s Export Capacity and not the Nameplate
10 Rating of the project.’” Given this, the Commission added a sentence to R 460.944 which
11 reads: “Projects using an acceptable method for limited export shall be eligible for fast
12 track.”³¹
13
14 Finally, the Commission also added to R 460.980 a description in subrule (4) of a
15 methodology to allow for interconnection of limited export DERs. This includes that the
16 utility shall allow the interconnection of limited export DERs and shall consider the
17 capacity of such DERs to be “only the amount capable of being exported not including any
18 inadvertent export.”³² However, the Commission allowed utilities to propose alternative
19 methods for power limited export in subrule (3), which indicates that

²⁹ October 5, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0046, p. 21.

³⁰ *Id.*, p. 24.

³¹ Mich Admin Code, R 460.944, “Fast track eligibility.”

³² Mich Admin Code, R 460.980, “Capacity of the DER.”

1 (3) The electric utility’s interconnection procedures may describe
2 acceptable methods for power limited export DER including, but not limited
3 to, reverse power protection and utilizing inverters or control systems so
4 that the DER capacity considered by the electric utility for reviewing the
5 interconnection application is only the amount capable of being exported.
6 These methods for power limited export DER may be used as alternatives
7 to the method described in subrule (4) of this rule.
8

9 As noted by the Commission in its October 5, 2022 Order, “Unless an alternative procedure
10 is approved by the Commission, subrule (4) will remain as the rule in effect for power-
11 limited DERs.”³³
12

13 It is clear that the Commission carefully considered all of these issues throughout the
14 development of the MIXDG rules and during the five-month additional review period after
15 the filing of the Joint Petition. It is simply not true, as stated by witness Mueller, that the
16 limited export provisions were included in the interconnection screens at the “last
17 minute.”³⁴ Instead, these provisions were reviewed in-depth and in extensive dialogue with
18 the technical literature, and the Commission had significant time to ensure that the limited
19 export provisions were integrated appropriately with all of the other interconnection rule
20 provisions.
21

22 **B. LIMITED EXPORT DERs**

23 **Q. What does the Company propose in the current case and in its draft Interconnection**
24 **Procedures regarding limited export?**

³³ October 5, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0046, p. 55.

³⁴ Mueller Direct, p. 34.

1 A. In the current case and in its draft Interconnection Procedures, the Company proposes a
2 number of provisions that blatantly violate the MIXDG rules and attempt to re-litigate the
3 limited export issues that, as discussed above, have been litigated at length through formal
4 and informal processes and determined in a fair, deliberate manner by the Commission.

5
6 Rule 460.980 subrule (3) does allow a utility to propose its own unique limited export
7 provisions. As expressed by the Commission in its October 5, 2022 Order,

8 The Commission has carefully considered the comments made concerning
9 this matter, and continues to believe that allowing interconnection of power-
10 limited DERs in a safe manner is important. Acknowledging that Michigan
11 utilities are not as familiar with power-limited systems, the Commission has
12 modified the rule in response to the comments received to provide electric
13 utilities the ability to develop and propose an alternative to subrule (4) in
14 their interconnection procedures, if desired. Unless an alternative procedure
15 is approved by the Commission, subrule (4) will remain as the rule in effect
16 for power-limited DERs.³⁵
17

18 However, the Company’s proposal here for an alternative procedure to evaluate limited
19 export DERs appears to violate the purpose of R 460.980, which, as stated by the
20 Commission, is to “allow[] interconnection of power-limited DERs in a safe manner.”³⁶
21 Instead of proposing alternative technical *methods* for facilitating the interconnection of
22 power-limited DERs, the Company’s proposed procedures for limited export systems
23 appear designed to ensure that these systems are simply never successfully interconnected
24 to the utility’s distribution grid in the first place. In fact, in a discovery response in this
25 case (Exhibit MEIU-2 (LSS-2)), the Company indicated that it “has not approved any

³⁵ October 5, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0046, p. 55.

³⁶ *Ibid.*

1 project that would use a Power Control System (PCS) system as a way to prevent an
2 overload to the system.” There is no excuse for this disregard for the Commission’s Orders
3 and the MIXDG rules.

4
5 Specifically, the Company proposes in its draft Interconnection Procedures that while an
6 applicant may supply an export capacity,

7 all determinations of level and application of interconnection process will
8 use the DER [i.e., nameplate] capacity. DTE will perform studies and
9 screens based on the relaying or power control method being utilized and
10 assess the risk of the export capacity method vs the DER capacity.³⁷

11
12 As described above, R 460.980 subrule (3) states that a utility’s procedures may include
13 acceptable methods for power-limited export but if those are not included, the methods
14 described in subrule (4) shall apply.³⁸ Simply stating, as the Company does, that the utility
15 will not study a limited export system at its export capacity does not represent the
16 development of an alternative technical means to those contained in R 460.980 subrule (4).
17 Instead, it renders any limited export capacity essentially meaningless for the purposes of
18 DER system evaluation by the Company.

19

³⁷ Direct Testimony of Richard J. Mueller on behalf of DTE Electric Company (“Mueller Direct”), Case No. U-21482, *Interconnection Procedures Level 3, 4, & 5 Projects*, Exhibit A-2, p. 26.

³⁸ Mich Admin Code, R 460.980, “Capacity of the DER.”

1 **Q. Do you have other concerns about the Company's proposed limited export**
2 **provisions?**

3 A. Yes. The Company proposes in its draft Interconnection Procedures to limit inadvertent
4 export to only 200 milliseconds.³⁹ According to witness Mueller, the Company approaches
5 limited export with caution for a number of reasons including that:

6 The use of PCS software is a relatively new practice and there are still a
7 range of issues that need to be sorted out related to topics including
8 configuration management, cyber and physical security, proprietary and
9 premature implementations, interactions impacting overall system
10 reliability, the use of PCS to provide overload and over current protection
11 and PCS testing standards.

12 ...

13
14
15 If two or more customers share a service transformer, the inability to
16 maintain power limiting or export control first impacts the customers
17 sharing that service transformer, leading to overvoltage and over current.
18 Equipment owned by that customer sharing the transformer may not have
19 the built in surge protection to deal with over voltage or over current. This
20 may lead to damage to that equipment, depending on the level of
21 overcurrent and overvoltage.

22 ...

23
24
25 In short, failure to maintain power limiting and export control may lead to
26 economic loss for neighboring customers, outage for the customer and
27 neighbors, and significant repair work for DTE Electric.⁴⁰
28

29 **Q. Do you share these concerns?**

30 A. No. The MIXDG rules in R 460.980 subrule (4)(e) states that

31 (e) DERs may utilize a Nationally Recognized Testing Laboratory Certified
32 Power Control System and inverter system that results in the DER
33 disconnecting from the distribution system, ceasing to energize the
34 distribution system or halting energy production within 2 seconds if the

³⁹ Mueller Direct, Exhibit A-2, p. 26.

⁴⁰ Mueller Direct, pp. 10–11.

1 period of continuous inadvertent export exceeds 30 seconds. Failure of the
2 control or inverter system for more than 30 seconds, resulting from loss of
3 control or measurement signal, or loss of control power, must result in the
4 DER entering an operational mode where no energy is exported across the
5 point of common coupling to the distribution system.⁴¹
6

7 In other words, R 460.980 subrule (4) allows for 30 seconds of inadvertent export, after
8 which the power control system must halt energy production within 2 seconds.
9

10 The Company's proposal to require inadvertent export to be limited to only 200
11 milliseconds (instead of 30 seconds) does not represent merely a different proposal to
12 enable the interconnection of power-limited systems as allowed in R 460.980 subrule (3).
13 As described above, this very issue was the subject of DTE Electric's and Consumers
14 Energy's Joint Petition, was the subject of extensive on-the-record comments by a variety
15 of stakeholders, and was considered at length by the Commission. In its final Order on
16 these issues, instead of agreeing with the Company, the Commission quoted from a memo
17 submitted by IREC, which described why "inadvertent export is not a dangerous condition
18 for conductors or transformers."⁴² The Commission went on to describe the importance of
19 interconnecting power-limited DERs and the finalization of R 460.980 subrule (4).
20

21 There is no reasonable arbiter who could square the Commission's October 5, 2022 Order
22 with the Company's proposal to limit inadvertent export to only 200 milliseconds. It is my
23 opinion that the Company has proposed power limited export provisions in its draft
24 Interconnection Procedures that do not comply with the MIXDG rules. I therefore

⁴¹ Mich Admin Code, R 460.9480, "Capacity of the DER."

⁴² October 5, 2022 Order of the Michigan Public Service Commission, Case No. U-20890, Filing No. U-20890-0046, p. 54.

1 recommend that the Commission require the Company to revise its Interconnection
2 Procedures to align with R 460.980 subrule (4) and reject the utility’s proposal to institute
3 procedures that do not appropriately allow for limited export DERs. In other words, the
4 Commission should find that the Company’s proposal in this case simply does not qualify
5 as an “alternative” within the meaning of R 460.980 subrule (3) and thus that the
6 Company’s procedures should default to the requirements of subrule (4).

7
8 **Q. Does the Company express additional concerns with respect to inverters?**

9 A. Yes. Witness Mueller goes on to point out that although an inverter may be able to pass
10 UL 1741, UL does not test for the ability to lock settings “in the inverter to prevent resetting
11 the inverter to factory default.”⁴³

12
13 **Q. Is this accurate?**

14 A. No. The UL 1741 CRD for power control systems ensures that no changes are made to the
15 operating mode configurations after the time of installation.⁴⁴ Any UL 1741 certified power
16 control system must follow these rules.

17
18 **Q. Regardless, do you believe that witness Mueller raises a reasonable concern?**

19 A. No. In addition to the fact that the UL 1741 standard prevents such changes, I find witness
20 Mueller’s concerns to be illogical. The Company appears to be concerned that a customer

⁴³ Mueller Direct, p. 11.

⁴⁴ Building a Technically Reliable Interconnection Evolution for Storage (“BATRIES”) Project Team, Storage Interconnection Team, “Toolkit & Guidance for the Interconnection of Energy Storage & Solar-Plus-Storage,” March 2022, available at: <https://energystorageinterconnection.org/resources/batrics-toolkit/>, p. 161.

1 or installer would be so motivated to change the inverter settings after installation and after
2 signing a binding Interconnection Agreement that the customer would violate the
3 Interconnection Agreement by changing the inverter settings. First, this would be very
4 difficult for most (if not all) DG customers to achieve given that it would require skilled
5 modification of the inverter. Second, any such action would violate the Interconnection
6 Agreement wherein the applicant indicated the export limit for their system. In other words,
7 if the applicant wished to export more power to the grid, there would be no reason that
8 customer would not indicate the true export capacity on the application and Interconnection
9 Agreement. Third, the Interconnection Agreement is a binding contract and as such, any
10 violation of that contract (unlikely as it is) would give rise to a customer default,
11 immediately giving the Company certain rights, including, for example, a right to cease
12 parallel operation with the DER.

13
14 In any case, it is hard to see what incentive any customer would have to tamper with their
15 inverter settings.

16
17 **Q. Do you have any other concerns about the Company's proposed limited export**
18 **provisions?**

19 **A.** Yes. I am concerned that the Company proposes in its draft Interconnection Procedures
20 that, for study purposes, an applicant cannot limit the export capacity of a DER below 80%
21 of the nameplate capacity. There is nothing in the MIXDG rules to suggest that such a
22 limitation is reasonable.

23

1 **Q. How does the Company justify this proposed limitation?**

2 A. The Company does not justify this proposed limitation. Although witness Mueller testifies
3 broadly about the purported risks of inadvertent export and limited export DERs, he
4 provides no explanation as to why it is reasonable or prudent to constrain an applicant's
5 ability to limit export of a DER below 80% of nameplate.

6

7 **Q. Why does it make sense to allow for a customer to limit export below 80% of the**
8 **nameplate capacity?**

9 A. Especially for reverse power relays, which could fully limit the export capacity (i.e.,
10 creating a non-exporting system), it does not make sense to restrict export limitations to
11 only 80% of the DER capacity. For example, consider a customer who has a solar plus
12 storage system with one inverter for the solar system and one inverter for the storage
13 system. If those inverters are sized similarly and the solar system is allowed to export fully,
14 while the storage is not allowed to export, then the export capacity would be 50% of the
15 total nameplate capacity. Even though the system would never be capable of exporting
16 80% of the nameplate capacity (except in the case of inadvertent export), the customer
17 would be forced to specify 80% as the export capacity, and the Company would evaluate
18 the project as such.

19

20 **Q. What do you recommend with respect to limited export DERs?**

21 A. I recommend that the Commission require the Company to allow an applicant to use an
22 acceptable methodology to limit export capacity to any degree desired by the applicant and
23 to require the Company to study the DER at that export capacity.

III. COMPLIANCE WITH PA 235 of 2023

Q. Did the Commission require utility draft interconnection procedures to take account of Public Act 235 of 2023 (“PA 235”)?

A. Yes. In an Order issued on February 8, 2024, the Commission indicated that PA 235 contained “three changes to the distributed generation program that will require updates to the interconnection procedures as filed by the rate-regulated electric utilities.”⁴⁵ The Commission went on to indicate that these were:

- A change in the size limit for DG program participation from 100% to 110% of annual electric usage;
- An increase in the maximum size limit for an individual system participating in the DG program from 150 kW to 550 kW; and
- A removal of the generation meter requirement for all systems in the DG program.⁴⁶

The Commission asked several questions about these provisions in that same Order and sought comments from stakeholders.

Q. What did the Commission determine with respect to generation meters?

A. In an Order issued on July 23, 2024, the Commission determined that there is no requirement for the use of a generation meter for certified projects under 150 kW in size, and . . . utilities should be allowed to make a determination as to the need for a generation meter on a case- by-case

⁴⁵ February 8, 2024 Order of the Michigan Public Service Commission, Case No. U-21455 et. al. Filing No. U-21455-0007.

⁴⁶ *Ibid.*

1 basis for certified projects larger than 150 kW and for non-certified projects
2 larger than 20 kW. Thus, if an AMI meter is capable of measuring inflow
3 and outflow in the pricing period for a certified project that is smaller than
4 150 kW and non-certified projects 20 kW and smaller, then the DG
5 customer will pay no incremental cost because there is no need for a
6 generation meter.⁴⁷
7

8 **Q. What does the Company propose in its draft Interconnection Procedures with respect**
9 **to generation meters?**

10 A. Although the Company has removed the requirement that an applicant proposing a DER
11 with capacity <150 kW install a generation meter, the Company notes in its draft
12 Interconnection Procedures that a generation meter is “recommended” for Level 1 (<20
13 kW) and Level 2 (20 kW – 150 kW) projects and is “strongly recommended” for Level 3
14 projects (150 kW – 550 kW).⁴⁸ In an apparent attempt to convince customers to install a
15 generation meter, the Company indicates that

16 An applicant who does not install a generation meter may not be eligible for
17 participation in FERC jurisdictional programs (e.g. MISO-managed
18 programs or other aggregation programs). Eligibility will be determined by
19 the relevant requirements and is not within DTE Electric’s control.
20 Applicants are urged to consider this before determining the configuration
21 of their system. DTE Electric will provide the generation meter if the
22 Applicant determines they want to participate in these programs at a future
23 date.⁴⁹
24

⁴⁷ July 23, 2024 Order of Michigan Public Service Commission, Case No. U-21569, Filing No. U-21569-0017, p. 10.

⁴⁸ Mueller Direct, Exhibit A-2, p. 40.

⁴⁹ Mueller Direct, Exhibit A-2, p. 46.

1 **Q. Do you agree with the Company’s prediction regarding future FERC jurisdictional**
2 **programs?**

3 A. No. Since 2016, nearly all legacy meters in Michigan have been replaced by Advanced
4 Metering Infrastructure (“AMI”), which are capable of measuring bidirectional flow. As
5 such, generation meters are unnecessary and duplicative for measurement of electrical
6 *outflow*. To the extent that measurement of total output is necessary, inverters with
7 integrated American National Standards Institute C.12 compliant production meters are
8 common and can be used for that purpose without the need for a separate generation meter.
9 Because the limited purposes for which generation meters were previously used are now
10 served by AMI and the statutory requirement for generation meters has been eliminated,
11 there is no purpose or need for a generation meter. All of the functionality purported by the
12 Company to be gained from generation meters can similarly be gained from AMI and
13 modern inverters. As such, I am unpersuaded that implementation of FERC jurisdictional
14 programs (such as those forthcoming from the Midcontinent Independent System Operator,
15 “MISO”) will require the use of generation meters. Instead, in my opinion, it is more likely
16 that these future aggregation programs will utilize AMI and inverter technologies.

17
18 **Q. What else does the Company state in its draft Interconnection Procedures regarding**
19 **generation meters?**

20 A. The Company also states in the draft Distributed Generation Tariff (Rider 18) and Legacy
21 Net Metering (Rider 16) supplemental Interconnection Procedures that

22 A generation meter is recommended but not required for most customers.
23 Projects that have specific relaying or protection schemes that are identified
24 during interconnection study or facilities upgrade may require a production
25 meter that measures the generation exclusively and the applicant should

1 provide any appropriate equipment including metering bases, CT cabinets
2 and disconnects as defined in the SIM manual and the construction
3 agreement.⁵⁰
4

5 **Q. Do you agree that PA 235 allows the utility to require a generation meter for DG**
6 **program customers with certified systems smaller than 150 kW?**

7 **A.** No. As stated in Section 177(1) of PA 235,

8 An electric meter provided by a utility must be used to determine the
9 amount of the customer's inflow and outflow electricity in
10 each pricing period. Eligible customers shall pay only the incremental cost
11 above that for meters provided by the electric utility to similarly situated,
12 non-generating customers.⁵¹
13

14 This language replaced the language previously included in MCL 460.1177(1), which
15 provided in relevant part:

16 For a customer with a generation system capable of generating more than
17 20 kilowatts, the utility shall install and utilize a generation meter and a
18 meter or meters capable of measuring the flow of energy in both directions.
19 A customer with a system capable of generating more than 150 kilowatts
20 shall pay the costs of installing any new meters.⁵²

21 The amendments included in PA 235 thus (1) removed the generation meter requirement
22 for systems capable of generating more than 20 kilowatts and (2) explicitly limited the
23 costs to be paid by generating customers to the “incremental cost above that for meters
24 provided . . . to similarly situated, non-generating customers.”
25

⁵⁰ Mueller Direct, Exhibit A-1.

⁵¹ Section 177(1) of Public Act 235 of 2023.

⁵² Section 177(1) of Public Act 342 of 2016.

1 The Commission generally agreed with this argument in its July 23, 2024 Order, noting
2 that

3 there is no need for a generation meter to collect billing determinant
4 information for billing, and thus finds that the additional cost and space
5 burdens associated with generation metering for projects sized 150 kW and
6 smaller does not justify the required use of generation metering.⁵³
7

8 **Q. What do you recommend with respect to implementation of PA 235?**

9 A. In keeping with its July 23, 2024 Order in Case No. U-21569, I recommend that the
10 Commission require the Company to remove the “recommendation” for Level 1 and 2
11 projects and the “strong recommendation” for Level 3 projects to install generation meters.
12 In addition, the Company’s implicit warning of potential ineligibility for future FERC
13 Order 2222 programs should be stricken from its Interconnection Procedures to avoid
14 confusion and unnecessary costs for customers.
15

16 **IV. ENERGY STORAGE MODES**

17 **Q. What does the Company propose with respect to energy storage device modes?**

18 A. According to the Company’s proposed Distributed Generation Tariff (Rider 18) and
19 Legacy Net Metering (Rider 16) supplemental Interconnection Procedures, battery storage
20 in either the DG or legacy net metering programs must:

- 21 1. Meet a minimum of UL 1741 SA certification in addition to other safety
22 and operation standards for battery storage.
23 2. Be configured to prohibit the ability to provide energy to the grid.
24 3. Operate in an acceptable storage mode (refer to Acceptable Storage
25 Device Modes).⁵⁴

⁵³ July 23, 2024 Order of the Michigan Public Service Commission, Case No. U-21569, Filing No. U-21569-0017, p. 9.

⁵⁴ Mueller Direct, Exhibit A-1.

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Q. What does the Company propose as the “Acceptable Storage Device Modes”?

A. The Company proposes two Acceptable Storage Device Modes:

- 1. Import Only Mode – The Energy Storage System (ESS) may import active power from the utility for charging purposes but shall not discharge when exporting active power to the utility.
- 2. No Exchange Mode – The ESS shall not exchange active power with the utility for charging or discharging purposes.⁵⁵

Q. What does the witness Mueller indicate about these issues?

A. Witness Mueller does not address the Acceptable Storage Device Modes directly, but he does discuss situations where battery storage could be added to a DER enrolled in the Legacy Net Metering program (Rider 16) including:

The battery must be configured to prohibit the energy storage from exporting to the grid, thereby maintaining the requirement of Rider 16 to only provide renewable energy to the grid.⁵⁶

Witness Mueller goes on to state that

These provisions allow the customer to install the battery in a backup mode or to utilize their own renewable energy in the energy storage to offset their usage in a no exchange mode.⁵⁷

Q. What are the implications of these proposed Acceptable Storage Device Modes?

A. My interpretation of these two proposed acceptable modes for the operation of energy storage systems is that a customer can choose to (1) charge a battery from the grid, but may not export power back to the grid from the battery or (2) operate the battery entirely

⁵⁵ Mueller Direct, Exhibit A-1.

⁵⁶ Mueller Direct, p. 68.

⁵⁷ *Ibid.*

1 separately from the grid and not exchange electricity with the grid. The logical implication
2 of these modes is that, under the Company’s proposal, a customer may not operate their
3 storage system in a mode whereby they charge their battery only from an on-site DER like
4 a solar system (i.e., not from grid sources) and then export that electricity to the grid. In
5 other words, the two modes in the Company’s proposed procedures leave no option for a
6 customer to provide on-site generated renewable energy stored in the battery to the grid.
7

8 **Q. How did the Company address this concern?**

9 A. In a discovery response in this case (Exhibit MEIU-3 (LSS-3)), the Company pointed to
10 page 66 of witness Mueller’s testimony and stated that:

11 The implementation details would be constrained by the site-specific
12 configuration, the capability of the inverters, batteries and Power Control
13 Systems and settings proposed in the application.
14

15 From this response, it seems that the Company believes that a customer on Rider 18 should
16 be able to charge a battery from an on-site DER and then export that electricity to the grid.
17 This position is nonetheless inconsistent with the Company’s proposed draft Interconnection
18 Procedures, which do not provide for operation of the battery in such a mode.
19

20 **Q. Why would a customer want to charge a battery from an on-site DER and then export**
21 **that electricity to the grid?**

22 A. Although the Company does not yet have a program in place to value such export from an
23 energy storage system, a future program from the utility or from a Regional Transmission
24 Organization (“RTO”) such as MISO through the implementation of FERC Order 2222
25 may allow for the aggregation and valuation of export from such behind-the-meter

1 resources. For example, the ConnectedSolutions program in Massachusetts provides
2 compensation in exchange for customer battery dispatch (i.e., “pay for performance”) at
3 times of peak demand when required by the utility.⁵⁸ Customers are able, through this
4 program, to participate with third-party aggregators who respond to utility needs by
5 dispatching many batteries at the same time.

6
7 I also note that the Company at least tacitly acknowledges that there are benefits to the grid
8 from behind-the-meter energy storage. Specifically, in its recently filed proposed
9 Expedited Pilot Review Workplan, the Company states:

10 There is interest in understanding how BTM customer-owned residential
11 solar + storage or stand-alone storage systems providing grid services will
12 function in terms of grid and reliability management. Pilots could focus on
13 issues such as methods to interface and manage BTM DERs in conjunction
14 with the rest of the system or better understand the benefits that DERs may
15 provide.⁵⁹
16

17 While I am not suggesting that I agree that it is appropriate for the Company to conduct a
18 pilot to study a concept well understood by other utilities, adoption of an “Export Only
19 Mode” would be consistent with the Company’s subtle admission that exporting power
20 from behind-the-meter storage can provide value to the electric grid.

21

⁵⁸ *Ibid.*

⁵⁹ Application of DTE Electric Company, Case No. U-21653, Filing No. U-21653-0001, June 14, 2024, Attachment A, p. 5.

1 **Q. How are DTE’s proposed storage modes different from what is proposed by**
2 **Consumers Energy in its draft Interconnection Procedures?**

3 **A. Consumers Energy proposes three Acceptable Storage Device Modes in its draft**
4 **Interconnection Procedures as follows:**

- 5 1. Export Only Mode – The Energy Storage System (“ESS”) may export
6 active power to the utility during discharging but shall not import active
7 power from the utility for charging purposes.
8 2. Import Only Mode – The ESS may import active power from the utility
9 for charging purposes, but the ESS shall not discharge when on-site
10 generation is exporting active power to the utility.
11 3. No Exchange Mode – The ESS shall not exchange active power with the
12 utility for charging or discharging purposes.⁶⁰

13
14
15 There are several important differences between this proposal and that of DTE Electric.
16 First, Consumers Energy includes an option for “Export Only Mode.” In this configuration,
17 the energy storage system could export electricity to the grid but cannot charge from the
18 grid. In other words, this mode allows a battery to be charged from an on-site DER and
19 then export that electricity (which is generated on-site) to the grid.

20
21 Second, Consumers Energy clarifies that during “Import Only Mode,” the battery can be
22 charged from the grid, but when electricity is being exported to the grid from an on-site
23 DER (like a behind-the-meter solar system), the battery cannot also discharge power to the
24 grid. This allows customers to use batteries to manage their own loads while ensuring that
25 when excess onsite generation is available, the battery is not discharging electricity it
26 previously imported from the grid.

27

⁶⁰ Application of Consumers Energy Company, Case No. U-21480, Filing No. U-21480-0011, March 22, 2024.

1 **Q. What do you recommend regarding energy storage modes in this proceeding?**

2 A. I recommend that the Commission require the Company to add an explicit option for
3 “Export Only Mode” for energy storage systems to allow an energy storage system to
4 charge from an on-site DER and export that electricity to the grid.

5
6 **V. FAST TRACK**

7 **Q. What does the Company propose with respect to fast track eligibility?**

8 A. According to the Company’s draft Interconnection Procedures, “DTE will aggregate all
9 existing and proposed generation on a site in determining fast track eligibility.”⁶¹ The
10 Company also proposes adding a fast track screen (xi) as follows:

11 (xi) The total aggregate nameplate of generation at the site including the
12 proposed project shall not exceed 5 MWac on 13.2KV and 1MWac on
13 4.8KV⁶²
14

15 **Q. What are your concerns with this proposal?**

16 A. This proposal does not comport with the MIXDG rules (R 460.944), which indicate that

17 (1) Level 1, level 2, level 3, level 4 applications, and level 5 applications as
18 large as 5 MWac in which the DER is not proposing to interconnect with
19 the electric utility’s high voltage distribution system are eligible for the fast
20 track. . . .

21 . . .
22

23 (4) In determining fast track eligibility, an electric utility may aggregate all
24 proposed *new* generation on a site regardless of the existence of a shared
25 point of common coupling or multiple points of common coupling.⁶³
26 [emphasis added]
27

⁶¹ Mueller Direct, Exhibit A-1.

⁶² Mueller Direct, Exhibit A-3.

⁶³ Mich Admin Code, R 460.944, “Fast track eligibility.”

1
2 The MIXDG rules clearly allow a utility to aggregate any proposed new generation on a
3 site when considering whether an application is eligible for fast track screening, but not, as
4 proposed by the Company, all *existing* and new (proposed) generation on a site. This is
5 because existing generation will be included in the screening process as part of the baseline
6 conditions. In other words, there is no reason to aggregate existing capacity to determine
7 fast track eligibility because any existing capacity will set the baseline conditions against
8 which the new proposed generation will be screened. The only logical reason to make this
9 proposal is to ensure that most projects are not eligible for the fast track screening process,
10 which, to my mind, defeats the purpose of the new process.

11
12 **Q. Have you made these arguments previously?**

13 A. Yes. The Company similarly proposed to aggregate existing and proposed generation on a
14 site to determine fast track eligibility in its initial draft procedures filed on August 23,
15 2023.⁶⁴ On October 27, 2023, I submitted comments on behalf of Michigan EIBC which
16 argued against this proposal for the same reasons outlined above.⁶⁵

17
18 **Q. How did the Company respond to these concerns?**

19 A. In reply comments filed on November 13, 2023, the Company responded to these concerns
20 by stating that:

⁶⁴ Application of DTE Electric Company, Case No. U-21482, Filing No. U-21482-0001, August 23, 2023.

⁶⁵ Comments of the Michigan Energy Innovation Business Council, Case No. U-21482, Filing No. U-21482-0004, October 27, 2023.

1 the MEIBC-proposed change would allow projects to bypass criteria, study,
2 tariff, and program compliance by splitting the application into smaller
3 capacities. Under MEIBC's incorrect interpretation of the Interconnection
4 Rules, a project split into ten 100kW applications would never be studied
5 or have the requirements of a 1 MW project. Such an outcome would
6 prevent proper consideration of actual electrical system impacts by
7 qualified electrical engineers and should be rejected.⁶⁶
8

9 **Q. Does this response make sense?**

10 A. No. First, this response ignores my concerns (both at the time and currently) that *existing*
11 projects should not be aggregated with proposed new projects to determine fast track
12 eligibility. If a developer were to split up a 1 MW project into ten 100 kW applications,
13 those would all be *new* projects and, as such, the Company would be correct and within the
14 bounds of the MIXDG rules (R 460.944 as quoted above) to aggregate that new capacity
15 together to determine fast track eligibility. However, that was not Michigan EIBC's stated
16 concern at the time nor is it my concern now.

17
18 Second, although this is irrelevant to the broad application of this proposal, the scenario
19 that the Company presents would, in all likelihood, not occur. It would cost a developer
20 significant time and money to split up a project into ten smaller projects and file an
21 individual interconnection application for each project. I would be very surprised to learn
22 that a developer determined that this was a beneficial course of action.
23

⁶⁶ Reply Comments of DTE Electric Company, Case No. U-21482, Filing No. U-21482-0008, November 13, 2023.

1 **Q. What do you recommend with respect to fast track eligibility?**

2 A. I recommend that the Commission require the Company to determine fast track eligibility
3 by aggregating only new (proposed) projects on a given site, not existing projects.
4 Separately, and as discussed previously, such eligibility must be based on the export
5 capacity of the projects and not the nameplate capacity.

6

7 **Q. Do you have any other concerns with the Company’s proposed fast track screens?**

8 A. Yes. According to the MIXDG rules in R 460.946:

9 (1) An electric utility shall list in its interconnection procedures the initial
10 review screens specified in subrule (5) of this rule. An electric utility may
11 add additional details to each of these screens in the interconnection
12 procedures.

13 (2) An electric utility may include additional initial review screens in its
14 interconnection procedures. In its application requesting approval of
15 interconnection procedures, an electric utility shall provide a detailed
16 technical rationale for including each additional screen. If an additional
17 screen conflicts with or undermines any of the initial review screens
18 specified in subrule (5) of this rule, the rationale must include an
19 explanation of how it does so.⁶⁷

20

21 It is implied from this section of the MIXDG rules that while a utility is allowed to add
22 additional details to each of the required screens and may propose new screens, additional
23 scrutiny will be afforded by the Commission to these new proposed screens. I am not an
24 interconnection engineer and as such, I did not attempt to determine which of the
25 Company’s proposed revisions and new screens would undermine the required initial
26 review screens and, thereby, require an additional explanation, nor did I attempt to gauge
27 the technical merits of the Company’s explanations for each of its proposed changes.
28 However, I will note for the Commission that the Company proposes a large number of

⁶⁷ Mich Admin Code, R 460.946, “Fast track; initial review.”

1 changes to the initial screens, some of which are likely to be significant and material. Given
2 the Company's apparent interest in avoiding screening projects through the fast track
3 process, I would not be surprised if at least some of these changes undermined the initial
4 screens established through a long and deliberate process by the Commission in the
5 MIXDG rules. I strongly recommend that the Commission carefully review each of the
6 changes proposed by the Company to the initial fast track screens to ensure that these
7 proposed changes are reasonable and do not unduly undermine the initial review screens
8 contained in the MIXDG rules to the detriment of customers wishing to interconnect DERs.

9
10 **Q. Do you have any specific concerns with the proposed changes to the fast track**
11 **screens?**

12 A. Yes. I am concerned that in several places throughout the initial fast track screens, the
13 Company proposes to conduct additional tests in areas with "high penetration of DER."⁶⁸
14 Specifically, in areas with high penetrations of DERs, the Company proposes that smaller
15 projects (e.g., Level 1 and Level 2) will be subject to additional screens for which they
16 would not otherwise be tested (e.g., the Company's proposed screens (ii) and (iv)⁶⁹).

17
18 **Q. What does witness Mueller say about this issue?**

19 A. According to witness Mueller,

20 While the definition of high penetration is not precisely defined, there exists
21 a gap in the rules and screening regarding what happens when a utility
22 distribution system circuit hosting capacity is exceeded, and additional
23 projects wish to connect. This was not a situation contemplated by the

⁶⁸ Mueller Direct, Exhibit A-3, Appendix H.

⁶⁹ *Ibid.*

1 FERC SGIP-derived screening as the assumption of those screens is that the
2 load typically greatly exceeds the generation and that the DER contribution
3 to power flow is low. With the addition of export limiting there is now a
4 situation where the total generation could potentially exceed the load or
5 potentially reach the circuit rating in reverse power flow during specific
6 times. This situation exists on some circuits in Hawaii, and has caused both
7 hidden load issues, and inrush current issues for customers on these
8 circuits.⁷⁰
9

10 **Q. Do you believe these concerns are valid?**

11 A. I am unable to personally evaluate the validity of the technical aspects of witness Mueller's
12 claims. However, it is unreasonable to apply an additional screen to Level 1 projects, which
13 are <20 kW and very unlikely to cause any grid issues, based on a concept that is "not
14 precisely defined." If the Company believes this is truly a reasonable concern, the
15 Company must first clearly define "high DER penetration." Otherwise, Level 1 projects
16 will be subjected to needless screens that are justified only by vaguely described concerns,
17 which may ultimately result in costly supplemental screening or even studies, likely
18 thwarting the projects and ending the residential applicants' attempt to reduce energy bills
19 and support the grid.
20

21 In addition, it seems unreasonable to me to base this proposal on issues purportedly
22 experienced in Hawaii. In fact, in reply comments submitted by the Company regarding
23 initial comments made on its proposed draft Interconnection Procedures by stakeholders
24 including Michigan EIBC, the Company itself argued that it was unreasonable to "make
25 unsuitable analogies to locales like Hawaii and California."⁷¹ The population of Hawaii is

⁷⁰ Mueller Direct, pp. 36-37.

⁷¹ Reply Comments of DTE Electric Company, Case No. U-21482, Filing No. U-21482-0008, November 13, 2023.

1 approximately 1.44 million, whereas the population of Michigan is approximately 10
2 million.⁷² Despite this population difference, there are 395,900 homes powered by solar
3 energy in Hawaii, and 17.1% of the state’s energy is generated by solar. In Michigan there
4 are 153,054 homes powered by solar energy, and 0.9% of the state’s energy is generated
5 by solar.⁷³ It is clear that deployment of rooftop solar is far more advanced in Hawaii than
6 in Michigan. As such, it is likely that Michigan is a long way from experiencing any of the
7 issues that witness Mueller describes.

8
9 **Q. What do you recommend with respect to this issue?**

10 A. I recommend that the Commission disregard the inapt comparison to a state where DER
11 penetration is significantly higher and reject the Company’s proposal to additionally screen
12 Level 1 and Level 2 projects in cases of “high DER penetration.”

13
14 **VI. INTERCONNECTION QUEUE**

15 **Q. What do the MIXDG rules require with respect to a public interconnection list?**

16 A. The MIXDG rules, in R 460.638, require utilities to provide a publicly available
17 interconnection list, which upon request, is available in a sortable spreadsheet format. The
18 rules also provide that the list must be updated monthly, and the date of the most recent
19 update must be indicated. The public interconnection list must include:

20 (a) An application identifier.

⁷² United States Census Bureau, *State Population Totals and Components of Change: 2020-2023*, “Annual Estimates of the Resident Population for the United States, Regions, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2023,” available at <https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html>.

⁷³ Glover, E., *Forbes*, “The Best and Worst States for Solar Energy in 2024,” May 24, 2024, available at <https://www.forbes.com/home-improvement/solar/best-worst-states-solar/#:~:text=California%20has%20the%20most%20megawatts,percentages%20of%20solar%20power%20utilization.>

- (b) The date that the electric utility received the application.
- (c) The date that the electric utility considered the application to be complete and conforming.
- (d) Whether the application is on the non-export track, fast track, or study track.
- (e) The proposed DER nameplate rating.
- (f) The proposed DER interconnection size level.
- (g) The DER technology type.
- (h) The county and township in which the proposed point of common coupling will be located.
- (i) The current status of the application's progress in the interconnection process.
- (j) The labels, names, or identifiers of the distribution circuit and substation.⁷⁴

Q. Does the Company comply with these rules?

A. In part. The Company does provide a public interconnection list, which is accessible online.⁷⁵ However, there is no information on the Company's website or on the public interconnection list which indicates that a sortable spreadsheet will be provided upon request. In response to a discovery request in this case, the Company did provide such a searchable spreadsheet (Exhibit MEIU-4 (LSS-4)).

⁷⁴ Mich Admin Code, R 460.938, "Public interconnection list."

⁷⁵ DTE Electric Company, "DTE Interconnection queue list," available at <https://www.dteenergy.com/content/dam/dteenergy/deg/website/common/service-and-request/interconnection-process/InterconnectionQueue.pdf?MOD=AJPERES>.

1 In addition, according to the Company’s website, the interconnection list is not updated
2 monthly as required but rather, “DTE will update this file no less than once per quarter.”⁷⁶

3 There is no indication on the current interconnection list as to when it was last updated.⁷⁷
4

5 Finally, the information provided in the interconnection list itself is incomplete.
6 Specifically, the township for each proposed project is not included (as required in R
7 460.938 (2)(h)) and despite the presence of a column labeled “circuit,” with the exception
8 of one entry, there is no information provided regarding the distribution circuit and
9 substation (as required in R 460.938 (2)(j)).
10

11 **Q. What do you recommend with respect to the Company’s interconnection list?**

12 A. I recommend that the Commission require the Company to modify its public
13 interconnection list and processes to comply with R 460.368. Specifically, the Company
14 must:

- 15 • indicate online that a sortable spreadsheet will be provided upon request;
- 16 • update the interconnection list monthly;
- 17 • clearly indicate on the interconnection list when it was last updated;
- 18 • provide the township for each project in which the proposed point of common
19 coupling will be located; and

⁷⁶ DTE Electric Company, “Prepare for Your Project,” available at https://solutions.dteenergy.com/dte/en/Services/CleanVision-Service/Rooftop-Solar-and-Private-Generation/p/ROOFTOP_SOLAR?_gl=1*1lypefi*_ga*MTk2NzAzMjgwNy4xNjc2NjM5Mzgw*_ga_R7BSRLTL9D*MTY3NjY0MDU4Ni4wLjAuMTY3NjY0MDU4Ni4wLjAuMA..#interconnection.

⁷⁷ DTE Electric Company, “DTE Interconnection queue list,” available at <https://www.dteenergy.com/content/dam/dteenergy/deg/website/common/service-and-request/interconnection-process/InterconnectionQueue.pdf?MOD=AJPERES>.

- provide the labels, names, or identifiers of the distribution circuit and substation for each project.

VII. DIRECT TRANSFER TRIP

Q. What does the Company propose to require with respect to Direct Transfer Trip (“DTT”)?

A. According to witness Mueller,

DTT is required when it is determined during study of the interconnection that the DER is incapable of detecting an operating condition on the grid that should cause the DER to cease operation to prevent an island or an abnormal system operation, or the interaction of different types of generation that could support an island such as rotating generation and grid forming inverters. Consideration of DTT includes situations where there are multi-ended tie lines with bi-directional power flow.⁷⁸

However, this is contradicted by the Company’s proposed draft Interconnection Procedures. Instead of requiring DTT “when it is determined during study of the interconnection” that the DER cannot prevent islanding, the Company’s proposed draft Interconnection Procedures *automatically* require DTT if certain broad threshold conditions are met. Specifically, the Company’s proposed draft Interconnection Procedures state that:

For synchronous and induction type projects, DTE requires DTT when the total generation within a protective zone is greater than 33% of the minimum Utility load that could be isolated along with the generation. In cases where it can be shown that self-excitation of the induction generator cannot occur when isolated from the DTE system, DTE may waive the requirement.

⁷⁸ Mueller Direct, p. 52.

1 For inverter-type Projects, DTE requires DTT when the total generation
2 within a protective zone is greater than 50% of the minimum Utility load
3 that could be isolated along with the generation or when there is
4 synchronous generation that can interact with the inverter based system.
5 This prevents sustained isolated operation of the generation for conditions
6 where the inverter anti-islanding may not otherwise trip the Project. Inverter
7 based Projects shall be certified to comply with anti-islanding safety
8 standards in addition to any DTT requirements.⁷⁹
9

10 In other words, instead of conducting a study and then determining if DTT is required, the
11 Company proposes in its draft Interconnection Procedures to require DTT by default when
12 these threshold conditions are met.
13

14 **Q. Is there a value to requirements for DTT such as those outlined in the Company's**
15 **proposed Interconnection Procedures?**

16 A. It is my understanding that experience in early-mover DER markets has shown that in the
17 vast majority of cases, no. According to research conducted by the International Energy
18 Agency, in general the risk of islanding from solar photovoltaic systems is extremely low
19 in general.⁸⁰ Given this, the (large) incremental costs of implementing DTT does not
20 generally justify the benefits, apart from in particular, limited circumstances.
21

22 In addition, when islanding studies are actually conducted, it is clear that the type of
23 threshold test proposed by the Company would require DTT for far more projects than is
24 necessary or beneficial. According to a recent study by RLC Engineering (Exhibit MEIU-

⁷⁹ Mueller Direct, Exhibit A-1.

⁸⁰ International Energy Agency, "Risk analysis of islanding of photovoltaic power systems within low voltage distribution networks," Task V, Report IEA-PVPS T5-08, March 2002, available at https://iea-pvps.org/wp-content/uploads/2020/01/rep5_08.pdf.

1 5 (LSS-5)), a company with vast experience conducting power system studies, only a very
2 small percentage of projects that fail initial risk-of-islanding screening tests actually require
3 DTT.⁸¹ For example, less than 10% of projects that failed a risk-of-islanding screen
4 required DTT once a full Time Domain Study was conducted, and less than 7% of projects
5 that failed a risk-of-islanding screening also failed the full risk-of-islanding evaluation and,
6 therefore, required DTT.⁸² It is clear that simple screening tests which impose DTT
7 requirements for many projects will simply result in unnecessary implementation of DTT
8 for the vast majority of those projects.

9
10 **Q. How can DTT impact project costs and project viability for applicants?**

11 A. DTT equipment often represents a very significant cost driver and is often cost-prohibitive
12 for projects seeking to interconnect to a utility distribution system.⁸³ For example,
13 according to a number of stakeholders in a Virginia interconnection proceeding, the costs
14 to install fiber-optic cables can be more than \$250,000 per mile and the total costs for the
15 necessary DTT equipment average \$2 to \$3 million, but can be as high as \$7 million.⁸⁴ In
16 many cases, especially for smaller projects with tight cost margins, an unexpected
17 requirement for DTT can shift the economics of a project, making it no longer viable.

⁸¹ Exhibit MEIU-5 (LSS-5), also available at https://communitysolaraccess.org/wp-content/uploads/SIS-Elements-and-Best-Practices_8-29-2024.pdf.

⁸² *Ibid.*

⁸³ Commonwealth of Virginia, State Corporation Commission, Division of Public Utility Regulation, “Staff Report of Division of Public Utility Regulation,” Case No. PUR-2022-0073, *In the Matter Considering Utility Distributed Energy Resource Interconnection-Related Issues and Questions*, September 19, 2022, available at <https://scc.virginia.gov/docketsearch/DOCS/7nqp01!.PDF>.

⁸⁴ *Id.*, pp. 14–15.

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Q. Have other utilities addressed these issues without requiring DTT based on broad criteria?

A. Yes. For example, National Grid collected information on risk-of-islanding studies from proposed projects and determined in collaboration with inverter manufacturers that inverters which are UL 1741 certified do not need DTT.⁸⁵ Instead, if studies show a risk of islanding, National Grid now generally installs utility-owned point-of-common coupling reclosers. This alternative to DTT has saved significant time and money for applicants and the utility. Specifically, for the 90 projects that had originally been identified to require DTT, removal of this requirement has saved each project approximately \$350,000.⁸⁶

Q. Do you have any other examples of policy discussions around DTT?

A. In 2023, The U.S. Department of Energy’s (“DOE”) Solar Energy Technology Office and Wind Energy Technology Office chose a request from the Coalition for Community Solar Access (“CCSA”) for Technical Assistance as one of twelve projects in their Interconnection Innovation Exchange (“i2X”).⁸⁷ The i2X is an initiative in which DOE is partnering with research teams from the Pacific Northwest National Laboratory, Lawrence Berkeley National Laboratory, and the National Renewable Energy Laboratory to bring together partners to develop solutions for faster, simpler, and fairer interconnection of

⁸⁵ Amber, J., and Ahirrao, V., *T&D World*, “National Grid’s Blueprint for DG Interconnections,” January 25, 2018, available at <https://www.tdworld.com/grid-innovations/generation-and-renewables/article/20970750/national-grids-blueprint-for-dg-interconnections>.

⁸⁶ *Ibid.*

⁸⁷ U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, “i2X Technical Assistance,” available at <https://www.energy.gov/eere/i2x/i2x-technical-assistance>.

1 DERs while boosting the reliability, security, and resiliency of the electric grid.⁸⁸ I2X seeks
2 to realize these goals through a stakeholder engagement platform, better data and analysis,
3 roadmap development, and technical assistance.⁸⁹

4
5 CCSA’s ongoing DTT Technical Assistance project charges Sandia National Laboratories
6 to work with CCSA member organizations and utility partners to establish guidance on the
7 appropriate application for DTT to resolve islanding concerns.⁹⁰

8
9 **Q. What is your recommendation with respect to DTT?**

10 A. In my opinion, as it relates to DTT or any other costly system upgrade requirement, the
11 Company must do the necessary analysis of each project’s individual site-specific impact
12 on the distribution system to justify the imposition of a DTT requirement and not rely upon
13 rules of thumb or arbitrary, universally applied limits. As described above, DTT is often
14 not necessary to protect the distribution system and may unnecessarily limit the
15 interconnection of projects that would otherwise produce significant benefits.

16
17 As such, I recommend that the Commission reject the Company’s proposal to require DTT
18 when the total generation in the protective zone is greater than a minimum threshold and
19 instead require the Company, when a project meets a risk-of-islanding threshold (such as

⁸⁸ U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, “DOE Launches New Initiative to Improve Clean Energy Interconnection,” October 17, 2022, available at <https://www.energy.gov/eere/wind/articles/doe-launches-new-initiative-improve-clean-energy-interconnection>.

⁸⁹ *Ibid.*

⁹⁰ U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, “i2X Technical Assistance,” available at <https://www.energy.gov/eere/i2x/i2x-technical-assistance>.

1 that proposed by the Company with respect to its proposed DTT requirements), to study
2 each project to determine if DTT is necessary to resolve islanding concerns.

3
4 Moving forward, it would also be beneficial for the Company and the Commission more
5 broadly to consider more cost-effective alternatives to DTT to protect grid safety.
6

7 **VIII. COST ALLOCATION ISSUES**

8 **Q. What do the MIXDG rules state with respect to cost allocation?**

9 A. The MIXDG rules, in R 460.970 state that:

10 Costs for interconnection facilities, distribution upgrades, and associated
11 operation and maintenance costs must be classified into 1 of the following
12 categories:

13 (a) Site-specific costs, which include, but are not limited to, costs of
14 interconnection facilities and distribution upgrades that are caused by 1
15 DER, whether that DER is electrically co-incident with other DERs or not.
16 These costs must be assigned to the cost-causing applicant.

17 (b) Shared interconnection facilities costs, which are costs caused by DERs
18 which together necessitate the construction of interconnection facilities.
19 The interconnection facilities costs, including any associated operation and
20 maintenance costs, that should be shared must be allocated to each applicant
21 based on a methodology described in the electric utility's interconnection
22 procedures.

23 (c) Shared distribution upgrade costs, which are costs caused by electrically
24 co-incident DERs that together necessitate a distribution upgrade. The
25 distribution upgrade costs, including any associated operation and
26 maintenance costs, that should be shared must be allocated to each applicant
27 based on a methodology described in the electric utility's interconnection
28 procedures.⁹¹
29

⁹¹ Mich Admin Code, R 460.970, "Cost allocation of interconnection facilities, distribution upgrades, and associated operation and maintenance costs."

1 In essence, for costs that are not site-specific and are driven by shared interconnection and
2 distribution upgrades, the determination regarding a methodology to share those costs is
3 left to the utility interconnection procedures.

4
5 **Q. Given this, what does the Company propose with respect to cost allocation?**

6 A. The Company proposes in its draft Interconnection Procedures that applicants must
7 mutually agree to split costs and that

8
9 Shared interconnection facilities shall be split equally amongst Applicants
10 whose Projects necessitate the shared interconnection facilities. Once an
11 Applicant's Project interconnection facilities are in service, the upfront
12 original cost to install those interconnection facilities can no longer be
13 shared by future Applicants. Costs of ongoing ownership, maintenance, and
14 future repair/replacement can still be shared by future applicants that share
15 the interconnection facilities in accordance with interconnection
16 agreements.

17
18 Shared distribution upgrade costs shall be allocated according to the impact
19 of each applicant's generator on the limits exceeded for the shared
20 distribution facilities.⁹²
21

22 **Q. Do you have concerns with this proposal?**

23 A. Yes. I am concerned that the Company's proposal continues a cost allocation methodology
24 that is unfit for DG, fails to recognize the wider societal benefits of many of the system
25 upgrades, and does not adequately address economically prohibitive costs and uncertainty
26 for individual projects. Additionally, the proposal imposes upgrade costs on the highest
27 queued applicants without consideration of who benefits from the upgrades, leading to
28 fairness and efficiency concerns for these higher-queued applicants.
29

⁹² Mueller Direct, Exhibit A-1.

1 Unless the Company happens to be studying two projects using the same point of
2 interconnection at the same time, it is very unlikely that projects would have occasion to
3 share interconnection costs under the Company's proposal. Instead, it is more likely that
4 the project which is unfortunate enough to trigger a necessary distribution upgrade will
5 have to pay the full cost of the upgrade. This paradigm (called "Causer Pays" or "Cost
6 Causation") is the principle in which a project that triggers a distribution infrastructure
7 upgrade pays for it without consideration of who benefits from the upgrade.

8
9 **Q. Why doesn't the Cost Causation method work for DERs?**

10 A. The Cost Causation methodology fails in the context of DERs because substantially
11 identical projects can receive very different interconnection costs estimates based upon
12 nothing more than the luck of the draw as to the available capacity on a given substation.
13 This methodology was designed to support an old paradigm for the electric grid: one that
14 was not intended for modern DERs.

15
16 For more than a century, the electric system was constituted of large, centralized generation
17 which flowed power unidirectionally downstream to load. Substantial upgrades to the
18 system were infrequent, and when they were necessitated, it was to interconnect such large
19 generating assets. These new facilities typically had large budgets which were able to easily
20 absorb expensive distribution system upgrade costs, and, in almost every case, the
21 individual facility was the clear sole beneficiary of the upgrades to the grid. In such a
22 construct, it is perfectly reasonable to develop a policy of requiring the customer causing
23 the necessary upgrades (and benefitting from them) to pay.

1
2 DERs, however, experience significant challenges under this approach, and its application
3 to the still nascent DER industry across multiple jurisdictions has raised significant fairness
4 concerns and has interrupted the growth and sustained health of the industry as projects are
5 stalled due to high interconnection costs. For example, in Massachusetts, the Department
6 of Public Utilities (“DPU”) found that “the proliferation of solar facilities in Massachusetts
7 has necessitated more extensive and expensive EPS [Electric Power System] upgrades than
8 individual projects can finance, necessitating a departure from the Cost Causation Principle
9 to take advantage of the contributions that DG facilities can make in support of
10 Massachusetts’ energy and climate policies.”⁹³

11
12 **Q. Can you provide an example to demonstrate this issue?**

13 A. Yes. Consider a hypothetical substation which has 11 MW of open capacity in a state which
14 launches a new community solar program with a facility size cap of 5 MW. Five projects
15 apply for interconnection to that substation, and each are roughly equally far away from
16 the substation with similar complexity. Projects 1 and 2 receive interconnection service
17 agreements with costs of ~\$375,000 and elect to move forward. Project 3, which triggers
18 significant distribution system upgrades, receives an estimate of \$7.5 million. Based on the
19 assumption that Project 3 moves forward, Projects 4 and 5 receive cost estimates of
20 ~\$375,000. In all likelihood, Project 3 will drop out of the queue because its economics
21 simply cannot support an interconnection cost that is 20 times higher than those of its
22 competitors’ projects. When this happens, Project 4 will be reassessed and provided a new

⁹³ Commonwealth of Massachusetts, Department of Public Utilities, D.P.U. 22-52 to 22-55, June 4, 2024, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/19163616>.

1 cost estimate of \$7.5 million, and, subsequently, will likely drop out of the queue. It is
2 likely that this will be repeated with Project 5. While this example is hypothetical, scenarios
3 like this are playing out across the United States today as DER markets mature.
4

5 **Q. Please describe how this relates to the Company’s proposed cost allocation**
6 **methodology.**

7 A. The methodology outlined by the Company is a variation of the Cost Causation
8 methodology that does not constitute an effective cost sharing approach for several reasons.
9

10 First, the proposed approach unfairly and unnecessarily puts the cost burden of distribution
11 system upgrades on the “triggering project” rather than on the collective set of projects that
12 would utilize the capacity enabled by the upgrade. In short, this creates a “free rider”
13 problem. Specifically, according to the Company’s proposed draft Interconnection
14 Procedures,

15
16 Once an Applicant’s Project interconnection facilities are in service, the
17 upfront original cost to install those interconnection facilities can no longer
18 be shared by future Applicants.⁹⁴
19

20 In essence, this process would slow and penalize first-movers precisely when we must
21 *accelerate* the pace of our energy transition to address climate change and meet state goals
22 such as the new renewable portfolio standard established by PA 235 of 2023.⁹⁵
23

⁹⁴ Mueller Direct, Exhibit A-1.

⁹⁵ See MCL 460.1028.

1 Second, the proposed approach does not adequately address variability of cost estimates
2 and project timelines because it depends on coincident interconnection applications for cost
3 sharing to be enabled. Specifically, according to the Company's proposed draft
4 Interconnection Procedures,

5
6 The decision to share costs must be made and mutually agreed to in writing
7 during the overlapping study or decision period.⁹⁶
8

9 This approach would slow DER deployment because it requires that multiple
10 interconnection applications be studied simultaneously, which may not always be possible.
11 If a project is the only interconnection applicant at a substation, and if the upgrade costs
12 are too high for the project to move forward, then the developer would be stuck in a waiting
13 pattern until other projects mature enough to submit their own interconnection applications.
14 This waiting pattern would unnecessarily delay clean energy deployment, harming both
15 developers and ratepayers.
16

17 Finally, there is unnecessary uncertainty built into the Company's proposed draft
18 Interconnection Procedures, which state that

19
20 Distribution upgrade costs and allocations of costs are subject to change due
21 to the potential for an Applicant to withdraw up until an Applicant's Project
22 is in service and costs are reconciled per the interconnection agreements.⁹⁷
23

24 This proposal creates significant uncertainty and demonstrates the shortcomings of the
25 proposed approach, especially given that there are other, more viable cost allocation

⁹⁶ Mueller Direct, Exhibit A-1.

⁹⁷ *Ibid.*

1 methodologies that allocate costs consistently and not based on the participation of other
2 projects over which the interconnection applicant has no control.

3
4 **Q. Are there best practices with regard to cost allocation that have been used in other**
5 **states?**

6 A. Yes. Several states have experimented with reforms to alleviate this issue, including but
7 not limited to Massachusetts,⁹⁸ Maryland,⁹⁹ California,¹⁰⁰ and New York.¹⁰¹

8
9 One example of cost sharing reform is called “Cost Share 2.0.” Under Cost Share 2.0,
10 interconnection costs are allocated to projects on a pro-rata basis, with each customer
11 paying a \$ per kW amount determined when the interconnecting customer applies for
12 interconnection. Any costs from the additional, incremental headroom that is not paid for
13 by the pro-rata payments are deferred until other projects request capacity in the same area
14 of the grid and subsequently pay their pro-rata share of the capacity created by those
15 upgrades.

16

⁹⁸ Commonwealth of Massachusetts, Department of Public Utilities, D.P.U. 22-52 to 22-55, June 4, 2024, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/19163616>.

⁹⁹ Staff of the Maryland Public Service Commission, “Petition for Rulemaking-Amendment to the Small Generator Facility Interconnection Regulations COMAR 20.50.02 and 20.50.09 and PC 44 Interconnection Workgroup Phase IV Final Report,” PC44, available at <https://webpsc.psc.state.md.us/DMS/rm/rm77>.

¹⁰⁰ California Public Utilities Commission, “Electric Rule 21: Generating Facility Interconnections,” available at <https://www.cpuc.ca.gov/Rule21/>.

¹⁰¹ New York State Department of Public Service, Matter Master: 20-02279/20-E-0543, “Petition of Interconnection Policy Working Group Seeking a Cost-Sharing Amendment to the New York State Standardized Interconnection Requirements,” available at <https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=63854&MNO=20-E-0543>.

1 This proposal is better suited for DER interconnection than the Cost Causation
2 methodology because it more appropriately assesses interconnection costs on both the
3 construction and *use* of the infrastructure. This mitigates some issues with the Cost
4 Causation method, including high interconnection infrastructure costs for single projects,
5 the “free rider” problem, cost uncertainty, and deployment delays. This approach allows
6 interconnection applicants to pay their share of the costs as soon as a necessary upgrade is
7 identified, and the cost estimates given are typically more economically feasible because
8 they are shared more widely and more consistently.

9
10 **Q. Is Cost Share 2.0 being used in other states?**

11 A. Yes. One jurisdiction exploring this approach is New York. In a 2021 Order,¹⁰² the New
12 York Department of Public Service instituted a pro-rata cost allocation approach for
13 market-initiated distribution system upgrades. The Order detailed several parameters for
14 its use, including the type of upgrade, whether the upgrade is initiated by developers or by
15 utilities, as well as threshold limits for the number of interconnection applicants that must
16 be in the queue before the upgrade takes place. The Order also determined that the approach
17 to cost-sharing should protect “ratepayers from bearing the unrecovered costs of system
18 upgrades that are never fully subscribed.”¹⁰³

19

¹⁰² New York State Department of Public Service, Case 20-E-0543, “Petition of Interconnection Policy Working Group Seeking a Cost-Sharing Amendment to the New York State Standardized Interconnection Requirements,” available at <https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=63854&MNO=20-E-0543>.

¹⁰³ *Ibid.*

1 Another example of a jurisdiction where Cost Share 2.0 is being considered is in Maryland.
2 In 2021, the Maryland Public Service Commission’s Public Conference 44 Interconnection
3 Working Group issued its revised Phase III Final Report, in which it proposed replacing
4 the traditional cost causation-based method with a Maryland Cost Allocation Model
5 (“MCAM”).¹⁰⁴ Under MCAM, a “first mover” DER project that triggers the need for a
6 distribution system upgrade pays its proportional share of the hosting capacity benefits that
7 accrue from the upgrade but not the entire hosting capacity upgrade cost. Subsequent DER
8 interconnections to a first-moving project that use the hosting capacity from the triggered
9 upgrade would then also pay for their proportional share of the benefits. The Working
10 Group found that this approach captured the best elements of various state models for cost
11 allocation, and that it mitigated several of the issues associated with the Cost Causation
12 approach. Specifically, MCAM is a fairer approach that allocates system upgrade costs to
13 those who benefit from them, as well as reduces the negative effects of speculative small
14 generation projects that apply to the queue in advance of a “triggering project” in order to
15 hold a queue position that does not trigger an upgrade.¹⁰⁵

16
17 **Q. Do you have concerns with this Cost Share 2.0 model?**

18 **A.** Yes. In high-penetration DER markets, Cost Share 2.0 can face similar challenges to
19 previous cost allocation methodologies because in those markets, distribution
20 infrastructure upgrades can trigger even larger transmission system upgrades. These costs

¹⁰⁴ Maryland Public Service Commission, “Small Generator Facility Interconnection: PC44 Interconnection Workgroup Phase III Final Report,” April 2021, available at <https://www.psc.state.md.us/electricity/wp-content/uploads/sites/2/Workgroup-Report.pdf>.

¹⁰⁵ *Id.*, pp. 14–15.

1 are especially difficult for small, DER projects to absorb, even when split among several
2 projects.

3
4 Additionally, the scope of Cost Share 2.0 is limited to near-term distribution system
5 constraints and does not, by default, incorporate long-term, distribution system forecasting
6 or proactive investment plans. Cost allocation that enables *proactive* investments can better
7 align distribution system investments where they are most grid-beneficial, reduce the
8 timelines for deployment of DERs (since it enables utilities to pre-build their distribution
9 system capacity and gives developers more insight into where DERs are needed), and
10 ensure that the state's investments into the distribution system align with state renewable
11 energy and distributed generation targets. That said, Cost Share 2.0 is an improvement on
12 the current cost allocation proposal from the Company and would provide near-term relief
13 for projects as the Commission considers investigating alternatives.

14
15 **Q. Are there cost allocation models that improve upon Cost Share 2.0?**

16 A. Yes. While Cost Share 2.0 has been tested in several state jurisdictions, it is not the only
17 approach to cost allocation. Another approach, which has been called Multi-Beneficiary
18 Cost Sharing ("MBCS"), takes a broader approach to cost allocation that includes
19 allocating costs to beneficiaries outside of the interconnection applicants. MBCS is
20 different from previous cost allocation methodologies in that it proactively allocates
21 interconnection upgrade costs for distribution system upgrades to all beneficiaries of the
22 additional capacity. The idea is that the deployment of DERs has a wide set of benefits that
23 are not only enjoyed by the project developers themselves, including additional capacity

1 on the distribution grid, reliability and resiliency benefits, greenhouse gas reduction
2 benefits, and avoided transmission infrastructure costs. MCBS is a method by which states
3 can make grid-beneficial, proactive investments that align with long-term distribution
4 system planning, and do so where those investments are shown to have the greatest impact.

5
6 Under this methodology, distribution system forecasting is first conducted to determine
7 where new distributed generation and load growth are expected to occur. Then, through a
8 reoccurring regulatory proceeding (typically rate cases, IRPs, or distribution system
9 planning proceedings), proactive investments are made where the grid is expected to be
10 most constrained. A portion of the costs of upgrading the grid to support DERs would be
11 assigned to interconnecting customers, and the remaining costs would be assigned to
12 various ratepayer classes based upon the quantifiable distribution system benefits those
13 ratepayers receive.

14
15 A recent study was conducted in Virginia to quantify these benefits.¹⁰⁶ The study evaluated
16 a variety of system and ratepayer benefits that would accrue from expanding Virginia
17 utilities' shared solar program (which involves distributed generation assets). The study
18 concluded that if just 2,000 MW of shared solar were installed, utilities would accrue over
19 \$64 million in net benefits from 2024 to 2026 and \$2.4 billion from 2024 to 2050. The
20 study also defined and quantified several benefits associated with shared solar, including
21 but not limited to avoided energy costs, avoided generation capacity costs, avoided

¹⁰⁶ Dunskey Energy and Climate Advisors, "Value of Shared Solar in Virginia," November 2023, available at https://www.dunskey.com/wp-content/uploads/Value-of-Shared-Solar-Report_Dunskey_CCSA.pdf.

1 ancillary costs, avoided line losses, avoided risk premiums, wholesale market price
2 suppression, avoided transmission charges, and avoided transmission capacity costs.

3
4 **Q. Has the MBCS methodology been used in other jurisdictions?**

5 A. The best example of a jurisdiction adjudicating this approach is in Massachusetts.
6 Massachusetts has adjudicated the merits of the MBCS in its review and approval of
7 Capital Investment Plans (“CIPs”) proposed by the state’s utilities. In its June 2024 Order
8 approving the CIPs, the Massachusetts DPU found that the utilities presented sufficient
9 evidence to show that cost allocation between both interconnecting applicants and base
10 distribution ratepayers was justified based on the benefits each party would receive. In
11 doing so, the DPU determined that the CIPs provided

12 sufficient analysis of the benefits to justify the proposed Fully Socialized
13 Costs associated with the enabled substation and distribution line capacity
14 that it reserves for operational use by the distribution customers.¹⁰⁷
15
16

17 To further this point, the DPU also found that

18
19 customers will realize a real, tangible electrification benefit from the D.P.U.
20 22-52 to 22-55 NSTAR CIP Proposals that has the potential to delay, defer,
21 or reduce the extent of further system upgrades, before 2050, avoiding
22 additional costs to ratepayers.¹⁰⁸
23

24 While the scope of this ruling was limited to the geographic regions identified in the CIPs,
25 Massachusetts is currently conducting its Electric Sector Modernization Planning
26 (“ESMP”) proceedings, which includes long-term distribution system forecasting that

¹⁰⁷ Commonwealth of Massachusetts, Department of Public Utilities, D.P.U. 22-52 to 22-55, June 4, 2024, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/19163616>.

¹⁰⁸ *Ibid.*

1 would enable statewide MBCS. While the Massachusetts DPU has yet to rule on a long-
2 term cost allocation approach outside of the limited set of proposed CIPs, the Department’s
3 recently released ESMP Orders directed utilities to initiate an accelerated stakeholder
4 process to discuss a variety of cost allocation methodologies, which will likely include
5 MBSC proposals.¹⁰⁹
6

7 **Q. What recommendations do you have with respect to cost allocation?**

8 A. It is clear that there needs to be an effective, proactive, long-term cost allocation approach
9 for Michigan. Given that the Company’s proposed method of cost allocation is essentially
10 a Cost Causation model, which will not be effective over the long-term, I recommend that
11 the Commission reject the Company’s proposal. Instead, the Commission should require
12 the Company to adopt a cost allocation methodology that aligns with Cost Share 2.0
13 wherein interconnection costs are allocated to projects on a pro-rata basis. In the future, I
14 recommend that the Commission consider cost allocation issues with stakeholder input to
15 determine models that may be even more effective over the long-term such as MBCS.
16

17 **IX. INDEMNIFICATION**

18 **Q. What does the Company propose with respect to indemnification?**

19 A. In its draft Interconnection Procedures, the Company proposes for Level 4 and 5 projects
20 that the developer must hold the Company harmless for any “claim, loss, damage, cost,

¹⁰⁹ Commonwealth of Massachusetts, Department of Public Utilities, D.P.U 24-10 to 24-12, August 29, 2024, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/19554888>.

1 charge, expense, lien, settlement or judgment.”¹¹⁰ Similarly, for Level 1, 2, and 3 projects,
2 the Company proposed in comments to the Commission regarding the development of a
3 standard interconnection agreement for those projects (Case No. U-21543), that rather than
4 mutual indemnification on the part of both parties, “it is more appropriate for the
5 interconnection customer to indemnify and hold harmless the utility.”¹¹¹

6
7 According to witness Mueller,

8 In the interconnection context, the Company’s position is that DTE Electric
9 should not be subject to any incremental additional liability (and associated
10 costs) related to an individual customer’s decision to install electric
11 generation on the customer’s site and interconnect to the Company’s
12 electric system.¹¹²
13

14 **Q. Do you agree?**

15 A. No. Interconnection agreements involve mutual benefits for both parties involved. These
16 agreements allow interconnection customers to connect their facilities to the grid, as they
17 are legally entitled to do under PURPA, enabling them to sell excess electricity and
18 contribute to grid stability. In return, utilities benefit from increased capacity and diversity
19 of energy sources. Similarly, customers in the DG program are provided, by statute, with
20 an outflow credit that reflects cost of service as determined by the Commission.¹¹³
21 Currently, this outflow credit for most of Michigan’s investor-owned utilities, including
22 DTE Electric, is equal to the power supply component of a customer’s rate inclusive of

¹¹⁰ Mueller Direct, Exhibit A-2, p. 14.

¹¹¹ See July 23, 2024 Order of the Michigan Public Service Commission, Case No. U-21543, Filing No. U-21543-0009, p. 7.

¹¹² Mueller Direct, p. 5.

¹¹³ Section 173 of 2023 PA 235.

1 transmission. In addition, as noted above, previous studies such as that of Virginia’s shared
2 solar program,¹¹⁴ have quantified the benefits to the distribution system and ratepayers
3 from distributed energy resources and found these benefits to be significant. It is clear,
4 therefore, that electricity sent back to the grid from DERs has a value to the grid, the utility,
5 and to other customers. As such, both parties have a vested interest in ensuring the
6 successful operation of the interconnected system. Mutual indemnification helps allocate
7 risks fairly between the parties, reflecting the shared responsibility for the operation and
8 maintenance of the interconnected infrastructure. It also incentivizes both parties to the
9 interconnection to take steps to minimize the risk of damages stemming from their own or
10 their associates’ negligence or willful misconduct. Without mutual indemnification, one
11 party is released from any formal consequences for its negligence and so may be less likely
12 to exercise reasonable care.

13
14 Requiring only the interconnection customer to indemnify the utility creates an unequal
15 distribution of risk and liability. Such a disparity is unconscionable. Interconnection
16 agreements should strive for fairness and balance in allocating risks between the parties.
17 Adopting a one-sided indemnification provision unfairly burdens the interconnection
18 customer with the sole responsibility for any potential issues or damages that may arise,
19 without adequately considering the utility’s role and potential contribution to the problem.
20

¹¹⁴ Dunskey Energy and Climate Advisors, “Value of Shared Solar in Virginia,” November 2023, available at https://www.dunskey.com/wp-content/uploads/Value-of-Shared-Solar-Report_Dunskey_CCSA.pdf.

1 **Q. Does the Company offer any other justifications for its proposed one-sided indemnity**
2 **provisions?**

3 A. Yes. The Company presents a laundry list of risks it believes DERs pose, including that:

- 4 • many DERs will be owned and operated by customers without any special training
- 5 or experience related to electric generation
- 6 • there will be various forms of ownership of the generator such as individuals,
- 7 limited liability companies (LLCs), corporations (some with solid financial
- 8 circumstances; some without solid financial circumstances), insured parties,
- 9 uninsured parties, and under-insured parties
- 10 • DTE Electric . . . cannot track changes that may be made by the customer to the
- 11 system after it is commissioned, nor can it control issues with the customer's
- 12 generator like faulty equipment or operation and maintenance problems
- 13 • The developer and customer have the full responsibility for properly installing the
- 14 generation equipment and operating the site within the parameters established in
- 15 the interconnection agreement. Operating outside such circumstances may cause
- 16 poor performance and/or harm to the generation system, cause damage to the
- 17 generation site (e.g., customer home or business), affect service to other DTE
- 18 Electric customers, damage DTE Electric equipment, and potentially cause injury
- 19 or loss of life¹¹⁵

20
21 **Q. Do any of these purported concerns support the Company's request for one-sided**
22 **indemnification provisions?**

23 A. No. These concerns may justify obligations for interconnection customers to indemnify the
24 Company for damages and losses caused by events within the interconnection customer's
25 control, but they have no bearing on the Company's claims that it should be indemnified
26 even for its own negligence or the negligence of its agents.

27

¹¹⁵ Mueller Direct, p. 6.

1 **Q. Do indemnification provisions protect the Company against the counterparty not**
2 **fulfilling its obligations under the contract?**

3 A. Similar to Mr. Mueller, I am not a lawyer and do not offer a legal opinion, but my general
4 understanding is that “robust contractual provisions”¹¹⁶ do not protect against the risks
5 identified by Mr. Mueller stemming from alleged abuses of the corporate form or a lack of
6 insurance. All that “robust contractual provisions” might do is give the Company a right to
7 sue the counterparty—they would not allow the Company to pierce the corporate veil or
8 ensure that it could collect on a judgment. Mr. Mueller’s professed concerns about
9 counterparty risk are likewise no basis for unreasonable one-sided indemnification
10 provisions.

11
12 **Q. What did the Commission determine with respect to indemnification for Level 1, 2,**
13 **and 3 projects?**

14 A. In its Order issued on July 23, 2024, in Case No. U-21543, the Commission did not adopt
15 the Company’s proposed changes to the indemnification provisions, finding that
16 the proposed interconnection agreement as currently drafted appropriately
17 assigns liability and indemnification responsibilities between the parties to
18 the agreement and is consistent with the liability and indemnity provisions
19 of the previous Level 1 and 2 interconnection agreement.¹¹⁷
20

¹¹⁶ Mueller Direct, p. 7.

¹¹⁷ July 23, 2024 Order of the Michigan Public Service Commission, Case No. U-21543, Filing No. U-21543-0009, p. 14.

1 **Q. What do you recommend with respect to indemnification?**

2 A. I recommend that the Commission reject the Company’s proposal to require Level 4 and 5
3 projects to accept sole liability and instead require the Company to include mutual
4 indemnification provisions in its Generator Interconnection and Operating Agreement.

5
6 **X. CONCLUSIONS AND RECOMMENDATIONS**

7 **Q. Please summarize your conclusions and recommendations to the Commission.**

8 A. I recommend that the Commission:

- 9 • Find that the Company’s proposal for limited export in this case does not qualify as an
10 “alternative” within the meaning of R 460.980 subrule (3) and thus that the Company’s
11 procedures should default to the requirements of R 460.980 subrule (4);
- 12 • Require the Company to allow an applicant to use an acceptable methodology to limit
13 export capacity to any degree desired by the applicant and require the Company to
14 study the DER at that export capacity;
- 15 • Require the Company to remove the “recommendation” for Level 1 and 2 projects and
16 “strong recommendation” for Level 3 projects to install generation meters;
- 17 • Require the Company to strike the implicit warning of potential ineligibility for future
18 FERC Order 2222 programs if a generation meter is not installed;
- 19 • Require the Company to add an option for “Export Only Mode” for energy storage
20 systems to allow an energy storage system to charge from an on-site DER and export
21 that electricity to the grid;

- 1 • Require the Company to determine fast track eligibility by aggregating only new
2 (proposed) projects on a given site, not existing projects; and base fast track eligibility
3 on the export capacity of the projects and not the nameplate capacity;
- 4 • Reject the Company’s proposal to additionally screen Level 1 and Level 2 projects in
5 cases of “high DER penetration;”
- 6 • Require the Company to modify its public interconnection list and processes to comply
7 with R 460.368 including by:
 - 8 ▪ indicating online that a sortable spreadsheet will be provided upon request;
 - 9 ▪ updating the interconnection list monthly;
 - 10 ▪ clearly indicating on the interconnection list when it was last updated;
 - 11 ▪ providing the township for each project in which the proposed point of
12 common coupling will be located; and
 - 13 ▪ providing the labels, names, or identifiers of the distribution circuit and
14 substation for each project;
- 15 • Reject the Company’s proposal to require DTT when the total generation in the
16 protective zone is greater than a minimum threshold and instead require the Company
17 to study projects which pose a risk-of-islanding to determine if DTT is necessary;
- 18 • Require the Company to consider more cost-effective alternatives to DTT;
- 19 • Reject the Company’s proposed cost allocation methodology and require the Company
20 to adopt a cost allocation methodology that aligns with Cost Share 2.0 wherein
21 interconnection costs are allocated to projects on a pro-rata basis;
- 22 • Consider cost allocation issues with stakeholder input to determine future models that
23 may be more effective such as MBCS; and

- Reject the Company's proposal to require Level 4 and 5 projects to accept sole liability and instead require the Company to include mutual indemnification provisions in its Generator Interconnection and Operating Agreement.

Q. Does that complete your testimony?

A. Yes.

STATE OF MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Application of DTE	)	
ELECTRIC COMPANY for approval of	)	
Interconnection Procedures and Waivers from	)	Case No. U-21482
Interconnection and Distributed Generation	)	
Standards R 460.901a et. seq.	)	

EXHIBITS OF DR. LAURA S. SHERMAN

ON BEHALF OF

THE MICHIGAN ENERGY INNOVATION BUSINESS COUNCIL,

INSTITUTE FOR ENERGY INNOVATION,

AND

ADVANCED ENERGY UNITED

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Application of DTE) ELECTRIC COMPANY for approval of) Interconnection Procedures and Waivers from) Interconnection and Distributed Generation) Standards R 460.901a et. seq.) _____)	Case No. U-21482
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Direct Exhibit List of MEIU

Witness	Exhibit #	Exhibit Description
Dr. Laura S. Sherman	MEIU-1 (LSS-1)	Résumé of Dr. Laura S. Sherman
Dr. Laura S. Sherman	MEIU-2 (LSS-2)	Discovery response MEIUDE-1.7a
Dr. Laura S. Sherman	MEIU-3 (LSS-3)	Discovery response MEIUDE-1.16a
Dr. Laura S. Sherman	MEIU-4 (LSS-4)	Discovery response attachment U-21482 MEIUDE-1.1b-01 InterconnectionQueue 06- 05-2024
Dr. Laura S. Sherman	MEIU-5 (LSS-5)	RLC Engineering Report, “System Impact Study (SIS) Elements and Best Practices,” August 28, 2024

LAURA S. SHERMAN, Ph.D.

cell: 607.592.3026

laura@mieibc.org

PROFESSIONAL EXPERIENCE:

- | | | |
|--|---------------------------------------|---|
| April 2019 – present | Michigan EIBC/IEI, Lansing, MI | President |
| <ul style="list-style-type: none">• Organize and lead a staff of five employees, contractors, and student interns.• Work with and inform each organization's Board of key decisions, upcoming events, long-term strategy, etc.• Fundraise and coordinate both organization's annual budgets.• Represent Michigan EIBC in the media, at the legislature, with regulators, and with the state administration in collaboration with a broad coalition.• Conduct event planning including for annual conferences, networking events, tours, and legislative networking opportunities.• Develop regulatory and legislative policy positions to support advanced energy businesses.• Engage with the Michigan Public Service Commission and Michigan legislature on behalf of member companies. | | |
| Oct. 2017-March 2019 | Michigan EIBC/IEI, Lansing, MI | VP for Policy Development |
| <ul style="list-style-type: none">• Develop regulatory and legislative policy positions to support advanced energy businesses.• Coordinate regulatory interventions and engagement in regulatory stakeholder processes among member companies.• Engage with the Michigan Public Service Commission and Michigan legislature on behalf of member companies.• Support policy initiatives focused on wind energy, solar energy, electric vehicles, storage, taxation, and corporate purchasing of renewable energy.• Represent Michigan EIBC in the media, at the legislature, with regulators, and with the state administration in collaboration with a broad coalition.• Conduct event planning including for annual conferences, networking events, tours, and legislative networking opportunities. | | |
| Feb. 2017-March 2019 | 5 Lakes Energy, Lansing, MI | Senior Consultant |
| <ul style="list-style-type: none">• Research, analysis, communication, and advocacy surrounding complex energy issues.• Lead wind and solar siting project to address opposition to deployment in coordination with philanthropy, industry, and stakeholders across nine Midwest states.• Focus areas include renewable energy development, community engagement, stakeholder coordination, business sustainability, and electric vehicles.• Support newsletter, website, and social media communications. | | |
| April 2015-Dec. 2016 | U.S. Senate, Washington, DC | Legislative Assistant/Policy Advisor |
| <ul style="list-style-type: none">• Policy advisor to Senator Michael Bennet (D-CO) on agriculture, energy, environment, land, and natural resource issues.• Legislative topics included: farming and ranching, public land conservation and management, water policy, energy development, renewable energy including energy tax incentives and transmission permitting, energy efficiency, endangered species, climate change, sportsmen's issues, environmental pollution and regulations, air quality, and biofuels. | | |

- Drafting legislation; building coalitions; negotiating policy solutions; writing speeches; staffing the Senator at hearings of the Agriculture and Finance Committees.

2014-2015 **U.S. Senate**, Washington, DC **AAAS Congressional Science Fellow**

- Competitively selected AAAS Fellow sponsored by the American Geophysical Union. Served in the Office of Senator Michael Bennet (D-CO).
- Drafting legislation; helping to facilitate political coalitions; meeting with constituents; interacting with federal agencies; delivering policy briefings and recommendations.

2012-2014 **University of Michigan**, Ann Arbor, MI **Postdoctoral Research Fellow**

- Successfully obtained competitive grant funding for novel method to track air pollution from power plants and metal smelters into rainfall across the Great Lakes region.
- In collaboration with epidemiologists, developed and utilized new methods to assess the sources and pathways of human exposure to mercury pollution.
- Published five manuscripts; presented talks and organized scientific sessions at national and international conferences.

2007-2012 **University of Michigan**, Ann Arbor, MI **Graduate Researcher**

- Competed for and received National Defense Science and Engineering Graduate Fellowship and Graham Environmental Sustainability Institute Doctoral Fellowship.
- Developed groundbreaking methods to “fingerprint” mercury pollution from coal-fired power plants and trace it into rainfall, lake sediments, and fish.
- Published eight manuscripts, was interviewed for “The Environment Report” on NPR and general-circulation science magazines, presented research at national and international conferences.
- Ph.D. dissertation received university-wide ProQuest Distinguished Dissertation Award and departmental John Dorr Graduate Academic Achievement Award.

2005-2007 **Massachusetts Institute of Technology**, Boston, MA **Research Scientist**

- Found evidence for early life on Earth in ancient rocks. Published two manuscripts.

SERVICE & LEADERSHIP:

2021-present **Board Member** of Zero Emission Transportation Association Education Fund Board
2020-present **Board Member** of University of Michigan Earth and Environmental Sciences Alumni Board
2019-2020 **Board Member** of Advancing Women in Energy
2017-2019 **Communications Chair** for Advancing Women in Energy
2013-2014 **Supported** the Ann Arbor Energy Commission on community solar projects
2009-2014 **Peer reviewer** of more than 20 scientific manuscripts
2009 **Initiator and organizer** of new departmental seminar series, University of Michigan
2008-2010 **President** of department student organization (GeoClub), University of Michigan
2008 **Lead organizer** of Michigan Geophysical Union Poster Conference
2007-2008 **Department Steward** to Graduate Employees Union, University of Michigan

EDUCATION:

Ph.D. 2012 Earth and Environmental Sciences, **University of Michigan** (GPA: 8.837 out of 9.0)

B.S. 2005 Geological and Environmental Science, Stanford University (GPA: 4.007 out of 4.33)

MPSC Case No: U-21482

Requester: MEIU

Question No.: MEIUDE-1.7a

Respondent: R. Mueller

Page: 1 of 1

Question: According to witness Mueller, p. 10, Q. 22, failure of a power limiting or export control system may damage a shared transformer.

a. Please provide a list of all instances that DTE has observed in its territory when the failure of a power limiting or export control system led to damage to a shared transformer.

Answer: DTE Electric has not yet encountered this issue in practice as the Company has not approved any project that would use a Power Control System (PCS) system as a way to prevent an overload of the system. This condition was identified as a risk when the Company considered the ramifications of having load or generation in excess of ratings with a PCS artificially limiting the customer demand.

Attachment: *None*

MPSC Case No: U-21482

Requester: MEIU

Question No.: MEIUDE-1.16a

Respondent: R. Mueller

Page: 1 of 1

Question: According to witness Mueller, p. 66, Q. 110, a system with a battery on Rider 18 can export to the grid as long as the system maintains settings to prove it is only exporting solar energy. However, according to the Distributed Generation Tariff (Rider 18) and Legacy Net Metering (Rider 16) supplemental interconnection Procedures (Exhibit A-1), battery storage in the DG program must “Be configured to prohibit the ability to provide energy to the grid” and “Operate in an acceptable storage mode,” which means it only imports energy or it does not exchange energy with the grid.

a. Please detail specifically how it is possible, under the Company’s proposed Interconnection Procedures, for a battery on Rider 18 to export power to the grid (from solar energy only) and be in compliance with the Procedures as contained in Exhibit A-1.

Answer: Please see page 66 of my pre-filed direct testimony. The implementation details would be constrained by the site-specific configuration, the capability of the inverters, batteries and Power Control Systems and settings proposed in the application.

Attachment: *None.*

Project Number	Application: Complete Status Timestamp	Application: Received Pending Fee Status Timestamp	Track	Total Generator Nameplate AC Rating (kW)	Generation Level	Generator Type	County	Current Status	Circuit
DE-00503			Non-Export Track	21	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-00921			Non-Export Track	3.3	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-01257			Fast Track	10	Category 1 (< 20 kW)	Solar PV	Ottawa	Application: On-Hold	
DE-01505			Non-Export Track	4.2	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-01568			Non-Export Track	3	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-01626			Non-Export Track	20	Category 1 (< 20 kW)	Solar PV		Site Visit: Complete	
DE-01676			Fast Track	420	Category 3 (150 - 550 kW)	Solar PV		Application: On-Hold	
DE-01754	5/2/2024	5/2/2024	Fast Track	8.6	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-01895			Non-Export Track	8.73	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-01953			Fast Track	60	Category 2 (20 - 150 kW)	Solar PV		Site Visit: Complete	
DE-02047			Non-Export Track	15.4	Category 1 (< 20 kW)	Solar PV		Site Visit: Complete	
DE-02063			Non-Export Track	39.9	Category 2 (20 - 150 kW)	Solar PV		Site Visit: Complete	
DE-02078	5/2/2024	5/2/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-02082			Non-Export Track	144	Category 2 (20 - 150 kW)	Solar PV		Site Visit: Complete	
DE-02579	5/2/2024	5/2/2024	Fast Track	7.4	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-02826			Study Track	3	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-04103	1/31/2019	1/18/2019	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV		Awaiting Signature: Manual POA	
DE-04622	4/26/2019	4/19/2019	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Pending Utility Parallel Operating Authorization	
DE-04867	6/13/2019	5/1/2019	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature	
DE-05373	10/29/2019	10/23/2019	Fast Track	20	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-05676	2/18/2020	12/6/2019	Non-Export Track	23550	Category 5 (>2 MW)	Solar PV		Application: On-Hold	
DE-05737	6/22/2020	1/4/2020	Fast Track	7	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Manual Customer Signature	
DE-05919		3/19/2020	Fast Track	6	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-06183		5/9/2024	Fast Track	5.12	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee	
DE-06596			Study Track	7000	Category 5 (>2 MW)	Other		Construction (Pending Agreement)	TRK 5145
DE-06603			Non-Export Track	150000	Category 5 (>2 MW)	Solar PV		System Impact Study: In-Progress	
DE-06604			Non-Export Track	20000	Category 5 (>2 MW)	Solar PV		System Impact Study: In-Progress	
DE-06605			Non-Export Track	200000	Category 5 (>2 MW)	Wind		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06606			Non-Export Track	1209000	Category 5 (>2 MW)	Other		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06607			Non-Export Track	189000	Category 5 (>2 MW)	Solar PV		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06608			Non-Export Track	50000	Category 5 (>2 MW)	Solar PV		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06609			Non-Export Track	58000	Category 5 (>2 MW)	Solar PV		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06610			Non-Export Track	79970	Category 5 (>2 MW)	Solar PV		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06611			Non-Export Track	235000	Category 5 (>2 MW)	Other		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06612			Non-Export Track	10400	Category 5 (>2 MW)	Other		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06613			Non-Export Track	255000	Category 5 (>2 MW)	Wind		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06614			Non-Export Track	225000	Category 5 (>2 MW)	Wind		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06615			Non-Export Track	200000	Category 5 (>2 MW)	Wind		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06616			Non-Export Track	100000	Category 5 (>2 MW)	Wind		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06617			Non-Export Track	80000	Category 5 (>2 MW)	Other		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06618			Non-Export Track	30000	Category 5 (>2 MW)	Battery		System Impact Study: Complete - Waiting for Applicant Decision	
DE-06692		9/23/2020	Study Track	4000	Category 5 (>2 MW)	Other		Construction: In-Progress	
DE-06741	11/3/2020	10/1/2020	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation	
DE-06812	11/19/2020	10/13/2020	Non-Export Track	18	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation	
DE-07272		1/28/2021	Non-Export Track	9.9	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee	
DE-07383	4/14/2021	3/1/2021	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature	
DE-07458		3/19/2021	Fast Track	1234	Category 2 (20 - 150 kW)	Solar PV		Application: Received Pending Fee	
DE-07789	8/23/2021	5/27/2021	Fast Track	15.2	Category 1 (< 20 kW)	Solar PV		Site Visit: Failed	
DE-07904	3/25/2024	6/12/2021	Fast Track	30	Category 2 (20 - 150 kW)	Solar PV		Construction: Customer Documentation Received	
DE-07939	6/28/2021	6/18/2021	Non-Export Track	144	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation	
DE-07961	6/28/2021	6/23/2021	Non-Export Track	4	Category 2 (20 - 150 kW)	Wind		Awaiting Documentation	
DE-08031	7/1/2021	7/1/2021	Non-Export Track	5.1	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation	
DE-08033		7/2/2021	Non-Export Track	1	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee	
DE-08213		7/30/2021	Non-Export Track	12.6	Category 2 (20 - 150 kW)	Solar PV		Application: Received Pending Fee	
DE-08267	8/24/2021	8/7/2021	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation	
DE-08383	10/12/2021	8/24/2021	Fast Track	6	Category 1 (< 20 kW)	Solar PV		Construction: Documentation On-Hold	
DE-08651		9/28/2021	Fast Track	11.3	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee	
DE-08737		10/8/2021	Study Track	72500	Category 5 (>2 MW)	Solar PV		System Impact Study: In-Progress	
DE-08835	11/8/2021	10/22/2021	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature	
DE-08871	11/4/2021	10/28/2021	Fast Track	3.773	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation	
DE-08990	12/8/2021	11/18/2021	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Construction: Documentation On-Hold	
DE-09136		12/20/2021	Study Track	2040	Category 5 (>2 MW)	Solar PV		Application: Received Pending Fee	
DE-09162	1/4/2022	12/23/2021	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-09169	8/8/2022	12/24/2021	Fast Track	1.2	Category 1 (< 20 kW)	Solar PV		Application: On-Hold	
DE-09237	1/25/2022	1/12/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Construction: Documentation On-Hold	
DE-09277		6/28/2022	Non-Export Track	2400	Category 5 (>2 MW)	Other		Application: Received Pending Fee	
DE-09519		3/8/2022	Non-Export Track	5000	Category 5 (>2 MW)	Solar PV		Application: On-Hold	
DE-09520		3/8/2022	Non-Export Track	5000	Category 5 (>2 MW)	Solar PV		Application: On-Hold	
DE-09644	4/18/2022	3/24/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Manual Customer Signature	
DE-09656	5/3/2022	3/25/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature	

DE-09688	3/27/2023	3/31/2022	Fast Track	250	Category 3 (150 - 550 kW)	Solar PV		Waiting on MPSC for PPA Approval
DE-09773	4/26/2022	4/11/2022	Non-Export Track	3	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-09804	9/29/2023	4/18/2022	Fast Track	30	Category 2 (20 - 150 kW)	Solar PV		Construction: Customer Documentation Received
DE-09824	12/27/2023	4/21/2022	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-09897	5/23/2022	5/5/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature
DE-09931	1/19/2023	5/12/2022	Fast Track	7.8	Category 1 (< 20 kW)	Solar PV		Construction: Documentation On-Hold
DE-09939	6/22/2022	5/13/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Construction: Documentation On-Hold
DE-10023	9/16/2022	6/2/2022	Fast Track	87.1	Category 2 (20 - 150 kW)	Solar PV	Wayne	Application: On-Hold
DE-10059	5/9/2024	6/9/2022	Fast Track	15	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-10109		12/15/2023	Study Track	500	Category 4 (550 kW - 2 MW)	Solar PV		System Impact Study: In-Progress
DE-10118	7/19/2022	6/21/2022	Fast Track	30.1	Category 2 (20 - 150 kW)	Solar PV		Application: On-Hold
DE-10142		6/28/2022	Fast Track	0.2	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee
DE-10198	5/11/2023	7/6/2022	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-10326	7/3/2023	7/28/2022	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV		Interconnection Agreement: Pending Electronic Customer Signature
DE-10548	10/21/2022	9/1/2022	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-10581	11/3/2022	9/8/2022	Fast Track	14.9	Category 1 (< 20 kW)	Solar PV . Storage	St. Clair	Site Visit: On-Hold
DE-10620	2/16/2023	9/14/2022	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-10741	1/4/2023	10/9/2022	Non-Export Track	15.2	Category 1 (< 20 kW)	Solar PV	St. Clair	Application: On-Hold
DE-10742	5/23/2023	10/10/2022	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-10744	1/13/2023	10/10/2022	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-10761		10/11/2022	Non-Export Track	2.9	Category 1 (< 20 kW)	Solar PV		Application: Received Pending Fee
DE-10797	5/12/2023	10/17/2022	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	St. Clair	Construction: Documentation On-Hold
DE-10830	10/31/2022	10/19/2022	Fast Track	6.758	Category 1 (< 20 kW)	Solar PV	Oakland	Pending Utility Parallel Operating Authorization
DE-10836		10/19/2022	Study Track	27600	Category 5 (>2 MW)	Battery		System Impact Study Review Meeting: Complete -Waiting for Applicant Decision
DE-10876		10/27/2022	Non-Export Track	1000	Category 4 (550 kW - 2 MW)	Other		Application: Review for Completion
DE-10878		10/27/2022	Non-Export Track	1000	Category 4 (550 kW - 2 MW)	Other		Application: On-Hold
DE-10879		10/27/2022	Non-Export Track	1000	Category 4 (550 kW - 2 MW)	Other		Application: On-Hold
DE-10948	11/10/2022	11/8/2022	Fast Track	1.5	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-10954	1/20/2023	11/9/2022	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-10959	1/5/2023	11/10/2022	Fast Track	9.8	Category 1 (< 20 kW)	Solar PV . Storage	Wayne	Construction: Documentation On-Hold
DE-11016	12/6/2022	11/28/2022	Fast Track	5.9	Category 1 (< 20 kW)	Solar PV . Storage	Oakland	Construction: Customer Documentation Received
DE-11031		12/2/2022	Non-Export Track	4998	Category 5 (>2 MW)	Solar PV		Application: On-Hold
DE-11032		12/2/2022	Non-Export Track	4998	Category 5 (>2 MW)	Solar PV		Application: On-Hold
DE-11033		12/2/2022	Non-Export Track	4998	Category 5 (>2 MW)	Solar PV		Application: On-Hold
DE-11038	3/25/2024	12/6/2022	Fast Track	18	Category 1 (< 20 kW)	Solar PV		Site Visit: Failed
DE-11041		1/12/2023	Study Track	4000	Category 5 (>2 MW)	Solar PV	Lapeer	Application: On-Hold
DE-11042		1/12/2023	Study Track	3125	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-11043		1/12/2023	Study Track	4375	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-11062	1/9/2023	12/12/2022	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11083	1/18/2023	12/13/2022	Fast Track	4.8	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-11085	1/12/2023	12/13/2022	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Pending Utility Parallel Operating Authorization
DE-11097	12/21/2022	12/14/2022	Fast Track	6.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11109		12/16/2022	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV . Storage		Application: On-Hold
DE-11110	4/28/2023	12/16/2022	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Construction: Customer Documentation Received
DE-11111	5/10/2023	12/16/2022	Fast Track	6	Category 1 (< 20 kW)	Solar PV . Storage		Construction: Customer Documentation Received
DE-11116	3/19/2024	12/18/2022	Fast Track	14	Category 2 (20 - 150 kW)	Solar PV . Storage	Oakland	Fast Track: Initial Review Screens
DE-11122	1/11/2023	12/20/2022	Fast Track	2.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11133	2/6/2023	12/27/2022	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-11143	6/13/2023	12/29/2022	Fast Track	10.7	Category 1 (< 20 kW)	Solar PV . Storage	Macomb	Construction: Documentation On-Hold
DE-11144	1/6/2023		Fast Track	4.7	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-11145		1/3/2023	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Application: On-Hold
DE-11163	1/13/2023	1/9/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV . Storage	Oakland	Awaiting Documentation
DE-11164	1/19/2023	1/10/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11169	1/25/2023	1/12/2023	Fast Track	7.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11173		1/13/2023	Fast Track	6.6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-11176	6/23/2023	1/14/2023	Fast Track	25	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-11177	10/9/2023	1/14/2023	Fast Track	60	Category 2 (20 - 150 kW)	Solar PV		Construction: Documentation On-Hold
DE-11178	6/23/2023	1/14/2023	Fast Track	60	Category 2 (20 - 150 kW)	Solar PV		Construction: Documentation On-Hold
DE-11179	3/12/2024	1/16/2023	Fast Track	480	Category 3 (150 - 550 kW)	Solar PV		Fast Track: Initial Review Screens
DE-11180		1/16/2023	Fast Track	480	Category 3 (150 - 550 kW)	Solar PV . Storage		Application: On-Hold
DE-11181		1/16/2023	Fast Track	360	Category 3 (150 - 550 kW)	Solar PV	Storage	Application: On-Hold
DE-11182		1/16/2023	Fast Track	1000	Category 4 (550 kW - 2 MW)	Solar PV		Application: On-Hold
DE-11209	4/3/2023	1/20/2023	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-11210	1/27/2023	1/20/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11211	1/26/2023	1/20/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11216	2/24/2023	1/24/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11219	1/30/2023	1/24/2023	Fast Track	6.3	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11243		2/1/2023	Fast Track	744	Category 4 (550 kW - 2 MW)	Solar PV	Clare	Application: On-Hold
DE-11245	2/15/2023	2/2/2023	Fast Track	3.3	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11250	3/23/2023	2/3/2023	Fast Track	4.7	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-11251	3/24/2023	2/3/2023	Fast Track	3	Category 1 (< 20 kW)	Solar PV . Storage	Wayne	Construction: Documentation On-Hold
DE-11252	2/17/2023	2/6/2023	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11270	2/13/2023	2/8/2023	Fast Track	3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11271	2/13/2023	2/8/2023	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation

DE-11272	2/15/2023	2/8/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11276	2/15/2023	2/9/2023	Fast Track	2.4	Category 1 (< 20 kW)	Solar PV	Oceana	Awaiting Documentation
DE-11278	2/27/2023	2/10/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11279	8/11/2023	2/10/2023	Fast Track	133.2	Category 2 (20 - 150 kW)	Solar PV	Lapeer	Construction: Documentation On-Hold
DE-11290		2/14/2023	Study Track	5100	Category 5 (>2 MW)	Solar PV	Sanilac	Application: On-Hold
DE-11295	3/27/2023	2/15/2023	Fast Track	3.1	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-11313	4/17/2023	2/21/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-11324	8/9/2023	4/20/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV + Storage	Livingston	Construction: Documentation On-Hold
DE-11326	3/1/2023	2/28/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11343	3/24/2023	3/6/2023	Fast Track	15.4	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-11347		5/26/2023	Fast Track	27.1	Category 2 (20 - 150 kW)	Solar PV	Oakland	Application: On-Hold
DE-11354	3/23/2023	3/7/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11355	8/11/2023	3/7/2023	Fast Track	99.9	Category 2 (20 - 150 kW)	Solar PV	Lapeer	Construction: Documentation On-Hold
DE-11366	5/1/2023	3/10/2023	Fast Track	5.4	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11387		3/15/2023	Non-Export Track	1550	Category 4 (550 kW - 2 MW)	Dyno	Washtenaw	Application: Review for Completion
DE-11390	3/16/2023	3/15/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-11413	3/24/2023	3/20/2023	Fast Track	8.5	Category 1 (< 20 kW)	Solar PV	Monroe	Awaiting Documentation
DE-11427	5/5/2023	3/23/2023	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-11440		3/27/2023	Fast Track	219.5	Category 1 (< 20 kW)	Solar PV		Application: On-Hold
DE-11444	4/10/2023	3/28/2023	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11445	4/10/2023	3/28/2023	Fast Track	7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11448	9/25/2023	3/29/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11454		3/30/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-11456	4/11/2023	3/30/2023	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11458	4/11/2023	3/30/2023	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11463		3/30/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Macomb	Application: On-Hold
DE-11469	4/6/2023	4/3/2023	Fast Track	33.3	Category 2 (20 - 150 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-11471	4/6/2023	4/4/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11475		4/4/2023	Non-Export Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-11479	4/19/2023	4/4/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11484	4/13/2023	4/5/2023	Fast Track	7	Category 1 (< 20 kW)	Solar PV	Tuscola	Awaiting Documentation
DE-11489	4/18/2023	4/6/2023	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11512	4/28/2023	4/11/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11513	5/18/2023	4/11/2023	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11518		4/11/2023	Study Track	9500	Category 5 (>2 MW)	Solar PV	Lenawee	Application: On-Hold
DE-11523	4/17/2023	4/12/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11530	5/5/2023	4/14/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11549	4/20/2023	4/19/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-11554		4/21/2023	Fast Track	141.3	Category 3 (150 - 550 kW)	Solar PV + Storage	Wayne	Application: On-Hold
DE-11557	5/1/2023	4/21/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-11560		4/21/2023	Study Track	18000	Category 5 (>2 MW)	Solar PV	Sanilac	Application: On-Hold
DE-11561	5/10/2023	4/21/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11562		4/24/2023	Fast Track	13.3	Category 1 (< 20 kW)	Solar PV + Storage	Macomb	Application: On-Hold
DE-11572	6/12/2023	4/26/2023	Fast Track	3	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-11585	5/3/2023	4/29/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Oakland	Pending Utility Parallel Operating Authorization
DE-11589		4/29/2023	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-11607	5/10/2023	5/3/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Site Visit: Failed
DE-11608	5/11/2023	5/3/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11613	6/14/2023	5/4/2023	Fast Track	62.5	Category 2 (20 - 150 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-11615	5/15/2023	5/4/2023	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11618	5/8/2023	5/4/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-11620	9/15/2023	5/5/2023	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-11621		5/5/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-11624	12/8/2023	5/5/2023	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-11632	5/22/2023	5/8/2023	Fast Track	3	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-11636		5/8/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Tuscola	Application: On-Hold
DE-11638		5/8/2023	Fast Track	10	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-11640		5/9/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-11652	5/15/2023	5/11/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11655	5/25/2023	5/12/2023	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-11660	5/23/2023	5/15/2023	Fast Track	3	Category 1 (< 20 kW)	Solar PV	Lapeer	Awaiting Documentation
DE-11661	10/5/2023	5/15/2023	Fast Track	3.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11662	5/31/2023	5/15/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11666		5/15/2023	Fast Track	0.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-11679	7/21/2023	5/16/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11690		1/11/2024	Fast Track	3.3	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-11694	6/2/2023	5/17/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Huron	Awaiting Documentation
DE-11707	5/26/2023	5/19/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Oceana	Awaiting Documentation
DE-11710	9/18/2023	5/19/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Macomb	Site Visit: Failed
DE-11712	5/23/2023	5/22/2023	Fast Track	15.6	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-11719	7/19/2023	5/23/2023	Fast Track	10	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-11725		5/23/2023	Fast Track	25	Category 2 (20 - 150 kW)	Solar PV	Oakland	Application: Review for Completion
DE-11735		5/24/2023	Non-Export Track	4.9	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Application: On-Hold
DE-11739	6/16/2023	5/25/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation

DE-11741		5/25/2023	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-11752	1/26/2024	5/26/2023	Non-Export Track	4897	Category 5 (>2 MW)	Dyno	Wayne	Non-Export Track: Initial Review Screens
DE-11755		5/27/2023	Non-Export Track	9.6	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Oakland	Application: On-Hold
DE-11773	6/14/2023	5/31/2023	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11779	1/9/2024	6/1/2023	Fast Track	12.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-11782	7/12/2023	6/1/2023	Fast Track	3.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11792		6/2/2023	Fast Track	14.5	Category 1 (< 20 kW)	Solar PV	Lapeer	Application: Received Pending Fee
DE-11795	8/22/2023	6/2/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11800	2/28/2024	6/5/2023	Fast Track	14.962	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11818	8/18/2023	6/6/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-11823	7/21/2023	6/7/2023	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-11841	8/17/2023	6/12/2023	Fast Track	5.4	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-11855		6/13/2023	Non-Export Track	2.96	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-11862	6/20/2023	6/13/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11868	7/5/2023	6/14/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11869	6/16/2023	6/14/2023	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-11878	3/18/2024	11/14/2023	Non-Export Track	60	Category 2 (20 - 150 kW)	Bidirectional Electric Vehicle Charger	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-11879		6/15/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Received Pending Fee
DE-11893	2/22/2024	6/19/2023	Fast Track	10	Category 1 (< 20 kW)	Solar PV	St. Clair	Construction: Documentation On-Hold
DE-11896		6/19/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Macomb	Application: On-Hold
DE-11898	6/27/2023	6/20/2023	Fast Track	4.5	Category 1 (< 20 kW)	Solar PV	Lapeer	Site Visit: Pending
DE-11899		6/20/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-11909		6/21/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Washtenaw	Application: Review for Completion
DE-11915	1/11/2024	6/22/2023	Non-Export Track	500	Category 3 (150 - 550 kW)	Solar PV	Wayne	Application: On-Hold
DE-11929		6/23/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Washtenaw	Application: Review for Completion
DE-11930	10/10/2023	6/23/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-11938		6/26/2023	Non-Export Track	350	Category 3 (150 - 550 kW)	Solar PV	Wayne	Application: On-Hold
DE-11939	10/18/2023	6/26/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-11945	7/7/2023	6/27/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11951	7/14/2023	6/27/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11958	8/29/2023	6/28/2023	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11963	8/1/2023	6/29/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-11964		6/29/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: Review for Completion
DE-11969	7/12/2023	6/30/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Tuscola	Awaiting Documentation
DE-11972	7/21/2023	6/30/2023	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-11980	7/10/2023	7/5/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-11986	10/3/2023	7/5/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12001	7/11/2023	7/7/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12012	7/17/2023	7/11/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12015	7/19/2023	7/12/2023	Fast Track	4.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12016		7/12/2023	Fast Track	7.2	Category 1 (< 20 kW)	Solar PV	Tuscola	Application: On-Hold
DE-12019	11/30/2023	7/12/2023	Fast Track	15.2	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Documentation On-Hold
DE-12024	7/24/2023		Fast Track	15.4	Category 1 (< 20 kW)	Solar PV	Oakland	Site Visit: Failed
DE-12025	8/18/2023	7/13/2023	Fast Track	120	Category 2 (20 - 150 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12027	8/15/2023	7/14/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12061		7/19/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-12068		7/20/2023	Study Track	5100	Category 5 (>2 MW)	Solar PV	Macomb	Application: On-Hold
DE-12069		7/20/2023	Study Track	5100	Category 5 (>2 MW)	Solar PV	Macomb	Application: On-Hold
DE-12070		7/20/2023	Fast Track	4.48	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-12071	10/12/2023	7/21/2023	Fast Track	13.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12073	8/14/2023	7/21/2023	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12075	10/17/2023	7/21/2023	Fast Track	5.4	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12076		7/24/2023	Fast Track	5.12	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-12085	8/30/2023	7/25/2023	Fast Track	34.2	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-12091	10/12/2023	7/25/2023	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-12097		7/26/2023	Fast Track	2000	Category 4 (550 kW - 2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12098		7/26/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Monroe	Application: Review for Completion
DE-12100		7/26/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-12101	8/24/2023	7/26/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12102	9/5/2023	7/27/2023	Fast Track	5.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12103		7/27/2023	Fast Track	6.66	Category 1 (< 20 kW)	Solar PV	Ingham	Application: On-Hold
DE-12107	8/8/2023	7/27/2023	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12108	7/31/2023	7/27/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12116	6/3/2024	7/29/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Livingston	Interconnection Agreement: Pending Electronic Customer Signature
DE-12131		8/2/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-12132	9/27/2023	8/24/2023	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12133	8/7/2023	8/2/2023	Fast Track	11.2	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Site Visit: Failed
DE-12136	10/10/2023	8/3/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12138	8/17/2023	8/3/2023	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Jackson	Awaiting Documentation
DE-12144	8/23/2023	8/4/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12151		8/8/2023	Non-Export Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12152		8/8/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12156		8/8/2023	Fast Track	9.3	Category 1 (< 20 kW)	Solar PV	Lenawee	Application: Received Pending Fee
DE-12157	8/15/2023	8/8/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation

DE-12161	10/2/2023	8/9/2023	Fast Track	14.8	Category 1 (< 20 kW)	Solar PV		Pending Utility Parallel Operating Authorization
DE-12162	8/15/2023	8/9/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12167		8/10/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Sanilac	Application: On-Hold
DE-12168		8/11/2023	Study Track	4957.5	Category 5 (>2 MW)	Solar PV	Macomb	Application: On-Hold
DE-12169		8/11/2023	Study Track	4957.5	Category 5 (>2 MW)	Solar PV	Wayne	Application: On-Hold
DE-12170		8/11/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12172		8/11/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Huron	Application: On-Hold
DE-12179	8/22/2023	8/14/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Monroe	Awaiting Documentation
DE-12180	8/21/2023	8/14/2023	Fast Track	7.3	Category 1 (< 20 kW)	Solar PV + Storage	Macomb	Awaiting Documentation
DE-12181		8/14/2023	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Received Pending Fee
DE-12185		8/14/2023	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-12187	11/27/2023	8/14/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-12189	8/17/2023	8/16/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12193		8/16/2023	Non-Export Track	5000	Category 5 (>2 MW)	Solar PV	Monroe	Application: On-Hold
DE-12194		8/16/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Sanilac	Application: On-Hold
DE-12201	9/13/2023	8/17/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12207	9/7/2023	8/18/2023	Fast Track	9.8	Category 1 (< 20 kW)	Solar PV + Storage	St. Clair	Site Visit: Pending
DE-12214	9/6/2023	8/21/2023	Fast Track	11.2	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12215		8/21/2023	Study Track	2550	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-12217	9/15/2023	8/21/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12219		8/21/2023	Study Track	2550	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-12221	4/8/2024	4/5/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12226	4/25/2024	8/22/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Documentation On-Hold
DE-12227		8/22/2023	Non-Export Track	2000	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Macomb	Application: On-Hold
DE-12244		8/25/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12246		8/25/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-12252	9/18/2023	8/25/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12255		8/28/2023	Non-Export Track	2200	Category 5 (>2 MW)	Other	St. Clair	Application: Review for Completion
DE-12260	9/14/2023	8/28/2023	Study Track	4.9	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-12284	9/12/2023	8/30/2023	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12285	11/16/2023	8/31/2023	Fast Track	408	Category 3 (150 - 550 kW)	Solar PV		Awaiting Documentation
DE-12290		8/31/2023	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-12298		9/5/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-12302	9/19/2023	9/5/2023	Fast Track	7	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12303	9/18/2023	9/5/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12306	10/2/2023	9/5/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12312	9/21/2023	9/6/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12313	9/21/2023	9/6/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12321	10/25/2023	9/8/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-12325	9/18/2023	9/8/2023	Fast Track	7	Category 1 (< 20 kW)	Solar PV	Eaton	Interconnection Agreement: Pending Electronic Customer Signature
DE-12331	10/3/2023	9/11/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Site Visit: Failed
DE-12337		9/12/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: On-Hold
DE-12340	9/20/2023	9/12/2023	Fast Track	5.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12351	9/26/2023	9/13/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12360	9/26/2023	9/14/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12361	10/3/2023	9/14/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12378		9/19/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Eaton	Application: Received Pending Fee
DE-12382	10/3/2023	9/19/2023	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Eaton	Awaiting Documentation
DE-12399		9/22/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Kent	Application: On-Hold
DE-12409		9/26/2023	Non-Export Track	20	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Wayne	Application: Review for Completion
DE-12434	11/6/2023	10/3/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12443		10/3/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Eaton	Application: Received Pending Fee
DE-12449	3/14/2024	10/4/2023	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Monroe	Interconnection Agreement: Pending Electronic Customer Signature
DE-12454	10/18/2023	10/5/2023	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12463	11/9/2023	10/6/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12465	10/18/2023	10/7/2023	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12466		10/7/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Ottawa	Application: On-Hold
DE-12478	3/28/2024	10/11/2023	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-12498	10/31/2023	10/16/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12500		10/16/2023	Non-Export Track	420	Category 5 (>2 MW)	Solar PV + Storage	Wayne	Application: On-Hold
DE-12510		10/17/2023	Fast Track	5	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: On-Hold
DE-12517	10/19/2023	10/18/2023	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12520		10/19/2023	Fast Track	6.7	Category 1 (< 20 kW)	Solar PV	Eaton	Application: Received Pending Fee
DE-12522	10/20/2023	10/19/2023	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12523	11/21/2023	10/19/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Ionia	Site Visit: Failed
DE-12534	11/2/2023	10/23/2023	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12537	10/31/2023	10/24/2023	Fast Track	2.7	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12545	11/2/2023		Non-Export Track	5.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-12558	11/8/2023	10/27/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12564	12/1/2023	11/1/2023	Fast Track	17.7	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-12567	11/3/2023	10/30/2023	Fast Track	20	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12570		10/30/2023	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-12578	11/6/2023	11/2/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12591		11/6/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold

DE-12592		11/6/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12593		11/6/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12594		11/6/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12596		11/7/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12597		11/7/2023	Study Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12611	11/20/2023	11/9/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12614		11/9/2023	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-12617	11/29/2023	11/10/2023	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12626	12/14/2023	11/12/2023	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12634		11/14/2023	Fast Track	2400	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-12635	3/6/2024	1/22/2024	Fast Track	26.9	Category 2 (20 - 150 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-12638	11/28/2023	11/14/2023	Fast Track	6.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12652	11/22/2023	11/17/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12654		11/17/2023	Non-Export Track	1000	Category 3 (150 - 550 kW)	Other	Wayne	Application: Review for Completion
DE-12656	12/6/2023	11/17/2023	Fast Track	5.5	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Manual Customer Signature
DE-12673	2/20/2024	11/22/2023	Fast Track	20	Category 1 (< 20 kW)	Solar PV	Huron	Site Visit: On-Hold
DE-12675	12/12/2023	11/22/2023	Fast Track	6.5	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12676	11/27/2023	11/22/2023	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12677	11/27/2023	11/22/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-12683	11/30/2023	11/27/2023	Fast Track	76.5	Category 2 (20 - 150 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12684	11/28/2023	11/27/2023	Fast Track	48.5	Category 2 (20 - 150 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12687	12/6/2023	11/27/2023	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12688	5/2/2024	11/27/2023	Fast Track	32.9	Category 2 (20 - 150 kW)	Solar PV	Lapeer	Awaiting Documentation
DE-12691	11/29/2023	11/28/2023	Fast Track	39.9	Category 2 (20 - 150 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12692	12/7/2023	11/28/2023	Fast Track	6.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12693	1/17/2024	11/28/2023	Fast Track	30	Category 2 (20 - 150 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12700	12/21/2023	11/29/2023	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Lapeer	Awaiting Documentation
DE-12701	1/22/2024	11/29/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Huron	Awaiting Documentation
DE-12702		11/29/2023	Fast Track	4.3	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-12709	12/8/2023	11/30/2023	Fast Track	10.4	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-12719	12/6/2023	12/1/2023	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Documentation On-Hold
DE-12729	3/4/2024	12/15/2023	Study Track	8000	Category 5 (>2 MW)	Biomass	Oakland	System Impact Study: In-Progress
DE-12730	4/2/2024	12/5/2023	Fast Track	117.9	Category 2 (20 - 150 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12732	12/15/2023	12/5/2023	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12737	12/8/2023	12/6/2023	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Site Visit: Pending
DE-12744	12/20/2023	12/7/2023	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Documentation On-Hold
DE-12745	12/12/2023	12/8/2023	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12746	1/19/2024	12/8/2023	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12748	1/5/2024	12/12/2023	Fast Track	5	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-12756	12/18/2023	12/13/2023	Study Track	4.1	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-12758		12/15/2023	Study Track	4930	Category 5 (>2 MW)	Solar PV	Washtenaw	Application: On-Hold
DE-12759	12/28/2023	12/18/2023	Fast Track	5.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12762	1/5/2024	12/19/2023	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12763	1/5/2024	12/19/2023	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Macomb	Site Visit: Failed
DE-12765	1/5/2024	12/19/2023	Fast Track	7.2	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12770		12/20/2023	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-12774	1/11/2024	12/20/2023	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12779	1/5/2024	12/22/2023	Fast Track	5.9	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-12782	1/19/2024	12/22/2023	Fast Track	5.4	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12785	1/3/2024	12/26/2023	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12787	3/5/2024	12/27/2023	Study Track	300	Category 3 (150 - 550 kW)	Solar PV	Oakland	System Impact Study: In-Progress
DE-12812	2/5/2024	1/9/2024	Fast Track	13.9	Category 1 (< 20 kW)	Solar PV	Oakland	Site Visit: Pending
DE-12813	1/10/2024	1/9/2024	Fast Track	76.3	Category 2 (20 - 150 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12818	1/16/2024	1/10/2024	Fast Track	21	Category 2 (20 - 150 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-12822	2/20/2024	1/10/2024	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Monroe	Construction: Customer Documentation Received
DE-12823	2/13/2024	1/10/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-12824	2/13/2024	1/10/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12827	1/19/2024	1/11/2024	Fast Track	6.2	Category 1 (< 20 kW)	Solar PV	Monroe	Awaiting Documentation
DE-12831	6/4/2024	1/12/2024	Fast Track	3.3	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-12832	1/30/2024	1/15/2024	Fast Track	30.1	Category 2 (20 - 150 kW)	Solar PV + Storage	Lapeer	Awaiting Documentation
DE-12842	1/23/2024	1/16/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Site Visit: Pending
DE-12846	2/1/2024	1/17/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12848	3/21/2024	1/18/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Documentation On-Hold
DE-12850	2/13/2024	1/19/2024	Fast Track	5	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-12853	3/11/2024	1/19/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Oakland	Site Visit: Failed
DE-12854	1/30/2024	1/19/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12855	1/24/2024	1/20/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12856	1/24/2024	1/20/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12857	1/24/2024	1/20/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12858		1/22/2024	Study Track	5000	Category 5 (>2 MW)	Solar PV	Washtenaw	Application: Review for Completion
DE-12859		1/22/2024	Study Track	3000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12860		1/22/2024	Fast Track	5000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12861		1/22/2024	Study Track	3000	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12862	1/31/2024	1/22/2024	Fast Track	2.7	Category 1 (< 20 kW)	Solar PV + Storage	Macomb	Awaiting Documentation

DE-12866	1/30/2024	1/23/2024	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-12867	3/14/2024	1/23/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12870	1/30/2024	1/24/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Ingham	Interconnection Agreement: Pending Manual Customer Signature
DE-12873	2/6/2024	1/24/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Monroe	Interconnection Agreement: Pending Electronic Customer Signature
DE-12874	1/26/2024	1/24/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Ingham	Interconnection Agreement: Pending Electronic Customer Signature
DE-12875	1/26/2024	1/24/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-12878		1/25/2024	Fast Track	11.9	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: On-Hold
DE-12881	2/13/2024	1/26/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12882	3/19/2024	1/26/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Documentation On-Hold
DE-12884	2/6/2024	1/29/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12885	2/21/2024	1/29/2024	Study Track	11.9	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Documentation On-Hold
DE-12887	2/5/2024	1/30/2024	Fast Track	7	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12890	2/7/2024	1/31/2024	Fast Track	9.1	Category 1 (< 20 kW)	Solar PV	Tuscola	Awaiting Documentation
DE-12895	5/22/2024		Fast Track	5.4	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12898	2/28/2024	2/2/2024	Fast Track	30.1	Category 2 (20 - 150 kW)	Solar PV + Storage		Awaiting Documentation
DE-12900	3/14/2024	2/2/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-12908	2/20/2024	2/5/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-12909	2/13/2024	2/5/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12911	3/4/2024	2/5/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12916	2/12/2024	2/7/2024	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12917		2/8/2024	Fast Track	6.96	Category 1 (< 20 kW)	Solar PV + Storage	Livingston	Application: On-Hold
DE-12918	2/14/2024	2/8/2024	Fast Track	7.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12926	2/20/2024	2/13/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12928		2/14/2024	Non-Export Track	1200	Category 5 (>2 MW)	Biomass	Oakland	Application: On-Hold
DE-12929	3/4/2024	2/14/2024	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12931	2/22/2024	2/15/2024	Fast Track	6.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12932	4/25/2024	2/15/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12935	2/23/2024	2/15/2024	Fast Track	46.1	Category 2 (20 - 150 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12937	3/11/2024	2/16/2024	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-12938	3/28/2024	2/16/2024	Fast Track	150.9	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-12939	2/27/2024	2/16/2024	Fast Track	120.8	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-12940	2/22/2024	2/16/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-12943	2/27/2024	2/16/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-12944	2/22/2024	2/16/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-12945	3/28/2024	2/20/2024	Non-Export Track	9.6	Category 1 (< 20 kW)	Battery	Oakland	Awaiting Documentation
DE-12947		2/20/2024	Non-Export Track	5500	Category 5 (>2 MW)	Solar PV	Tuscola	Application: On-Hold
DE-12948		2/20/2024	Non-Export Track	5500	Category 5 (>2 MW)	Solar PV	St. Clair	Application: On-Hold
DE-12952	3/28/2024	2/21/2024	Non-Export Track	9.6	Category 1 (< 20 kW)	Battery	Oakland	Awaiting Documentation
DE-12953	3/25/2024	2/21/2024	Non-Export Track	9.6	Category 1 (< 20 kW)	Battery	Oakland	Awaiting Documentation
DE-12954	3/21/2024	2/21/2024	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV + Storage	Macomb	Awaiting Documentation
DE-12956	2/28/2024	2/21/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Construction: Customer Documentation Received
DE-12960	3/6/2024	2/22/2024	Fast Track	10	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-12964	3/8/2024	2/22/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-12967	3/12/2024	2/22/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-12969	3/6/2024		Non-Export Track	5.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-12973	3/15/2024	2/23/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-12976	3/13/2024	2/23/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-12978	4/25/2024	2/23/2024	Fast Track	7.8	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-12980		2/23/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-12984	5/22/2024	2/26/2024	Fast Track	13.05	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-12987	4/4/2024	2/26/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-12989	4/25/2024	2/26/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-12993	4/17/2024	2/27/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-12994	3/20/2024	2/27/2024	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-12996	3/18/2024	2/28/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-12997		2/28/2024	Non-Export Track	9	Category 1 (< 20 kW)	Solar PV	Lexington	Application: On-Hold
DE-12998	3/11/2024	2/28/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-13002	3/4/2024	2/29/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13003	3/21/2024	3/11/2024	Fast Track	3.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13004	4/1/2024	2/29/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13007		2/29/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-13008	3/21/2024	2/29/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13009	4/19/2024	2/29/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13010	3/6/2024	2/29/2024	Fast Track	7.2	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-13013	3/5/2024	3/1/2024	Fast Track	6.5	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Construction: Customer Documentation Received
DE-13016		5/19/2024	Non-Export Track	12	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: On-Hold
DE-13017	3/27/2024	3/4/2024	Fast Track	7.2	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13018	3/27/2024	3/4/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13019	3/25/2024	3/4/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-13021	3/18/2024	3/5/2024	Fast Track	8.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13022	3/20/2024	3/5/2024	Fast Track	9	Category 1 (< 20 kW)	Solar PV	Tuscola	Awaiting Documentation
DE-13024	4/29/2024	3/6/2024	Fast Track	23.9	Category 2 (20 - 150 kW)	Solar PV + Storage	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13025	3/12/2024		Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	St. Clair	Awaiting Documentation
DE-13027	4/4/2024	3/6/2024	Fast Track	5.5	Category 1 (< 20 kW)	Solar PV	Tuscola	Interconnection Agreement: Pending Electronic Customer Signature

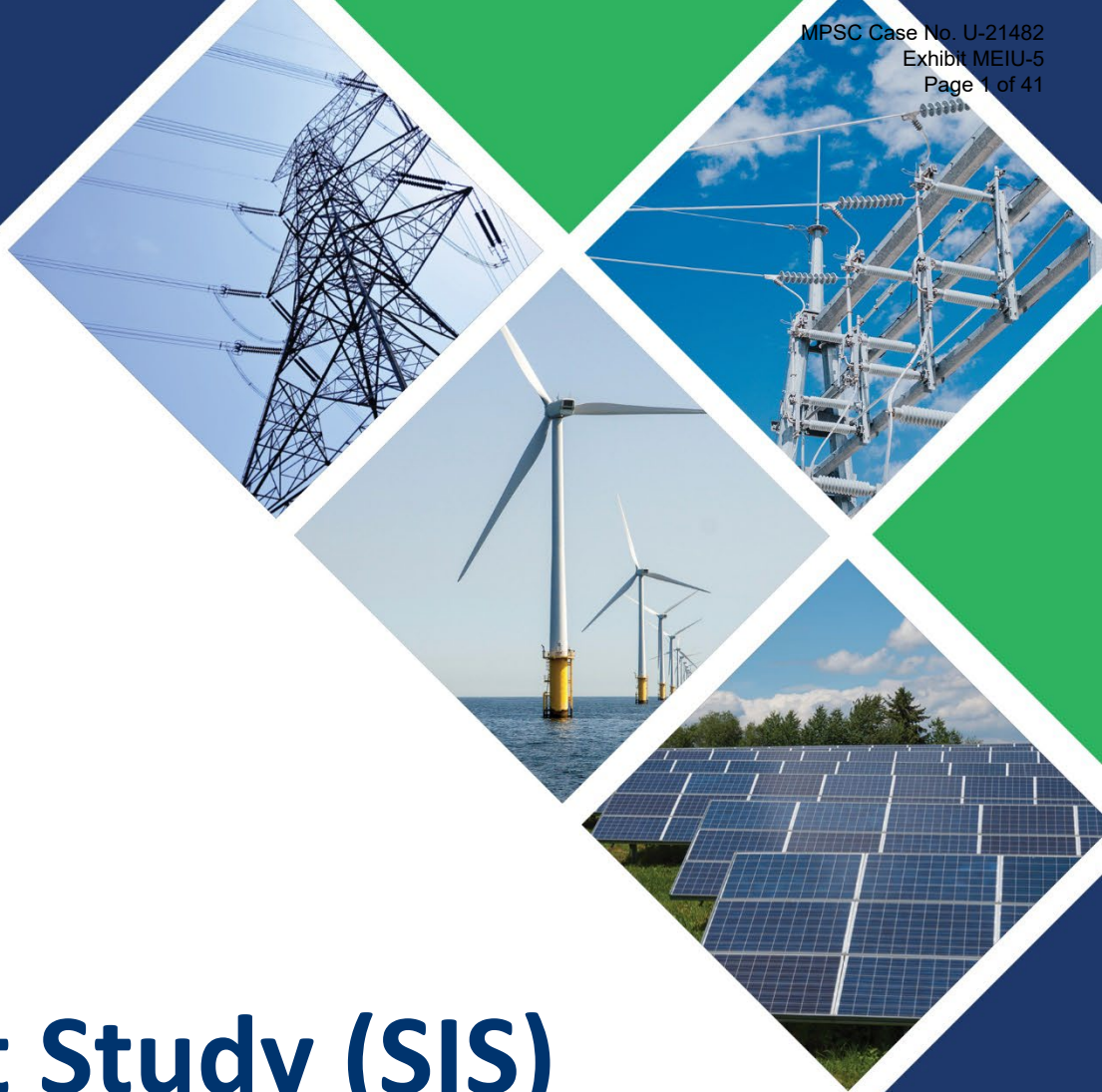
DE-13033	3/13/2024	3/8/2024	Fast Track	8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13035	4/18/2024	3/8/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Documentation On-Hold
DE-13036	3/18/2024	3/8/2024	Fast Track	20	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13041	3/18/2024	3/9/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Ingham	Construction: Customer Documentation Received
DE-13042	3/15/2024	3/9/2024	Fast Track	7.5	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13043	3/25/2024	3/9/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-13044	3/21/2024	3/9/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Ingham	Interconnection Agreement: Pending Electronic Customer Signature
DE-13046	3/14/2024	3/11/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-13048	3/21/2024	3/11/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13049	3/21/2024	3/11/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13051	3/18/2024	3/11/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13056		3/12/2024	Non-Export Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13057	6/3/2024	3/12/2024	Non-Export Track	2500	Category 5 (> 2 MW)	Other	Lenawee	Application: Complete
DE-13058		3/13/2024	Fast Track	180.2	Category 3 (150 - 550 kW)	Solar PV + Storage	Wayne	Application: Received Pending Fee
DE-13060	4/18/2024	3/13/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-13062		3/13/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-13063		3/13/2024	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13064	4/8/2024	3/13/2024	Fast Track	9.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13066		3/13/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13068	4/2/2024	3/13/2024	Fast Track	9.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13075	5/14/2024	3/14/2024	Fast Track	93.2	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-13076	4/8/2024	3/14/2024	Fast Track	7.2	Category 1 (< 20 kW)	Solar PV	Oakland	Site Visit: Pending
DE-13077	4/2/2024	3/14/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13078	3/19/2024	3/14/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-13079		3/14/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: Review for Completion
DE-13080	4/17/2024	3/14/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13081		3/14/2024	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-13084	5/29/2024	3/15/2024	Fast Track	120	Category 2 (20 - 150 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-13085	4/11/2024	3/15/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV	Monroe	Interconnection Agreement: Pending Electronic Customer Signature
DE-13086	4/29/2024	3/15/2024	Fast Track	13.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13087	4/17/2024	3/15/2024	Fast Track	5.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13089	3/28/2024	3/15/2024	Fast Track	9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13090	4/8/2024	3/16/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Documentation On-Hold
DE-13091	4/29/2024	3/18/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13093	5/2/2024	3/18/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Ingham	Interconnection Agreement: Pending Electronic Customer Signature
DE-13094	5/9/2024	3/18/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13095	4/3/2024		Fast Track	10	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-13096	3/28/2024	3/19/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13097	3/22/2024	3/19/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13098	3/22/2024	3/19/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13099	4/8/2024	3/19/2024	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13102	4/17/2024	3/20/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13107	3/22/2024	3/20/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13110	4/3/2024	3/21/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13111	4/3/2024	3/21/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Ingham	Awaiting Documentation
DE-13114		3/21/2024	Study Track	650	Category 4 (550 kW - 2 MW)	Solar PV	Sanilac	Application: On-Hold
DE-13115		3/21/2024	Study Track	85208.6	Category 5 (> 2 MW)	Solar PV	Lapeer	Application: On-Hold
DE-13116	4/12/2024	3/22/2024	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-13117	4/5/2024	3/22/2024	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13119	4/12/2024	3/22/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13120	3/26/2024		Non-Export Track	14	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-13121		3/22/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-13122	4/3/2024	3/22/2024	Fast Track	6.8	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13123	5/29/2024	3/22/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13125	4/18/2024	3/22/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-13126		3/22/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13127	6/3/2024	3/22/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13131	4/19/2024	3/25/2024	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13132	4/16/2024	3/25/2024	Fast Track	12.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13133	5/2/2024	3/25/2024	Fast Track	150.9	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-13134	4/8/2024	3/26/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13136	4/3/2024	3/27/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13138		3/27/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Tuscola	Application: On-Hold
DE-13140	4/12/2024	3/27/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13141	4/3/2024	3/27/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13142	4/3/2024	3/27/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13143	4/12/2024	3/28/2024	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Clinton	Interconnection Agreement: Pending Electronic Customer Signature
DE-13144	5/9/2024	3/28/2024	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Documentation On-Hold
DE-13145		3/28/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13146	4/10/2024	3/28/2024	Fast Track	9.1	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-13147	5/21/2024	3/28/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13148	5/21/2024	3/28/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13150	4/23/2024	3/29/2024	Fast Track	16.8	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13152	4/8/2024	3/29/2024	Fast Track	5.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation

DE-13153	5/2/2024	4/1/2024	Fast Track	10.7	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13154		4/1/2024	Fast Track	20.1	Category 1 (< 20 kW)	Solar PV	St. Clair	Application: On-Hold
DE-13155	4/22/2024	4/1/2024	Fast Track	3.2	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13157	4/17/2024	4/2/2024	Fast Track	9.6	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13158		4/2/2024	Non-Export Track	3.84	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Oakland	Application: On-Hold
DE-13159	4/11/2024	4/2/2024	Fast Track	20	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13160		4/2/2024	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-13162	4/29/2024	4/2/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Huron	Construction: Customer Documentation Received
DE-13163		4/3/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13167	4/24/2024	4/3/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13168	4/25/2024	4/3/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13169		4/3/2024	Non-Export Track	300	Category 3 (150 - 550 kW)	Solar PV	Macomb	Application: On-Hold
DE-13172	4/17/2024	4/4/2024	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13174	4/10/2024	4/4/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13176	4/10/2024	4/5/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13177	4/22/2024	4/7/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Tuscola	Construction: Customer Documentation Received
DE-13179	4/12/2024	4/8/2024	Study Track	3.2	Category 1 (< 20 kW)	Solar PV	Monroe	Site Visit: Pending
DE-13180		4/8/2024	Fast Track	540	Category 3 (150 - 550 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-13181	4/17/2024	4/9/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-13182	4/12/2024	4/9/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-13183		4/9/2024	Fast Track	4.1	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: On-Hold
DE-13184	4/10/2024	4/9/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Construction: Customer Documentation Received
DE-13186	4/26/2024	4/10/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13187		4/10/2024	Fast Track	7.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-13188	4/11/2024		Non-Export Track	3.7	Category 1 (< 20 kW)	Solar PV	Sanilac	Awaiting Documentation
DE-13190	4/15/2024	4/11/2024	Fast Track	3.7	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13192	4/30/2024	4/11/2024	Fast Track	6.7	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13193	4/30/2024	4/11/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13194	4/17/2024	4/11/2024	Fast Track	4.4	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13195	4/19/2024	4/11/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13196	4/19/2024	4/11/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13199	4/22/2024	4/12/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13200		4/12/2024	Study Track	480	Category 3 (150 - 550 kW)	Battery	Essex	Application: Received Pending Fee
DE-13201		4/30/2024	Fast Track	11.7	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13203		4/15/2024	Fast Track	6.7	Category 1 (< 20 kW)	Solar PV	Tuscola	Application: Review for Completion
DE-13204	5/22/2024	4/15/2024	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Customer Documentation Received
DE-13205	4/30/2024	4/15/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Ingham	Awaiting Documentation
DE-13206	4/25/2024	4/15/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Oakland	Construction: Documentation On-Hold
DE-13207	5/29/2024	4/15/2024	Fast Track	6.1	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-13208		4/15/2024	Fast Track	281.8	Category 3 (150 - 550 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13209	4/18/2024	4/15/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-13210	4/29/2024	4/15/2024	Fast Track	8	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13211	4/25/2024	4/15/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13212	4/29/2024	4/15/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-13213		4/16/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-13214		4/16/2024	Fast Track	4.3	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13215		4/16/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Received Pending Fee
DE-13216	4/24/2024	4/16/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-13217	5/22/2024		Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13219	4/24/2024	4/17/2024	Fast Track	8.7	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13220	4/24/2024	4/17/2024	Fast Track	8.1	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13221	4/24/2024	4/17/2024	Fast Track	8.4	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13222	4/25/2024	4/17/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-13223	4/25/2024	4/17/2024	Fast Track	4.9	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13224	4/25/2024	4/17/2024	Fast Track	6.4	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13225	5/13/2024	4/17/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Sanilac	Construction: Customer Documentation Received
DE-13226	4/19/2024	4/17/2024	Fast Track	1.7	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13227	4/26/2024	4/17/2024	Fast Track	14.3	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13228	4/26/2024	4/17/2024	Fast Track	7.3	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13229	4/25/2024	4/17/2024	Fast Track	11.9	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-13230	4/29/2024	4/17/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13231	5/8/2024	4/18/2024	Fast Track	5	Category 1 (< 20 kW)	Solar PV	Huron	Awaiting Documentation
DE-13233	4/25/2024	4/18/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13234	4/25/2024	4/18/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13235	4/25/2024	4/18/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13236	5/1/2024	4/18/2024	Fast Track	50	Category 2 (20 - 150 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13237	5/1/2024	4/18/2024	Fast Track	25	Category 2 (20 - 150 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13239	5/2/2024	4/19/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13240		4/19/2024	Fast Track	120	Category 2 (20 - 150 kW)	Solar PV + Storage	Oakland	Application: On-Hold
DE-13241	5/13/2024	4/19/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13242	5/1/2024	4/19/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13243	5/17/2024	4/19/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-13244	5/1/2024	4/19/2024	Fast Track	2.61	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13245	4/25/2024	4/19/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation

DE-13246	4/30/2024	4/19/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Documentation On-Hold
DE-13248	6/3/2024	4/22/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Cheboygan	Interconnection Agreement: Pending Electronic Customer Signature
DE-13249	5/24/2024	4/22/2024	Fast Track	8.376	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13250	6/5/2024	4/22/2024	Fast Track	2.61	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13251		4/22/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13252		4/22/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-13253	6/3/2024	4/22/2024	Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Macomb	Interconnection Agreement: Pending Electronic Customer Signature
DE-13254	5/6/2024	4/22/2024	Fast Track	4.56	Category 1 (< 20 kW)	Solar PV	Lapeer	Construction: Customer Documentation Received
DE-13255	5/23/2024	4/22/2024	Fast Track	2.3	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13256	5/1/2024	4/22/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13257	5/3/2024	4/22/2024	Fast Track	6.38	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13258		4/23/2024	Fast Track	6.96	Category 1 (< 20 kW)	Solar PV	Macomb	Application: On-Hold
DE-13259		4/23/2024	Fast Track	5.04	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13261		4/23/2024	Fast Track	54	Category 2 (20 - 150 kW)	Solar PV	Livingston	Application: On-Hold
DE-13262		4/23/2024	Non-Export Track	11.7	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: On-Hold
DE-13263	5/22/2024	4/23/2024	Fast Track	4.537	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Interconnection Agreement: Pending Utility Signature
DE-13264	5/16/2024	4/23/2024	Fast Track	4.663	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13265	5/22/2024	4/23/2024	Fast Track	4.7	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13266	5/9/2024	4/24/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Monroe	Interconnection Agreement: Pending Electronic Customer Signature
DE-13267		4/24/2024	Fast Track	25.5	Category 2 (20 - 150 kW)	Solar PV	Wayne	Application: On-Hold
DE-13268	5/1/2024	4/24/2024	Fast Track	23	Category 2 (20 - 150 kW)	Solar PV + Storage	Livingston	Awaiting Documentation
DE-13269	5/6/2024	4/24/2024	Fast Track	5.22	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13270	5/3/2024	4/24/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13271	5/3/2024	4/24/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13272	5/8/2024	4/24/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13273	5/29/2024	4/24/2024	Fast Track	8.7	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13274	5/20/2024	4/24/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13275	5/3/2024	4/24/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13276	5/17/2024	4/27/2024	Fast Track	5.1	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13277	5/20/2024	4/25/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13278	5/7/2024	4/25/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Construction: Customer Documentation Received
DE-13279	5/8/2024	4/25/2024	Fast Track	16	Category 1 (< 20 kW)	Solar PV	Ingham	Awaiting Documentation
DE-13280	5/3/2024	4/25/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13281		4/25/2024	Fast Track	3.48	Category 1 (< 20 kW)	Solar PV	Ottawa	Application: On-Hold
DE-13282	5/23/2024	4/25/2024	Fast Track	6.96	Category 1 (< 20 kW)	Solar PV	Ingham	Awaiting Documentation
DE-13283	5/23/2024	4/25/2024	Fast Track	8.12	Category 1 (< 20 kW)	Solar PV	Lapeer	Awaiting Documentation
DE-13284		4/25/2024	Study Track	2000	Category 5 (>2 MW)	Solar PV	Monroe	Application: On-Hold
DE-13285	5/8/2024	4/26/2024	Fast Track	4.188	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13286	5/8/2024	4/26/2024	Fast Track	9.074	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Construction: Customer Documentation Received
DE-13288	5/7/2024	4/29/2024	Fast Track	4.6	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13289		4/29/2024	Fast Track	6.96	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-13290	5/23/2024	4/29/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13291	5/14/2024	4/29/2024	Fast Track	5.22	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13292	5/14/2024	4/29/2024	Fast Track	6.38	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13294	6/3/2024	4/29/2024	Fast Track	4.56	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13295	5/20/2024	4/29/2024	Fast Track	5.32	Category 1 (< 20 kW)	Solar PV + Storage	Lapeer	Awaiting Documentation
DE-13297	5/13/2024	4/29/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	St. Clair	Awaiting Documentation
DE-13298	5/14/2024	4/29/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Lapeer	Construction: Customer Documentation Received
DE-13299	5/10/2024	4/30/2024	Fast Track	4.324	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13300			Fast Track	3.87	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-13301	5/10/2024	5/1/2024	Fast Track	8.984	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13302	5/13/2024	4/30/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13303	5/13/2024	4/30/2024	Fast Track	7.395	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13304	5/15/2024	4/30/2024	Fast Track	2.4	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13305	5/22/2024	4/30/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13306		4/30/2024	Fast Track	4	Category 1 (< 20 kW)	Solar PV	Livingston	Application: Review for Completion
DE-13307	5/17/2024	4/30/2024	Fast Track	19	Category 2 (20 - 150 kW)	Solar PV + Storage	Wayne	Awaiting Documentation
DE-13308	5/21/2024	4/30/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13309	5/22/2024	4/30/2024	Fast Track	3480	Category 1 (< 20 kW)	Solar PV	Macomb	Construction: Customer Documentation Received
DE-13310	5/13/2024	5/1/2024	Fast Track	4.492	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13311	6/3/2024	5/1/2024	Study Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13312	5/24/2024	5/1/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13313		5/1/2024	Fast Track	13.92	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13314		5/1/2024	Fast Track	7.54	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13315		5/1/2024	Study Track	2.3	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13316	5/28/2024	5/1/2024	Fast Track	3.48	Category 1 (< 20 kW)	Solar PV	Wayne	Fast Track: Initial Review Screens
DE-13317		5/1/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13318	5/30/2024	5/1/2024	Study Track	2.6	Category 1 (< 20 kW)	Solar PV	Lapeer	Awaiting Documentation
DE-13319	5/17/2024	5/1/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13321	5/17/2024	5/1/2024	Fast Track	12	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13322		5/2/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13323	5/9/2024	5/2/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13324	5/14/2024	5/2/2024	Fast Track	9	Category 1 (< 20 kW)	Solar PV + Storage	Livingston	Awaiting Documentation
DE-13325	5/24/2024	5/2/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation

DE-13326	5/16/2024	5/2/2024	Fast Track	7.04	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13327	5/14/2024	5/2/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13329		5/3/2024	Non-Export Track	3.84	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Wayne	Application: Received Pending Fee
DE-13331		5/3/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13332		5/3/2024	Fast Track	10.47	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13333	5/31/2024	5/4/2024	Fast Track	7.68	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13334		5/27/2024	Fast Track	6.051	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: Review for Completion
DE-13335		5/6/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13336	5/14/2024	5/7/2024	Fast Track	4.347	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13337	5/14/2024	5/7/2024	Fast Track	10.142	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13338		5/7/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Application: On-Hold
DE-13339	5/20/2024	5/7/2024	Fast Track	7.7	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13340	5/16/2024	5/7/2024	Fast Track	9.074	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13341	6/3/2024	5/8/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13342		5/8/2024	Fast Track	20	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13343	5/24/2024	5/8/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13344		5/8/2024	Fast Track	11.02	Category 1 (< 20 kW)	Solar PV	Livingston	Application: On-Hold
DE-13345	5/23/2024	5/9/2024	Fast Track	43.2	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-13346		5/9/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13347		5/9/2024	Non-Export Track	6	Category 1 (< 20 kW)	Solar PV	Monroe	Application: On-Hold
DE-13348	5/17/2024	5/9/2024	Fast Track	4.63	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13349	5/28/2024	5/9/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13350		5/9/2024	Fast Track	14.825	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13351		5/9/2024	Fast Track	10.73	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13352		5/9/2024	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13353		5/9/2024	Fast Track	4.149	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13354	5/20/2024	5/10/2024	Fast Track	2.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	InterconnectionAgreement: Pending Utility Signature
DE-13355	5/21/2024	5/10/2024	Fast Track	8.8	Category 1 (< 20 kW)	Solar PV	Wayne	Construction: Customer Documentation Received
DE-13356	5/16/2024	5/10/2024	Fast Track	99.9	Category 2 (20 - 150 kW)	Solar PV	Washtenaw	Construction: Customer Documentation Received
DE-13357	5/23/2024	5/10/2024	Fast Track	30	Category 2 (20 - 150 kW)	Solar PV	Washtenaw	InterconnectionAgreement: Pending Electronic Customer Signature
DE-13358		5/10/2024	Fast Track	5.76	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13359	5/21/2024	5/13/2024	Fast Track	6.6	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13360	5/22/2024	5/13/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13361		5/13/2024	Fast Track	3.8	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13362		5/13/2024	Fast Track	6.8	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13363	5/22/2024	5/13/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Livingston	Awaiting Documentation
DE-13364	5/15/2024	5/14/2024	Fast Track	6.282	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13365		Fast Track	3.5	Category 1 (< 20 kW)	Solar PV	Sanilac		Application: On-Hold
DE-13366	5/29/2024	5/14/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13367	5/24/2024	5/14/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13368		5/15/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage		Application: On-Hold
DE-13369	5/24/2024	5/16/2024	Fast Track	14.3	Category 1 (< 20 kW)	Solar PV + Storage	Ingham	Awaiting Documentation
DE-13371		5/15/2024	Fast Track	10	Category 1 (< 20 kW)	Solar PV	Livingston	Application: Review for Completion
DE-13372		5/15/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13373	5/17/2024	5/15/2024	Fast Track	4.06	Category 1 (< 20 kW)	Solar PV	Tuscola	Awaiting Documentation
DE-13374	5/30/2024	5/15/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13375	5/17/2024	5/15/2024	Fast Track	34.2	Category 2 (20 - 150 kW)	Solar PV		Awaiting Documentation
DE-13376		5/15/2024	Fast Track	5.51	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13378	6/3/2024	5/16/2024	Fast Track	4.118	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13379	5/29/2024	5/16/2024	Fast Track	4.2	Category 1 (< 20 kW)	Solar PV + Storage		Awaiting Documentation
DE-13380		5/16/2024	Fast Track	20000	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13381		5/16/2024	Fast Track	9.423	Category 2 (20 - 150 kW)	Solar PV + Storage	St. Clair	Application: Review for Completion
DE-13382	6/3/2024	5/16/2024	Fast Track	5.51	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13383		5/16/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13384	6/3/2024	5/17/2024	Fast Track	3.48	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13385	5/28/2024	5/17/2024	Fast Track	5.2	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13386	5/20/2024	5/17/2024	Fast Track	6.38	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13387	5/30/2024	5/17/2024	Fast Track	5.36	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13388	5/23/2024	5/17/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13389	6/3/2024	5/17/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Awaiting Documentation
DE-13390	5/21/2024	5/17/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13391	5/20/2024	5/17/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Utility Signature
DE-13392	5/20/2024	5/17/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13393	6/3/2024	5/17/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Macomb	Fast Track: Initial Review Screens
DE-13394	6/3/2024	5/17/2024	Fast Track	3.48	Category 1 (< 20 kW)	Solar PV	Wayne	Fast Track: Initial Review Screens
DE-13395		5/17/2024	Fast Track	2.61	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Review for Completion
DE-13396	5/21/2024	5/20/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13397	5/21/2024	5/20/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13399	6/3/2024	5/20/2024	Fast Track	6.631	Category 1 (< 20 kW)	Solar PV + Storage	Macomb	Awaiting Documentation
DE-13401	5/28/2024	5/20/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13402		5/20/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	Wayne	Application: On-Hold
DE-13403	6/4/2024	5/20/2024	Fast Track	10.4	Category 1 (< 20 kW)	Solar PV	Wayne	Fast Track: Initial Review Screens
DE-13404		5/20/2024	Fast Track	5.22	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-13405		5/20/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee

DE-13406	6/4/2024	5/20/2024	Fast Track	5.51	Category 1 (< 20 kW)	Solar PV		Fast Track: Initial Review Screens
DE-13407		5/20/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-13408		5/20/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Application: On-Hold
DE-13409		5/20/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-13410	5/29/2024	5/20/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13411	5/29/2024	5/20/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13412		5/20/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Ingham	Application: On-Hold
DE-13413	5/29/2024	5/20/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	Oakland	Awaiting Documentation
DE-13414		5/21/2024	Fast Track	6.67	Category 1 (< 20 kW)	Solar PV	Tuscola	Application: Received Pending Fee
DE-13418	6/3/2024	5/22/2024	Fast Track	3.9	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13419	6/3/2024	5/22/2024	Fast Track	5.22	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13420	6/3/2024	5/22/2024	Fast Track	3.77	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13421	5/23/2024	5/22/2024	Fast Track	6.09	Category 1 (< 20 kW)	Solar PV	Macomb	Interconnection Agreement: Pending Electronic Customer Signature
DE-13422	5/23/2024	5/22/2024	Fast Track	10.15	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13423	5/23/2024	5/22/2024	Fast Track	5.51	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Utility Signature
DE-13424		5/22/2024	Non-Export Track	3.84	Category 1 (< 20 kW)	Bidirectional Electric Vehicle Charger	Wayne	Application: Review for Completion
DE-13425		5/22/2024	Fast Track	11.6	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13426		5/22/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Livingston	Application: Review for Completion
DE-13427		5/22/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: Review for Completion
DE-13428		5/23/2024	Fast Track	5.8	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13430	5/24/2024	5/23/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Wayne	Awaiting Documentation
DE-13431		5/23/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13432		5/24/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Review for Completion
DE-13433	5/28/2024	5/24/2024	Fast Track	2.61	Category 1 (< 20 kW)	Solar PV	Oakland	Interconnection Agreement: Pending Electronic Customer Signature
DE-13434	5/28/2024	5/24/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13435		5/24/2024	N/A	263.2	Category 3 (150 - 550 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13436		5/27/2024	Fast Track	4.5	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13437		5/28/2024	Fast Track	15	Category 1 (< 20 kW)	Solar PV + Storage	Sanilac	Application: Review for Completion
DE-13438		5/28/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Sanilac	Application: Review for Completion
DE-13440		5/28/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Application: Review for Completion
DE-13441		5/29/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13442		5/29/2024	Fast Track	4.93	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13443		5/29/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Application: Review for Completion
DE-13444		5/29/2024	Fast Track	6	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13445	5/30/2024	5/29/2024	Fast Track	4.06	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Utility Signature
DE-13446		5/29/2024	Fast Track	12	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: On-Hold
DE-13447	5/30/2024	5/29/2024	Fast Track	3.48	Category 1 (< 20 kW)	Solar PV	Macomb	Awaiting Documentation
DE-13448		5/30/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13449	6/3/2024	5/30/2024	Fast Track	10	Category 1 (< 20 kW)	Solar PV		Awaiting Documentation
DE-13450	6/3/2024	5/30/2024	Fast Track	4.88	Category 1 (< 20 kW)	Solar PV	St. Clair	Interconnection Agreement: Pending Electronic Customer Signature
DE-13451		5/30/2024	Fast Track	4.55	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: On-Hold
DE-13452		5/30/2024	Fast Track	6.282	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Review for Completion
DE-13453	6/5/2024	5/30/2024	Fast Track	4.06	Category 1 (< 20 kW)	Solar PV	Wayne	Interconnection Agreement: Pending Electronic Customer Signature
DE-13454		5/31/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13456		6/3/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Received Pending Fee
DE-13457		6/3/2024	Fast Track	8.96	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-13458	6/4/2024	6/3/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13459		6/3/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Livingston	Application: On-Hold
DE-13460		6/3/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Review for Completion
DE-13461		6/3/2024	Non-Export Track	9.6	Category 1 (< 20 kW)	Solar PV + Storage	Oakland	Application: Review for Completion
DE-13462		6/3/2024	Fast Track	4.64	Category 1 (< 20 kW)	Solar PV	Oakland	Application: Review for Completion
DE-13463		6/3/2024	Non-Export Track	10	Category 1 (< 20 kW)	Solar PV + Storage	Livingston	Application: Review for Completion
DE-13464		6/3/2024	Fast Track	11.5	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: On-Hold
DE-13465		6/3/2024	Fast Track	4.35	Category 1 (< 20 kW)	Solar PV	Eaton	Application: Review for Completion
DE-13466		6/3/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13467		6/3/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Review for Completion
DE-13468		6/3/2024	Fast Track	15.356	Category 1 (< 20 kW)	Solar PV + Storage	Wayne	Application: Review for Completion
DE-13469		6/3/2024	Fast Track	3	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13470		6/4/2024	Fast Track	18	Category 2 (20 - 150 kW)	Solar PV	Livingston	Application: Received Pending Fee
DE-13471		6/4/2024	Fast Track	100	Category 2 (20 - 150 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-13472		6/4/2024	Study Track	800	Category 4 (550 kW - 2 MW)	Other	Wayne	Application: Review for Completion
DE-13473		6/4/2024	Fast Track	6.5	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13474		6/4/2024	Fast Track	11.4	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Application: Review for Completion
DE-13475	6/5/2024	6/4/2024	Fast Track	3.19	Category 1 (< 20 kW)	Solar PV + Storage	Washtenaw	Interconnection Agreement: Pending Electronic Customer Signature
DE-13477		6/5/2024	Fast Track	2.9	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13478		6/5/2024	Fast Track	8	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Received Pending Fee
DE-13479		6/5/2024	Fast Track	5.85	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee
DE-13480		6/5/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Wayne	Application: Review for Completion
DE-13481		6/5/2024	Fast Track	2.32	Category 1 (< 20 kW)	Solar PV	Macomb	Application: Review for Completion
DE-13482		6/5/2024	Fast Track	7.6	Category 1 (< 20 kW)	Solar PV	Washtenaw	Application: Received Pending Fee



System Impact Study (SIS) Elements and Best Practices

Agenda

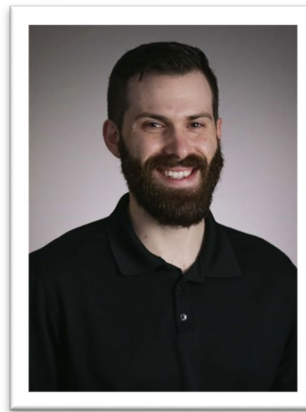
1. Introductions
2. RLC Background
3. DER Interconnection Best Practices
4. Select Standard Impact Study Elements
5. Time Domain Study Elements
6. Q&A



Introductions



Asa Sproul, PE
Principal Power System Engineer
BSEE, MSEE
9 years with RLC



Michael Healey, PE
Senior Power System Engineer
BA Physics, BSEE
8 years in industry
6 years with RLC



RLC Background



Power System Studies

- Distribution System Studies
- Transmission System Studies
- DER Interconnection Studies
- Integrated Resource Plans
- NTA/NWA Analyses
- Congestion Analyses
- Transfer Capability Analyses



Power Delivery

- Substation Design
- Transmission Line Design
- Protection & Control
- Civil & Structural Design
- Construction Phase Services



Power Generation

- Energy Storage
- Operation & Maintenance
- Solar Generation
- Wind Generation
- Structural Engineering
- Energy Management
- Microgrid Design

DER Integration Best Practices

- Apply Standards
 - IEEE C62.92.6-2017
 - IEEE 1547-2018
 - IEEE 1453-2015
- Leverage certifications
 - UL 1741 SA and SB certifications
 - HECO Rule 14 Appendix I
- Utilize smart inverter capabilities
- Model actual inverter firmware
- Base mitigations on actual study results
 - All feeders are different
 - Performance will vary significantly

Elements of a System Impact Study

Study Element	Purpose	Reference
Design Review	Ensures compliance with utility standards and requirements.	Utility Interconnection Standards
Effective Grounding Analysis	Ensures the utility distribution circuit remains effectively grounded in any configuration to limit unfaulted phase voltages to less than or equal to 138% of nominal phase voltage during unbalanced fault conditions. IEEE C62.92.1 Defines Effectively Grounded systems as those with a COG <80%. Furthermore, Versant mandates an effective grounding criteria of $X0/X1 < 3$ and $0 < R0/X1 < 1$.	IEEE 142-2007 IEEE C62.92.1
Short Circuit	Determines impact to the duty and ratings of nearby equipment, as well as implications to protection coordination. Inverter manufacturer single-cycle fault data is used to determine the short circuit contribution from inverters.	equip. ratings prot. settings
Coefficient of Grounding	Determines if the Project increases the likelihood of voltage rise above 138% of the nominal voltage on unfaulted phases during unbalanced fault conditions on the transmission or subtransmission network. IEEE C62.92.1 Defines Effectively Grounded systems as those with a COG <80%. The following equation from IEEE C62.92.1 is evaluated using a short circuit model of the transmission system: $COG = \text{Unfaulted } V_{LG} / \text{Nominal } V_{LL} < 0.80$	IEEE C62.92.1
Thermal Analysis	Avoids overloading grid components beyond established ratings under all system conditions.	Equip. ratings
Voltage Analysis	Ensures steady-state voltages remain within established criteria.	ANSI C84.1
Reactive Analysis	Evaluates the impact on system load power factor.	Similar to ISO-NE OP-17

Elements of a System Impact Study

Study Element	Purpose	Reference
Output Drop Analysis	Avoids impression of fluctuating luminance caused by voltage changes over a period, as well as undue duty on voltage regulating equipment.	IEEE 1453-2015
Risk of Islanding Screening	Assesses the risk of unintentional islanding of a proposed distributed generator (DG) installation. The referenced Sandia screen is adapted as the ROI screening methodology. Appendix B contains a flowchart for screening the risk of islanding.	SAND2012-1365
Load Rejection Overvoltage Screening	Assesses whether overvoltages may arise when a loaded system becomes suddenly unloaded. Phase-to-ground and longitudinal TOVs caused by load rejection are a function of the rejected load, the system topology after disconnection, and the characteristics of the sources. IEEE 1547.1-2020 specifies a full-load rejection test. Inverters certified to this standard (i.e., UL 1741SB certified inverters) will automatically pass this screen as long as either: 1. The project includes a properly sized effective grounding design; or 2. The inverter has also passed the optional GFOV test in section 5.17.1 of IEEE 1547.1-2020.	IEEE 1547-2018, Sect. 7.4.2
Protection Evaluation	Checks pickup margin criteria to account for load growth, contingency operating conditions, and cold-load inrush currents.	IEEE C37.230-2020, Section 4.6.4
Protective Reach	Ensures that faults at the most remote locations in each protective zone can be sensed and cleared.	IEEE C37.230-2007

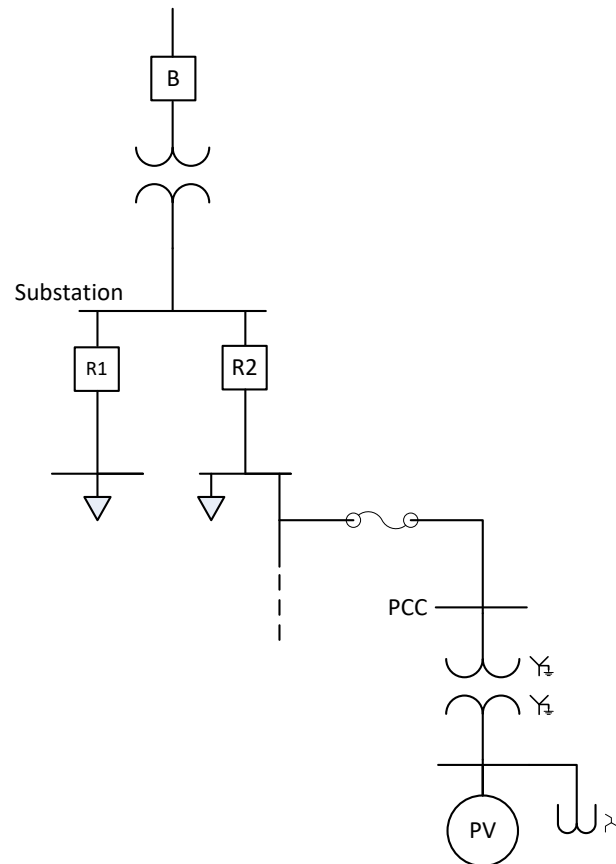
Elements of a System Impact Study

Study Component	Purpose	Reference
Load Rejection Overvoltage Analysis	Limitation of cumulative instantaneous overvoltage. Appendix C shows the transient overvoltage limits evaluated for compliance with IEEE 1547.	IEEE 1547-2018, Sect. 7.4.2
Ground Fault Overvoltage Analysis	Limitation of cumulative instantaneous overvoltage. Appendix C shows the transient overvoltage limits evaluated for compliance with IEEE 1547.	IEEE 1547-2018, Sect. 7.4.2
Risk of Islanding Evaluation	The Project must trip offline within two seconds of the formation of an unintentional island.	IEEE 1547-2018 Section 8.1
Underfrequency Load Shed Impact Assessment	Ensures that the inverter LOMD function does not cause nuisance tripping of UFLS schemes.	PRC-006-NPCC-2
Control Interaction Assessment	Evaluates whether unwanted oscillatory behavior occurs with nearby projects operating in tandem.	

Select Standard Impact Study Elements

- Risk of Islanding (ROI) Screening
- Transient Overvoltage (TrOV) Screening
- Effective Grounding
- Ground Fault Overvoltage (GFOV) Screening
- Other Considerations

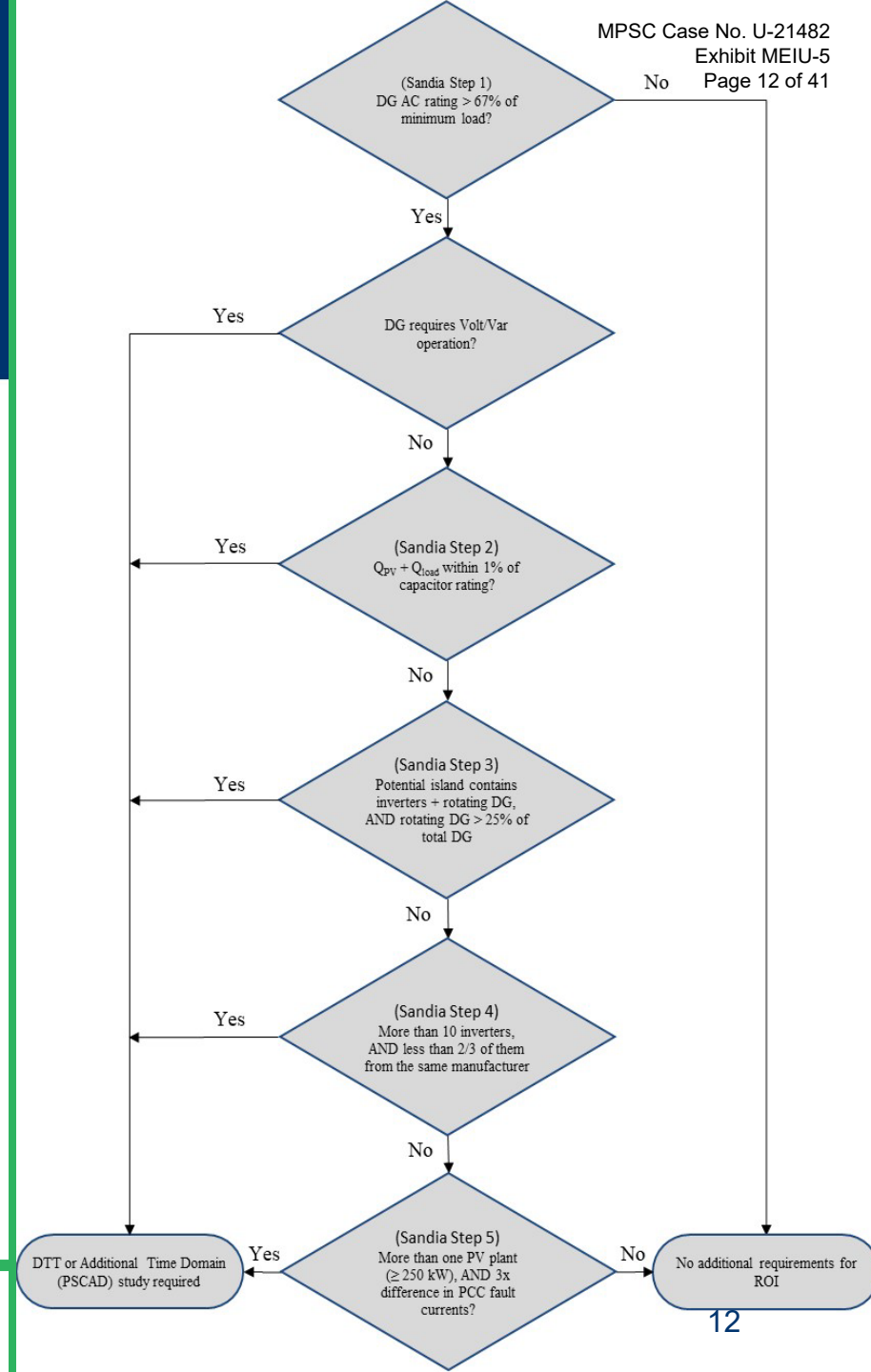
Simple System Example



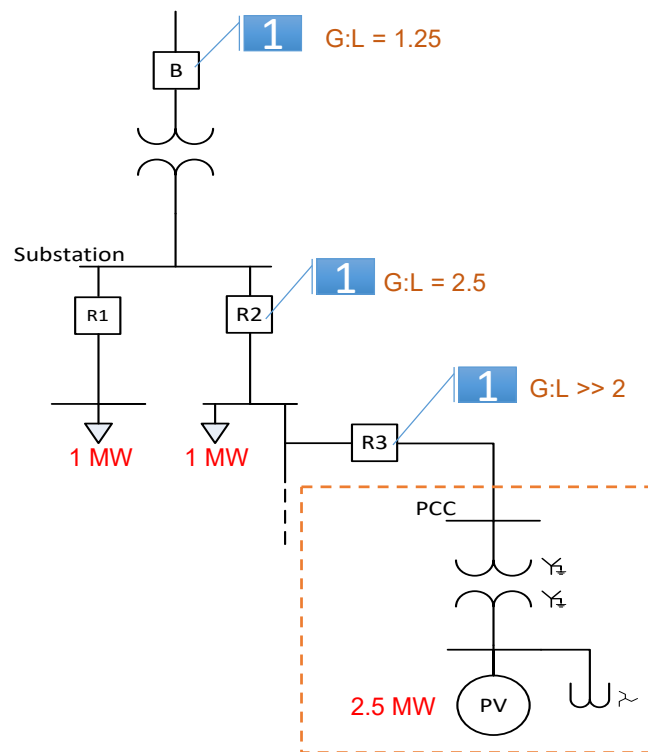
ROI Screening

- Test Process
 - Depends on utility practices
 - Typically examines the following ROI factors:
 - Generation-to-load (G:L) ratio within the island
 - Large synchronous generation within the island
 - DER dynamic voltage regulation
- Limits
 - Pass/Fail of utility screening criteria
- Mitigation
 - PSCAD or other electromagnetic transient simulation to evaluate ROI concerns

ROI Screening



ROI Screening Example

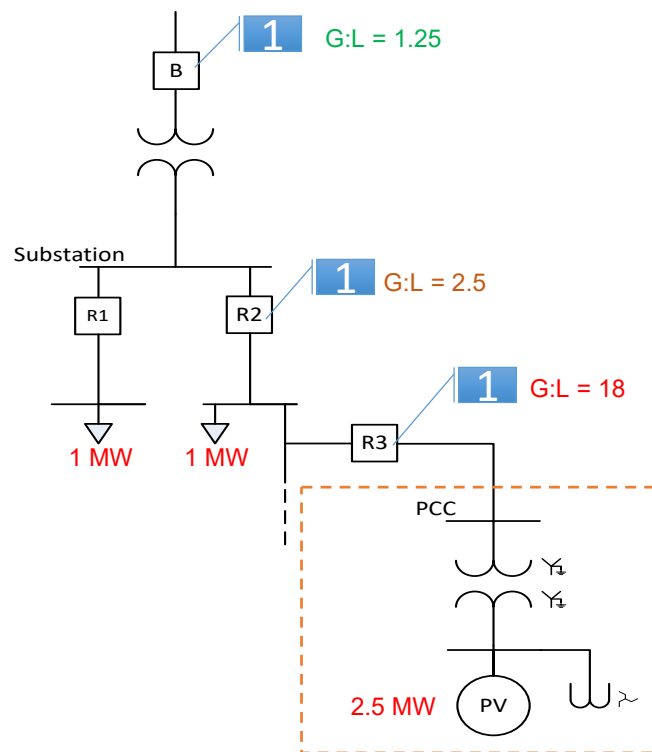


1. Perform utility ROI screening process for each bounding device

- Test Process
 - Examine generation-to-load ratios under light loading conditions at the following locations:
 - Substation
 - Feeder breaker
 - Smallest bounded section
- Limits

Generation: Load Ratio < 2
- Mitigation
 - HECO Rule 14 Appendix I provided for inverter based resources (IBR's) mitigates concerns for ratios up to 10
 - PSCAD or other electromagnetic transient simulation to evaluate TrOV concerns

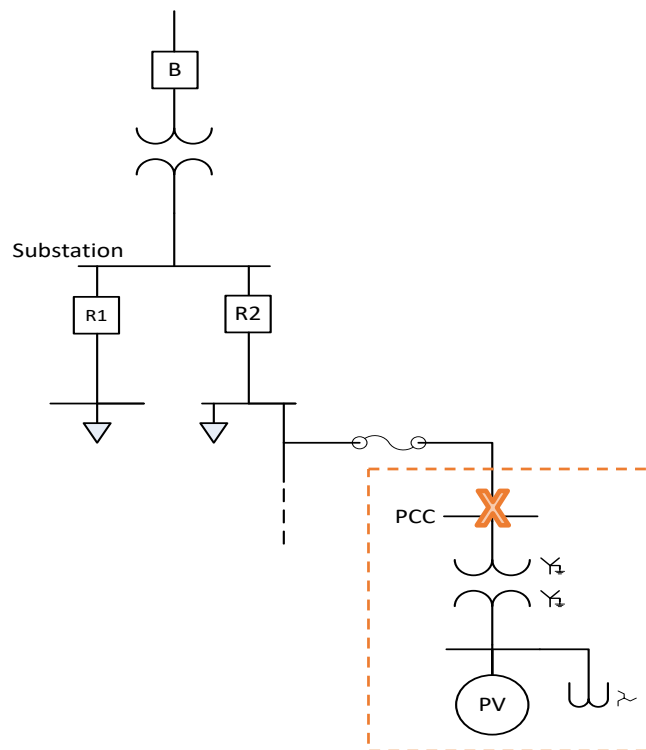
TrOV Screening Example



1. Perform utility TrOV screening process for each bounding device
2. If any generation-to-load (G:L) ratios are greater than 2, perform transient analysis

Effective Grounding

- Test Process
 - Isolate the DER facility from the EPS to remove system ground source
 - Examine positive and zero sequence impedances and/or unfaulted phase voltages
 - To ensure GFOV performance (confirmed in TDS)
- Limits
 - IEEE C62.92.6-2017 for Inverter Based Resources (IBR):
Coefficient of Grounding (COG) < 0.8
 - Traditional Effective Grounding Approximation:
$$\frac{X_0}{X_1} \leq 3 \quad \text{AND} \quad \frac{X_0}{R_1} \leq 1$$
- Mitigation
 - Ensure traditional effective grounding guidelines are met at the Project PCC by adding an effective grounding device or adjusting the existing design



- Design review
- Isolate PV facility just beyond Project PCC
- Evaluate effective grounding criteria at PCC

Transmission GFOV Screening

- Test Process
 - Generally used to evaluate subtransmission and/or transmission systems
 - Apply a single line to ground fault on the system at various locations and examine the unfaulted phase voltages

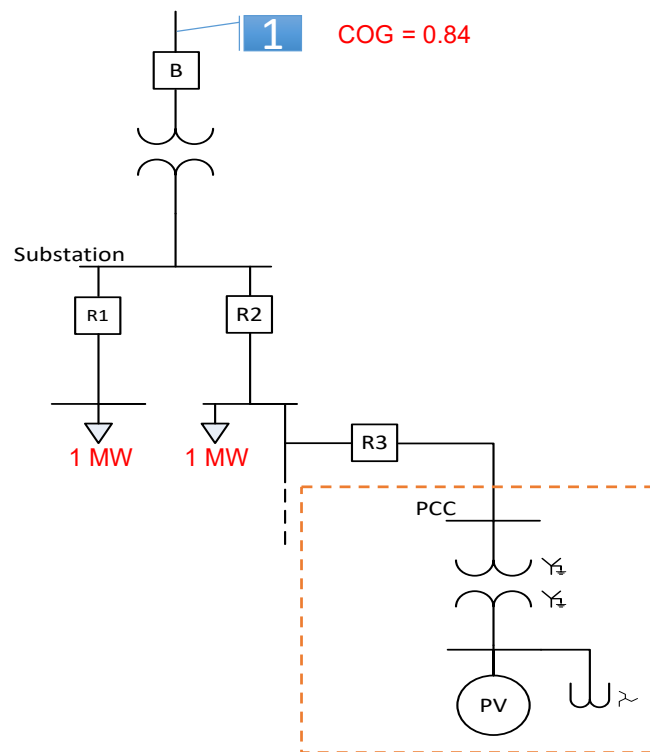
- Limits

$$COG < 0.8$$

Where $COG = \frac{kV_{LN,Unfaulted}}{kV_{LL,Rated}}$

- Mitigation
 - PSCAD or other electromagnetic transient simulation to evaluate GFOV concerns
 - 3V0 protection at substation
 - Add grounding bank to system for effective grounding

Transmission GFOV Screening Example



1. Perform utility GFOV screening at interconnecting substation high side and any other substations on nearby system
2. If any COG ratios are greater than 0.8, perform transient analysis or implement other protective measures

Other Considerations

- Volt/Var Interactions
 - Multiple projects operating in Volt/Var mode on a distribution network may result in “Hunting” or control oscillations
 - Stiffness Ratio can be a good indicator for likelihood of these issues occurring
- Protection
 - IBR fault current injections may cause desensitization of protective substation/line devices
 - Adding new protective devices (i.e. line reclosers) can change potential island characteristics

Time Domain Study Elements

- Risk of Islanding (ROI)
- Under Frequency Load Shed (UFLS)
- Transient Overvoltage (TrOV)
 - Load Rejection Overvoltage (LROV)
 - Ground Fault Overvoltage (GFOV)
- Volt/Var Control Interaction

PSCAD TD Studies

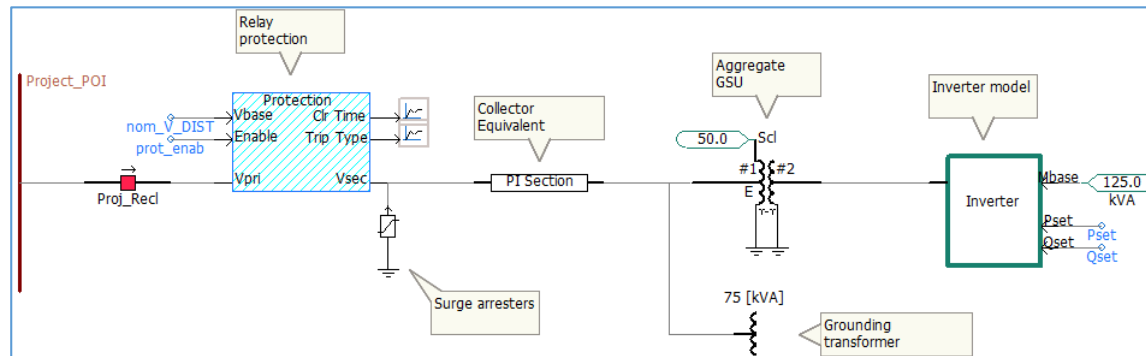
PSCAD MODEL TESTING AND VALIDATION

- Verify necessary documentation is provided
 - OEM User Manuals
 - Compliance checklists
- Ensure model meets client and regulatory requirements, e.g.:
 - Represents the full detailed inner control loops of the power electronics, preferably using embedded “real code” (e.g. Active Loss-of-Mains-Detection, LOMD)
 - Includes all pertinent protective functions (e.g. Passive LOMD, instantaneous overvoltage, etc.)
- Ensure model matches provided one-line diagram and equipment datasheets
- Performance tests, including:
 - Fault ride-through
 - Voltage and frequency response
 - Protection verification

PSCAD TD Studies

CREATE PSCAD MODEL OF PROJECT SITE INCLUDING:

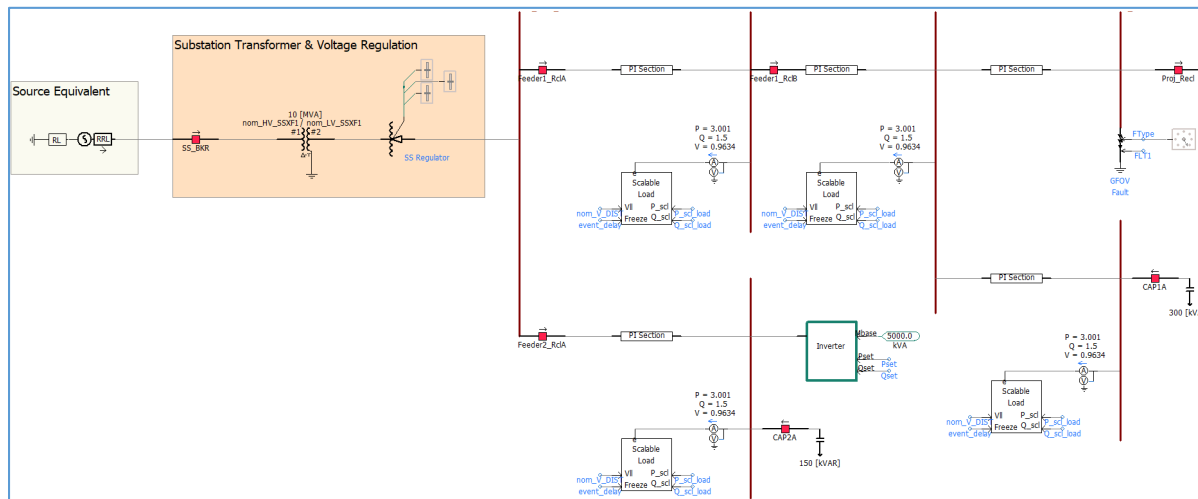
- Relay protection
- Collector system equivalent impedance
- Project inverter
- Surge arresters
- Grounding transformer
- Aggregate GSU



PSCAD TD Studies

CREATE DISTRIBUTION NETWORK MODEL INCLUDING:

- Source equivalent
- Feeder topologies and impedances
- Capacitor banks
- Voltage regulation
- Adjustable per-phase loads
- Other DER (IBR & rotating)

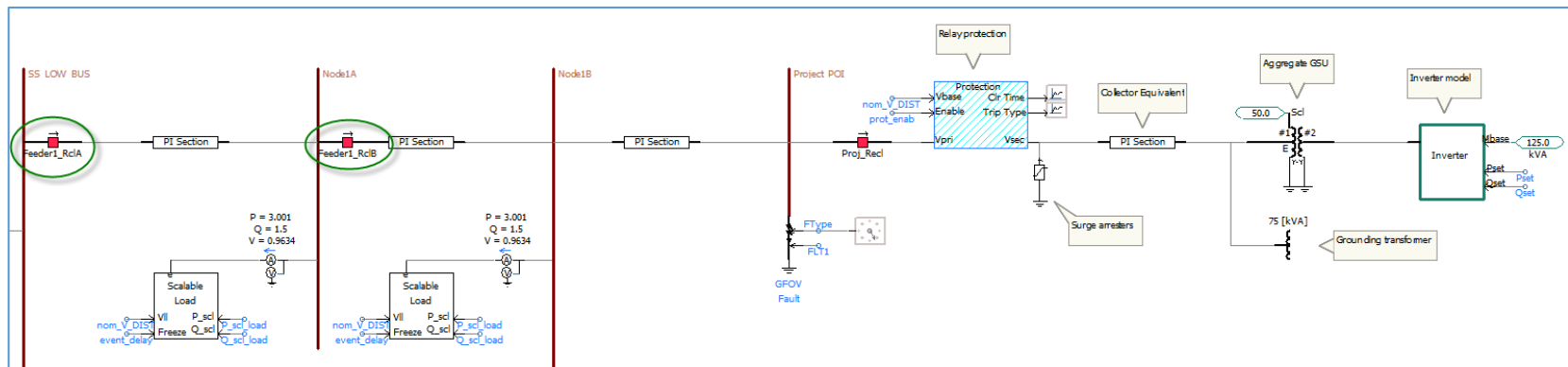


Risk of Islanding (ROI)

- Unintentional islands may form on the electric grid when there is enough generation to support the load in the island at or near nominal voltage and frequency
- Many inverters are tested and certified to detect unintentional islands and cease to energize
- Certification tests do not include the interactions between dissimilar inverters or rotating machines
- Studies (e.g. SAND2018-8431) have shown that:
 - Mixing dissimilar inverters tend to degrade overall LOMD performance
 - Presence of synchronous machines degrades overall LOMD performance

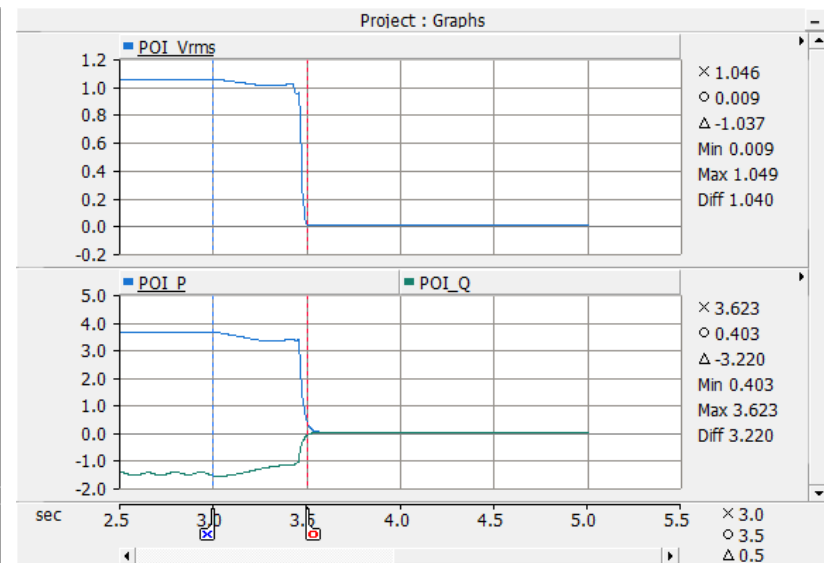
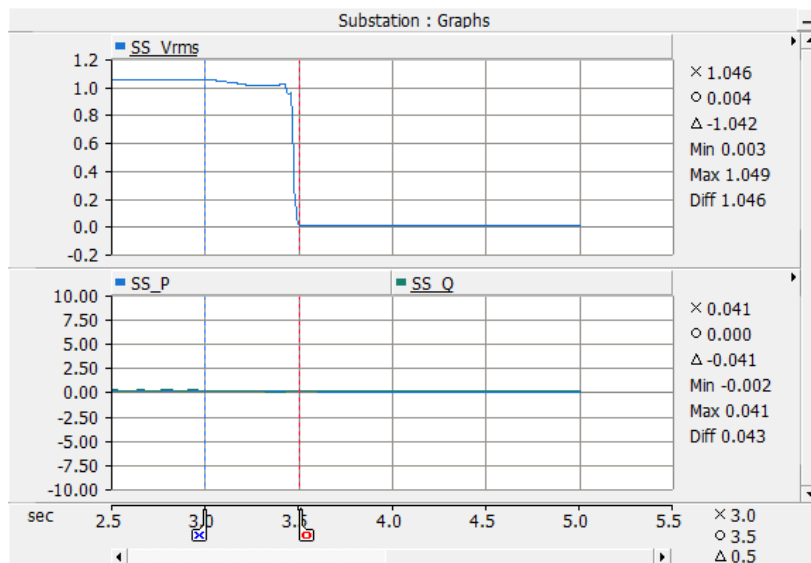
ROI Evaluation

- For every project-bounding breaker or recloser, posture the case so that P and Q across the device equals zero (worst case scenario)
- Open the device and record the behavior of the islanded generation
- Confirm the IEEE 1547-2018 8.1.1 2-second cease to energize and trip requirement is met



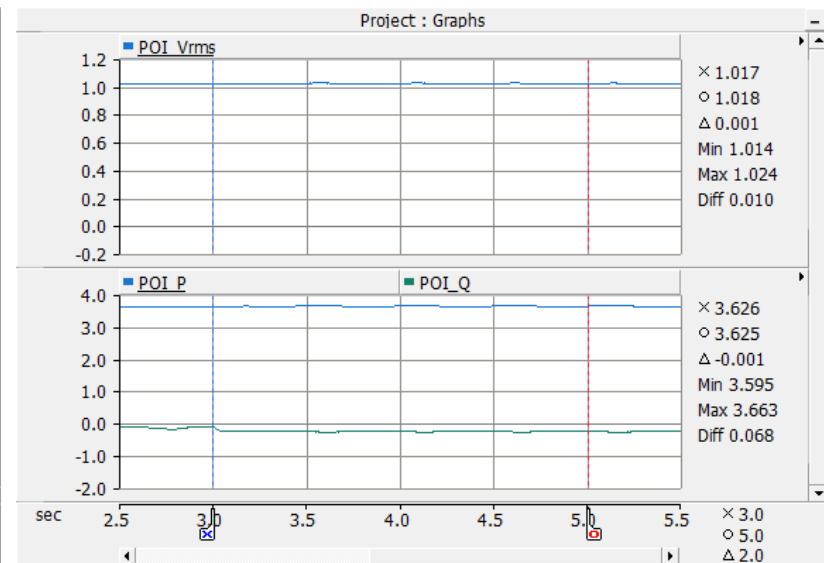
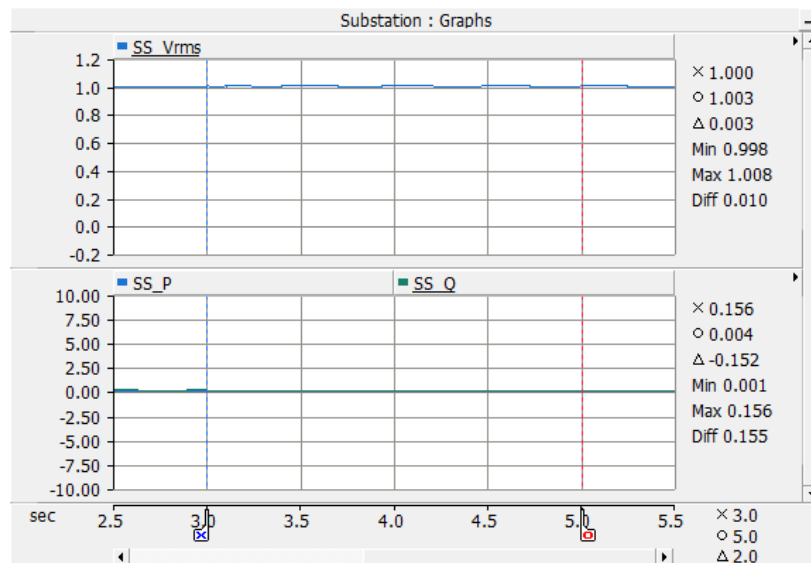
ROI Evaluation

EXAMPLE RESULTS



ROI Evaluation

EXAMPLE RESULTS



ROI Evaluation

- LOMD island detection failure mitigations:
 - If applicable, Enable or Adjust Inverter LOMD settings
 - Direct transfer trip (DTT)
- In RLC's experience, less than 7% of Projects that fail ROI screening also fail the full ROI evaluation

Under Frequency Load Shedding (UFLS)

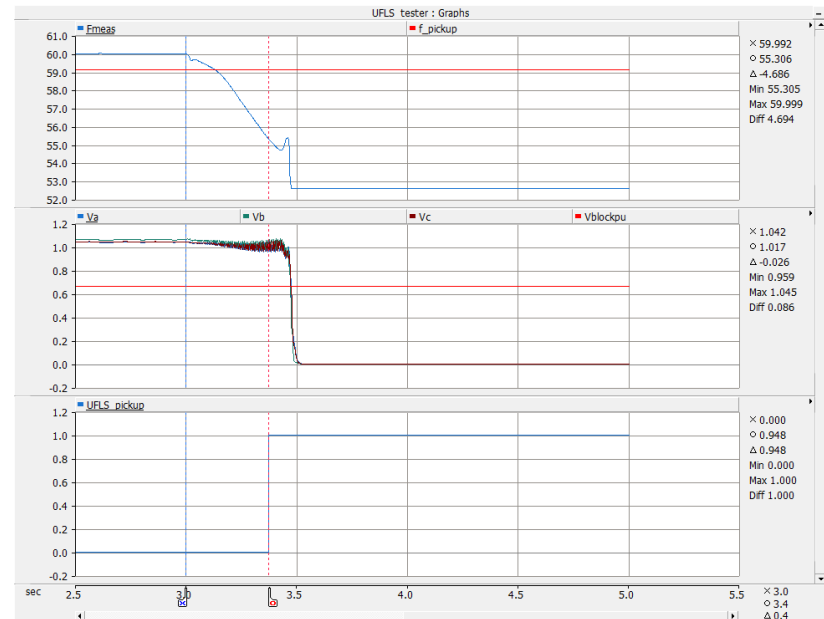
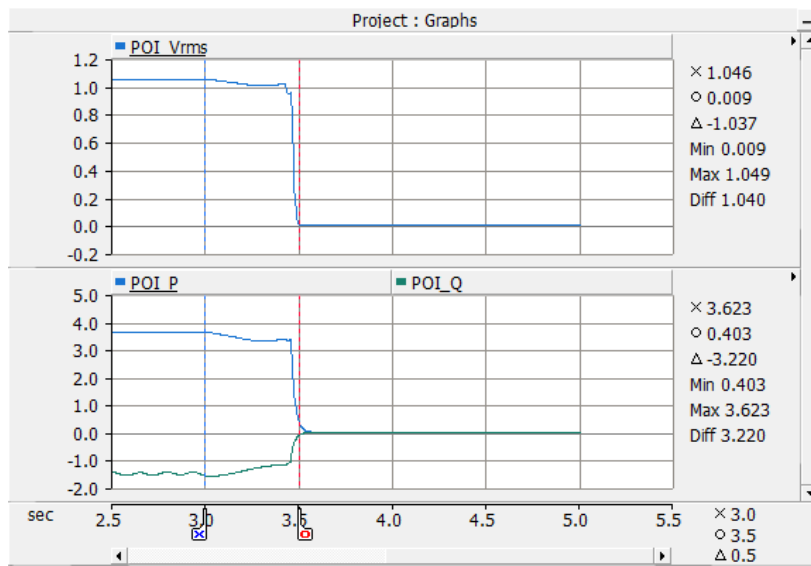
- Distribution circuit breakers may be equipped with UFLS trip settings
- Projects that pass ROI evaluation may still cause spurious UFLS tripping:
 - Example UFLS settings:
 - Frequency = 59.1 Hz
 - Voltage block = 0.67 PU
 - Pickup time = **0.24 s**
- UFLS evaluation ensures spurious UFLS tripping does not occur

UFLS Evaluation

- UFLS evaluation is similar to ROI evaluation:
 - For every breaker or recloser that could form an island containing both the project and a recloser equipped with UFLS, posture the case so that P and Q across the device equals zero
 - Open the device and confirm that the project ceases to energize the Area EPS and trips without activating the UFLS scheme.
 - Repeat the above steps for several slightly increasing loads to exacerbate conditions

UFLS Evaluation

EXAMPLE RESULTS



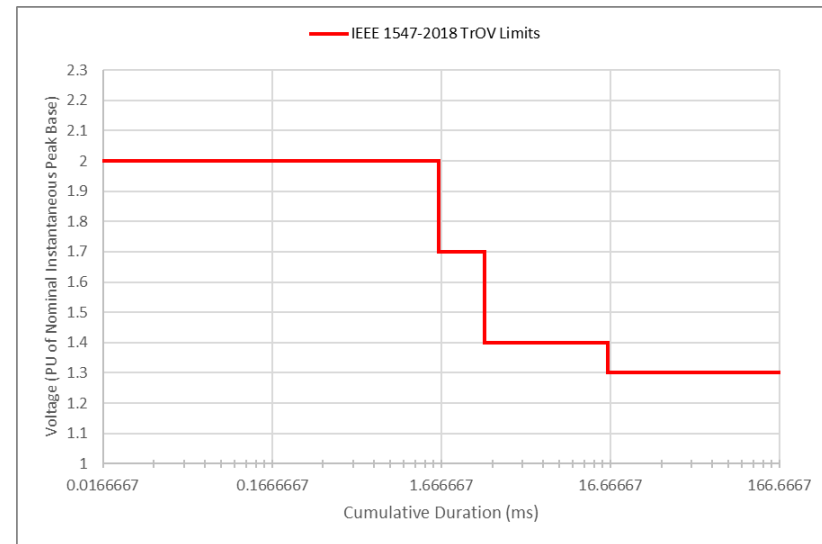
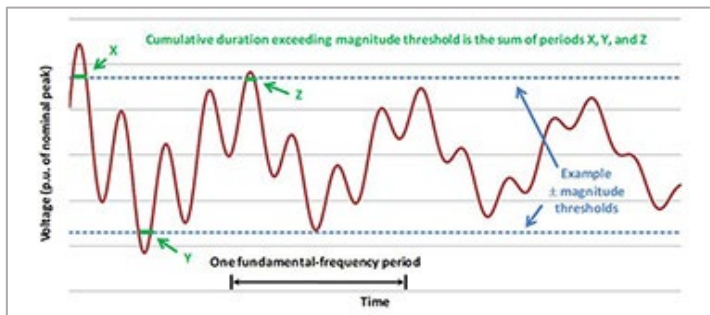
UFLS Evaluation

- Spurious UFLS tripping mitigations:
 - If applicable, Enable or Adjust Inverter LOMD settings
 - Direct transfer trip (DTT)
 - Remove and relocate UFLS to another substation
- In RLC's experience, less than 15% of Projects interconnecting at UFLS equipped substations fail the full UFLS evaluation

Transient Overvoltage (TrOV)

IEEE 1547-2018 7.4.2 LIMITATION OF CUMULATIVE INSTANTANEOUS OVERVOLTAGE

- DER may not cause Area EPS *instantaneous* voltage to exceed the cumulative duration limits
 - Applies to L-G & L-L voltages
 - Applies over a 1-minute time window

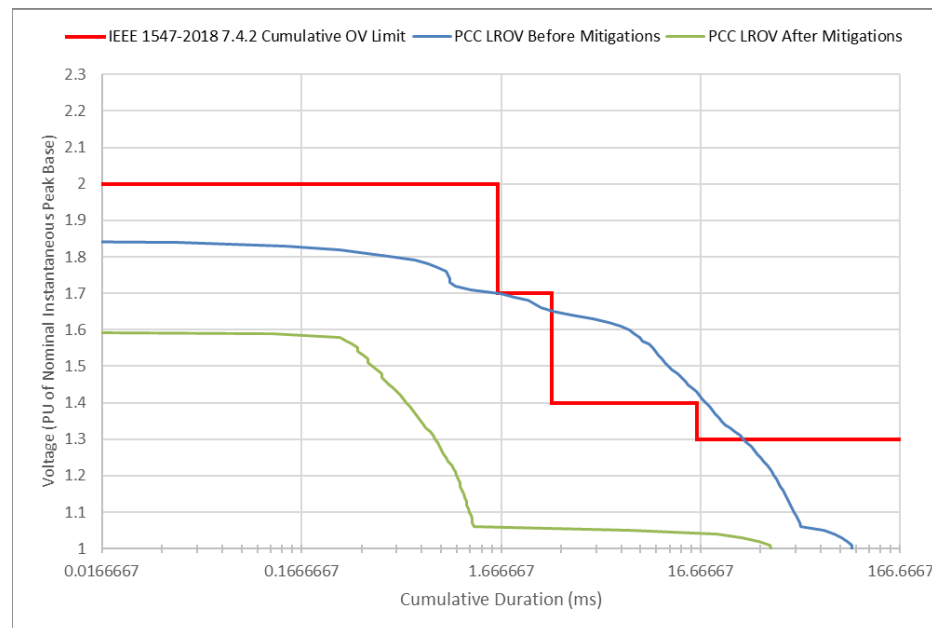


LROV Evaluation

- Test Process
 - Posture the case for maximum generation and minimum load for the maximum generation-to-load ratio
 - For every project-bounding breaker or recloser, open the device and monitor the instantaneous L-L and L-N voltages at the device and the project PCC
- Limits
 - IEEE 1547-2018 7.4.2 Limitation of cumulative instantaneous overvoltage
- Mitigation
 - Inverter transient overvoltage protection (TOVP) or self-protection overvoltage (SPOV)
 - Surge arresters
 - DTT is not typically proposed because communication and processing times are too long to ensure mitigation

LROV Evaluation

EXAMPLE RESULTS



GFOV Evaluation

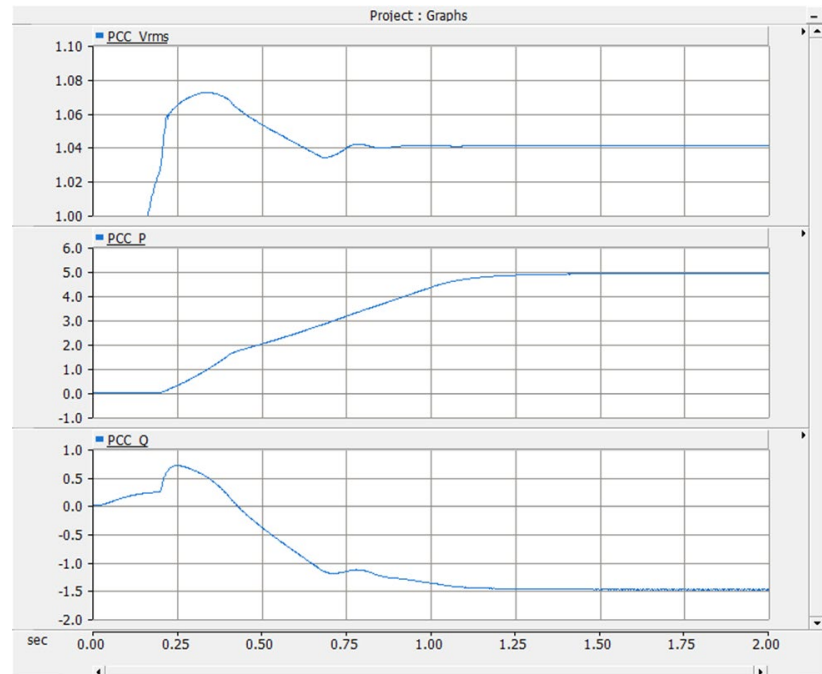
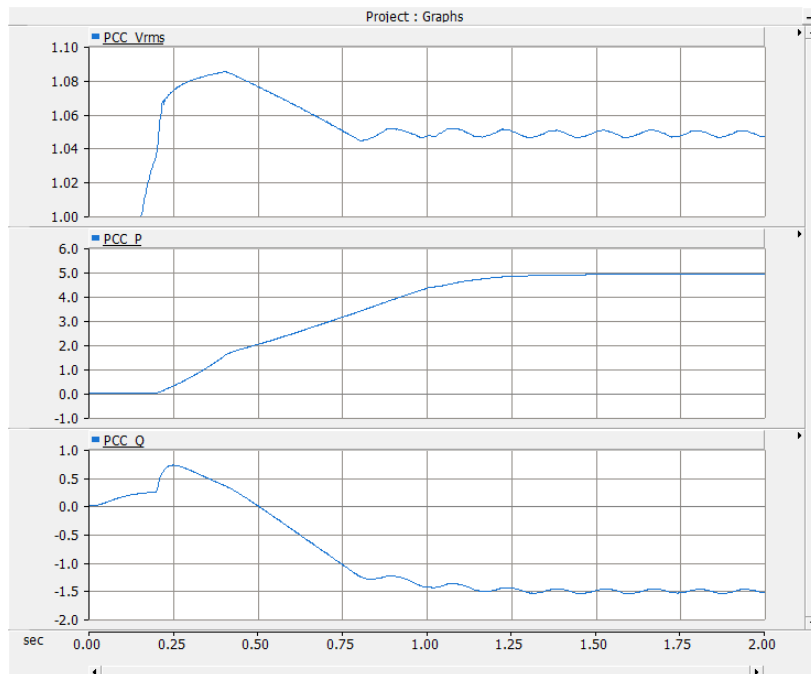
- Test Process
 - Similar to LROV, but with a single line to ground fault applied at the PCC for several cycles before the device immediately upstream opens
- Limits
 - IEEE 1547-2018 7.4.2 Limitation of cumulative instantaneous overvoltage
- Mitigation
 - Inverter transient overvoltage protection (TOVP/SPOV)
 - Surge arresters (able to mitigate the Load-Rejection component of the overvoltage)
 - Modify effective grounding design

Volt/Var Control Interaction

- Test Process
 - Posture the case so that all voltage-regulating generation is online and operating at steady-state
 - Introduce a system perturbation (e.g., voltage step or active power ramp) that causes all projects to operate on their respective Volt/Var curves
 - Observe the voltage and reactive power at the substation bus and at each generator PCC bus following the system perturbation
- Limits
 - No undamped voltage or reactive power oscillations
 - Engineering judgment (potential flicker impacts, device misoperation, etc.)
- Mitigation
 - Reduce aggressiveness of Volt/Var settings
 - Increase inverter Volt/Var open loop response time
 - Apply a Power Plant Controller (PPC) tuned to the Area EPS that provides active and reactive power commands to the Project inverter(s)

Volt/Var Control Interaction

EXAMPLE RESULTS



In Summary...

- Don't just mitigate – determine whether an adverse impact actually exists
 - Less than 10% of Projects that fail ROI screening end up requiring DTT following a full Time Domain Study evaluation
 - Less than 7% of Projects that fail ROI screening also fail the full ROI evaluation and require DTT
 - Less than 15% of Projects interconnecting at UFLS equipped substations fail the full UFLS evaluation
- Utilize least cost planning alternatives, including smart inverter grid support capabilities
- Consider highly credible certifications (e.g. UL 1741, HECO Rule 14 Appendix I, etc.)
- Technology, tools, and techniques for DER integration are continually improving

Q&A

For more information, please visit:

<https://rlc-eng.com/our-services/power-system-studies/>

**STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION**

In the matter of the Application of)
DTE ELECTRIC COMPANY)
for approval of Interconnection Procedures)
and Waivers from Interconnection and)
Distributed Generation Standards R 460.901a)
et. seq. _____)

Case No. U-21482

PROOF OF SERVICE

[illegible]

Summer R. Dukes, the undersigned, being first duly sworn, deposes and says that she is a Paralegal at Potomac Law Group PLLC and that on the 16th day of September, 2024 she served a copy of the Direct Testimony and Exhibits of Dr. Laura S. Sherman on behalf of the Michigan Energy Innovation Business Council, the Institute for Energy Innovation and Advanced Energy United, upon those individuals listed on the attached Service List via email.

Summer R. Dukes

<u>Administrative Law Judge</u> Honorable Katherine Talbot talbotk@michigan.gov <u>DTE Electric Company</u> John P. Christinidis Jon.christinidis@dteenergy.com <u>Environmental Law & Policy Center</u> <u>The Ecology Center</u> <u>Union of Concerned Scientists</u> <u>Vote Solar</u> Nicholas Wallace nwallace@elpc.org mpscdocket@elpc.org	<u>MPSC Staff</u> Anna B. Stirling Lori Mayabb Stirlinga1@michigan.gov mayabbl@michigan.gov <u>Michigan Energy Innovation Business Council</u> <u>Institute for Energy Innovation</u> <u>Advanced Energy United</u> <u>Energy Michigan, Inc.</u> Laura A. Chappelle Timothy J. Lundgren Justin K. Ooms lchappelle@potomaclaw.com tlundgren@potomaclaw.com jooms@potomaclaw.com
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