November 15, 2024

Ms. Lisa Felice
Executive Secretary
Michigan Public Service Commission
7109 West Saginaw Highway
Post Office Box 30221
Lansing, MI 48909

RE: Case No. U-21816 – In the matter of Consumers Energy Company's application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.

Dear Ms. Felice:

Enclosed for electronic filing in the above-captioned case, please find the **Application with supporting Testimony and Exhibits of Consumers Energy Company witnesses Kenneth D. Johnston, Marc R. Bleckman, Eugene M. Breuring, Thomas P. Clark, Zachary S. Cole, and Chibuzo C. Obikwelu**. Confidential Exhibits A-7 (TPC-1) through A-14 (TPC-8) and A-17 (TPC-11) through A-21 (TPC-15) are being filed under seal with the Michigan Public Service Commission.

This is a paperless filing and is therefore being filed only in PDF. Also included is a Proof of Service.

Sincerely,

Digitally signed by Anne M. Uitvlugt
Date: 2024.11.15 12:22:04 -05'00'

Anne M. Uitvlugt

cc: Parties to Attachment 1 to Proof of Service

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

CONSUMERS ENERGY COMPANY'S APPLICATION FOR APPROVAL OF AN AMENDMENT TO ITS RENEWABLE ENERGY PLAN

Consumers Energy Company ("Consumers Energy" or the "Company"), pursuant to 2008 PA 295 ("Act 295"), as amended by 2023 PA 235 ("Act 235"), MCL 460.1022(3), applies to the Michigan Public Service Commission ("MPSC" or the "Commission") for approval of an Amendment to the Company's Renewable Energy Plan ("RE Plan"). In support of this Application, Consumers Energy states as follows:

1. Consumers Energy is, among other things, engaged as a public utility in the business of generating, purchasing, distributing, and selling electric energy to approximately 1.9 million retail customers in the state of Michigan. The retail electric system of Consumers Energy is operated as a single utility system, within which uniform rates are charged.

2. Consumers Energy's retail electric business is subject to the jurisdiction of the Commission pursuant to various provisions of 1909 PA 106, as amended, MCL 460.551 *et seq*.; 1919 PA 419, as amended, MCL 460.51 *et seq*.; 1939 PA 3, as amended, MCL 460.1, *et seq*.; and 2008 PA 295, as amended, MCL 460.1001, *et seq*. Pursuant to these statutory provisions, the Commission has the power and jurisdiction to regulate Consumers Energy's retail electric rates.

3. On October 6, 2008, Michigan enacted Act 295, which required certain electric providers, including Consumers Energy, to file proposed RE Plans with the Commission for its review and approval. Consistent with the requirements of Act 295, Consumers Energy submitted its 2009 RE Plan on February 17, 2009 in Case No. U-15805, which was originally approved in an Order issued May 26, 2009. The plan: (i) explained how the electric provider intended to meet the statutory renewable capacity and renewable energy targets; (ii) estimated the costs associated with meeting those targets; and (iii) proposed cost recovery mechanisms, including a Transfer Price mechanism to recover a portion of the total costs of implementing the RE Plan through the Power Supply Cost Recovery ("PSCR") process and a 20-year levelized surcharge to recover the Incremental Cost of Compliance.

4. The Company's RE Plan has subsequently been amended and reflects certain amendments previously approved by the Commission. See MPSC Case Nos. U-18231 and U-15805, February 7, 2019 Opinion and Order; MPSC Case No. U-20165, June 7, 2019 Order Approving Settlement Agreement; MPSC Case No. U-20984, September 9, 2021 Order Approving Settlement Agreement; MPSC Case No. U-21374, August 22, 2024 Order.

5. On November 28, 2023, Act 235 was signed into law and became effective on February 27, 2024. Among other things, Act 235 further amended Sections 22 through 49 of Act 295 to increase the Renewable Energy Credit Portfolio Standard ("RPS") for electric providers from 15% through 2029, to 50% in years 2030 through 2034, and 60% in 2035 and thereafter.

6. On December 4, 2008, the Commission issued a Temporary Order in Case No. U-15800 in which it established procedures for energy providers to follow in the preparation, submission, and processing of RE Plans. An Amendatory Order was issued on December 23, 2008. The renewable energy filing requirements were again evaluated and updated by the

Commission in Case No. U-18409. In its May 23, 2024 Order in Case No. U-21568, the Commission recently approved new filing requirements consistent with the requirements of Act 235.

7. MCL 460.1022(3) requires electric providers to file with the Commission their respective amended RE Plan within one year of the effective date of Act 235. In Case No. U-21568, on February 8, 2024, the Commission issued an Order requiring Consumers Energy to file its Amended RE Plan no later than November 15, 2024. See MPSC Case No. U-21568, February 8, 2024 Order, page 4.

8. Consumers Energy has developed reasonable modifications to its RE Plan that will achieve the requirements of Act 235. This RE Plan amendment, which runs through 2045, includes proposed updates to the renewable energy credit ("REC") compliance standard of 50% in 2030 through 2034, and 60% in 2035 and each year thereafter. The Company's Amended RE Plan also includes reasonable and prudent costs regarding both the incremental cost of compliance and PSCR Transfer Price, as well as the Company's election not to implement a revenue recovery mechanism at this time.

9. Consistent with the requirements of Act 295, as amended, Consumers Energy's Amended RE Plan addresses the following:

- The RPS targets set forth in MCL 460.1028, and how the Amended RE Plan aligns with the Company's approved 2021 Integrated Resource Plan ("IRP") in Case No. U-21090;
- How the REC portfolio will be calculated pursuant to MCL 460.1028;
- The eligible sources of RECs used to comply with RPS, as well as new compliance option available to certain qualifying customers as discussed in MCL 460.1028 and MCL 460.1029;
- The expected incremental cost of compliance for a 20-year period consistent with MCL 460.1045;

- The inclusion of a financial compensation mechanism on contracted renewable energy resource in accordance with MCL 460.1047;

- The bidding process to be used by the Company pursuant to MCL 460.1028(6); and

- Considerations regarding the inclusion of a revenue recovery mechanism for the recovery of the incremental costs of compliance provided for in MCL 460.1045.

10. To meet the requirements of Act 295, as amended, the Company seeks approval of certain modifications to the RE Plan previously approved in Case No. U-21374. In summary, these amendments include the following:

- Addition of up to 8,000 MW of both purchased and Company-owned solar energy resources consistent with the Company's settlement agreement in its 2021 IRP, Case No. U-21090. 690 MW of the solar capacity included is comprised of four IRP solar projects that will be incorporated in the RE Plan - Muskegon Solar, Spring Creek, Washtenaw Solar, and Mustang Mile. The planned solar additions also include 1,060 MW of proxy solar voluntary green pricing ("VGP") projects;

- Addition of up to 2,800 MW of Company-owned wind energy resources to support the increasing levels of REC compliance in 2030 and 2035;

- Adoption of the Company's projections for RPS considering the inclusion of calculation modifications for distributed generation outflow, VGP program participation, procurement of Midcontinent Independent System Operator, Inc. ("MISO") generated RECs, and the removal of RECs associated with generation from tire-derived fuel;

- Maintain 15% RPS through 2029; 50% REC compliance through 2034, and 60% REC compliance in 2035 and beyond;

- Propose the use of excess interconnection capacity with battery energy storage located at the Company's owned renewable asset sites;

- Maintain the current PSCR (transfer price) methodology and regulatory liability balance for Company-owned assets in the RE Plan through December 2045 and return to limiting transfer price to the Levelized Cost of Energy ("LCOE") for Company-owned facilities starting in 2034; and

- Utilize the Company's newly proposed simplified transfer price schedules which would replace the Company's transfer price schedules approved in Case Nos. U-15805 and U-16581.

11. The Company's proposals for the addition of wind and solar assets to comply with the 15% REC compliance through 2029; the 50% REC compliance through 2034, and the 60% REC compliance in 2035 and beyond will increase the total costs of the RE Plan compared to the total costs in the currently approved RE Plan. The total cost of this RE Plan pursuant to MCL 460.1047(2)(a)(i,ii,iii,iv) is approximately $27.8 billion, compared to the total cost of approximately $3.0 billion currently approved in the RE Plan. The total amount recovered through the PSCR process for this RE Plan is expected to be approximately $24.9 billion, compared to the PSCR expense of approximately $3.1 billion in the currently approved RE Plan. This amended RE Plan reflects total incremental costs of compliance of ($304 million), compared to the total incremental costs of compliance of $201 million in the RE Plan approved in Case No. U-21374. The addition of solar assets to support the Company's VGP programs will have a negligible effect on the total costs of the RE Plan due to subscription revenue offsets of the LCOE. These costs could be influenced by numerous factors that could either raise or lower the Company's implementation costs between now and 2045.

12. The Company's RE Plan Amendment leverages the renewable energy build plan approved in its 2021 IRP and has supplemented it with incremental wind energy renewable resources to achieve compliance with the 50% and 60% REC compliance requirements in 2030 and 2035, respectively. Additionally, the Company has modeled the purchase of RECs (up to 5%) from within the MISO footprint for use until 2035. The Company's modeling reflects a LCOE of $55.44/MWh for wind energy resource additions with a January 1, 2028 commercial operation date ("COD") and a LCOE of $70.31/MWh for solar energy resource additions with a January 1, 2028 COD and reflects a 2% annual escalation or reduction for projects with CODs in subsequent or prior years, respectively, for each resource type. The Company is requesting that the

Commission review the Company's future projects for solar and wind renewable energy resources on an *ex parte* basis if the project has a LCOE which is up to 140% above the LCOEs targets provided.

13. The Company's Amended RE Plan includes a mechanism for recovering the incremental cost of compliance within its rates and a forecast of the renewable energy resources needed to comply with the new RPS targets. As prescribed by MCL 460.1045(3), the Company's Amended RE Plan calculates the incremental cost of compliance for a 20-year period through 2045. While the Company will experience incremental costs of compliance on an annual basis through 2034, the incremental costs of compliance turned decidedly negative in 2035 through 2041, resulting in a projected regulatory liability at the end of the 20-year RE Plan period. As such, a levelized revenue recovery mechanism, as provided for in MCL 460.1045(3), for the 20-year period is unnecessary. The Company proposes to continue to maintain the current PSCR (transfer price) methodology and regulatory liability balance for Company-owned assets in the RE Plan through December 2045.

14. Consumers Energy is, concurrently with this Application, filing written testimony and exhibits in support of the relief the Company is seeking in this case. Reference to this material will provide additional details on the relief being sought. The relief described in the testimony and exhibits should be considered as if specifically requested in this Application.

REQUEST FOR RELIEF

WHEREFORE, Consumers Energy Company requests that the Michigan Public Service Commission:

A. Determine that the Company's RE Plan is reasonable and prudent, and that it meets all applicable requirements of Act 295, as amended by Act 235;

B. Modify the RE Plan to add up to 8,000 MW of both purchased and Company-owned solar energy resources consistent with the Company's settlement agreement in its 2021 IRP Case No. U-21090;

C. Approve and grant cost recovery of 690 MW of the solar energy resources related to Muskegon Solar, Spring Creek, Washtenaw Solar, and Mustang Mile projects;

D Modify the RE Plan to add up to 2,800 MW of new wind energy facilities;

E. Approve the use of excess interconnection capacity with battery energy storage located at the Company's owned renewable asset sites;

F. Maintain the current PSCR (transfer price) methodology and regulatory liability balance for Company-owned assets in the RE Plan through December 2045;

G. Approve the Company's newly proposed simplified transfer price schedules which would replace the Company's transfer price schedules approved in Case Nos. U-15805 and U-16581;

H. Grant Consumers Energy such other and further relief as is just and reasonable.

Respectfully submitted,

CONSUMERS ENERGY COMPANY

Dated: November 15, 2024

By: _____

Srikanth Maddipati
Vice President of Electric Supply
Consumers Energy Company

_____

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

VERIFICATION

Srikanth Maddipati states that he is Vice President of Electric Supply at Consumers Energy Company; that he has executed the foregoing Application for and on behalf of Consumers Energy Company; that he has read the foregoing Application and is familiar with the contents thereof; that the facts contained therein are true, to the best of his knowledge and belief; and that he is duly authorized to execute such Application on behalf of Consumers Energy Company.

Dated: November 15, 2024

By: _____

Srikanth Maddipati
Vice President of Electric Supply
Consumers Energy Company

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

KENNETH D. JOHNSTON

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Kenneth D. Johnston, and my business address is 1945 West Parnall Road, Jackson, Michigan 49201.

Q. By whom are you employed and in what capacity?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company") as Director Regulatory Operations, Electric Supply Regulatory Strategies.

QUALIFICATIONS

Q. Please describe your educational background.

A. In 1983, I graduated from Lawrence Technological University with a Bachelor of Science Degree in Engineering. In 1991, I graduated with distinction from the University of Michigan, Dearborn, with a Master of Business Administration in Finance degree. I also completed advanced level mathematics and mechanical engineering courses at Lawrence Technological University.

Q. Have you completed other courses of study or attended any professional seminars?

A. Yes. I completed a training program entitled Fundamentals of Energy Management which was sponsored by the Association of Energy Engineers, and I also completed a training course offered by International Business Communications entitled Energy Industry Essentials. Additionally, I attended a workshop on Retail Open Access offered by the Michigan Electric Power Coordination Center, attended the Lighting Upgrade Workshop offered by the US Environmental Protection Agency ("EPA"), and completed the Nuclear Utility Procurement Training sponsored by the Electric Power Research Institute ("EPRI"). Finally, I have a Six Sigma Green Belt certification.

Q. Do you belong to any professional organizations or hold any certifications?

A. Yes. I have completed the necessary requirements and obtained certification: (i) as an Energy Manager through the Association of Energy Engineers; (ii) as a Green Lights Surveyor Ally through the EPA; and (iii) as a Nuclear Utility Procurement Instructor through EPRI.

Q. Please describe your business experience.

A. Please see Appendix A for details on my business experience.

Q. What has been your involvement in a regulatory case before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Please see Appendix A for details on my past involvement in regulatory cases before the MPSC.

PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is to provide an overview of the Company's Amended Renewable Energy Plan ("RE Plan");

- Introduce the other Company witnesses in this proceeding and preview their testimony;
- Explain the proposed changes to the Company's Amended RE Plan, and the Amended RE Plan's reasonableness, prudency, and consistency with the amendments to 2008 Public Act 295 ("Act 295"), including 2016 Public Act 342 ("Act 342") and 2023 Public Act 235 ("Act 235");
- Discuss and support the Company's projection for distributed generation ("DG") outflow and the Company's outreach session for DG Renewable Energy Credits ("RECs") pursuant to the Commission's August 22, 2024 Order in Case No. U-21374;
- Explain and support the inclusion of the Company-owned Integrated Resource Plan ("IRP") solar assets in the Company's RE Plan Amendment for cost recovery;

- Explain and support the proxy solar and wind renewable energy resource levelized cost of energy ("LCOE") that the Company modeled for renewable energy resource additions;

- Explain the proposed capital structure which will apply to the incremental RE Plan, Renewable Energy Program, and Solar Gardens wind and solar assets; and

- Explain the Company's proposed methodology to recover the Amended RE Plan costs of compliance including the transfer price methodology, financial compensation mechanism ("FCM"), and VGP subscription revenues.

My direct testimony, in conjunction with other witnesses in this proceeding, will both explain and support the major assumptions underlying the Company's Amended RE Plan.

Q. Are you sponsoring any exhibits with your direct testimony?

A. Yes, I am sponsoring the following exhibits:

Exhibit A-1 (KDJ-1)	Renewable Energy Plan Summary;
Exhibit A-2 (KDJ-2)	Illustrative PSCR credit for customer participation pursuant to MCL 460.1029(4)(a)&(b); and
Exhibit A-3 (KDJ-3)	Projected distributed generation outflow generation through 2045.

Q. Were these exhibits prepared by you or under your direction and supervision?

A. Yes.

Q. Who is presenting direct testimony for the Company's Amended RE Plan?

A. The Company will present its Amended RE Plan through six witnesses, including myself, as follows:

- Marc R. Bleckman, Executive Director, addresses the economic parameters regarding the calculation of the costs of compliance (total and incremental) for the 2024 RE Plan Amendment;

- Eugène M. Breuring, Principal Sales Forecasting Analyst, supports the Company's electric deliveries and generation requirements forecast;

- Zachery S. Cole, Renewable Engineer, supports the Company's Voluntary Green Pricing ("VGP") forecast and explain the new assets to be added to the

RE Plan to support IRP, Renewable Energy Program, and Solar Gardens subscriptions. In addition, Mr. Cole will support the Company's transfer price methodology through 2045 including the Company's proposals for transfer price revisions and capping of the transfer price in 2034;

- Chibuzo C. Obikwelu, Senior Engineering Tech Analyst, supports the quantity of RECs forecasted through 2045 to comply with Act 295, as amended by Act 342 and Act 235; and

- Thomas P. Clark, Executive Director, supports the Company's proposal for utilization of the excess interconnection capacity at the Company's renewable energy sites for the installation of batteries. In addition, Mr. Clark will support the inclusion of four Company-owned IRP-solar projects previously presented for cost recovery in electric rate cases.

Q. How are the following sections of your direct testimony organized?

A. My direct testimony is divided into six sections. Section I will provide an overview of the Company's Amended RE Plan and Section II provides an overview of Act 235, including relevant changes in the law that impact the Company's Amended RE Plan. Section III presents exhibits and supporting testimony for the Amended RE Plan and the proposed renewable energy resource additions, including REC purchases, supporting the Company's compliance with the REC standard. Section IV presents exhibits and supporting testimony for the VGP renewable energy resources supporting the Company's Renewable Energy Program and Solar Gardens Program. Section V presents exhibits and supporting testimony detailing how the Company has calculated the REC standard compliance.

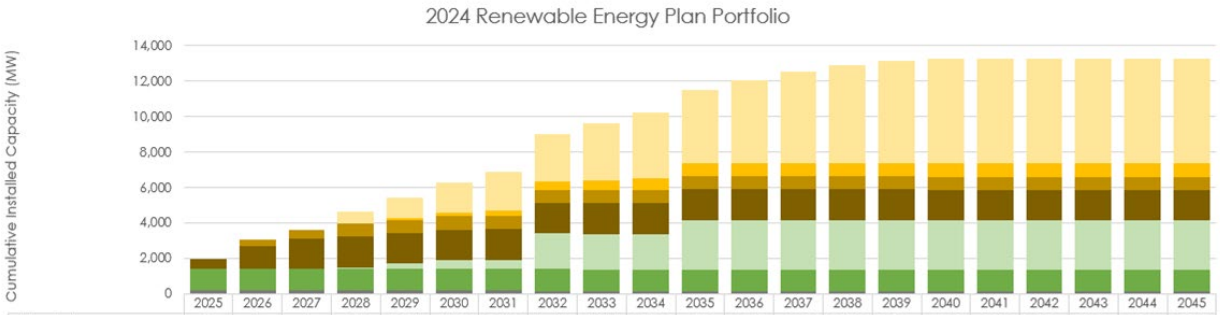
SECTION I: OVERVIEW OF THE AMENDED RE PLAN

Q. Please provide a summary of the Company's Amended RE Plan filing?

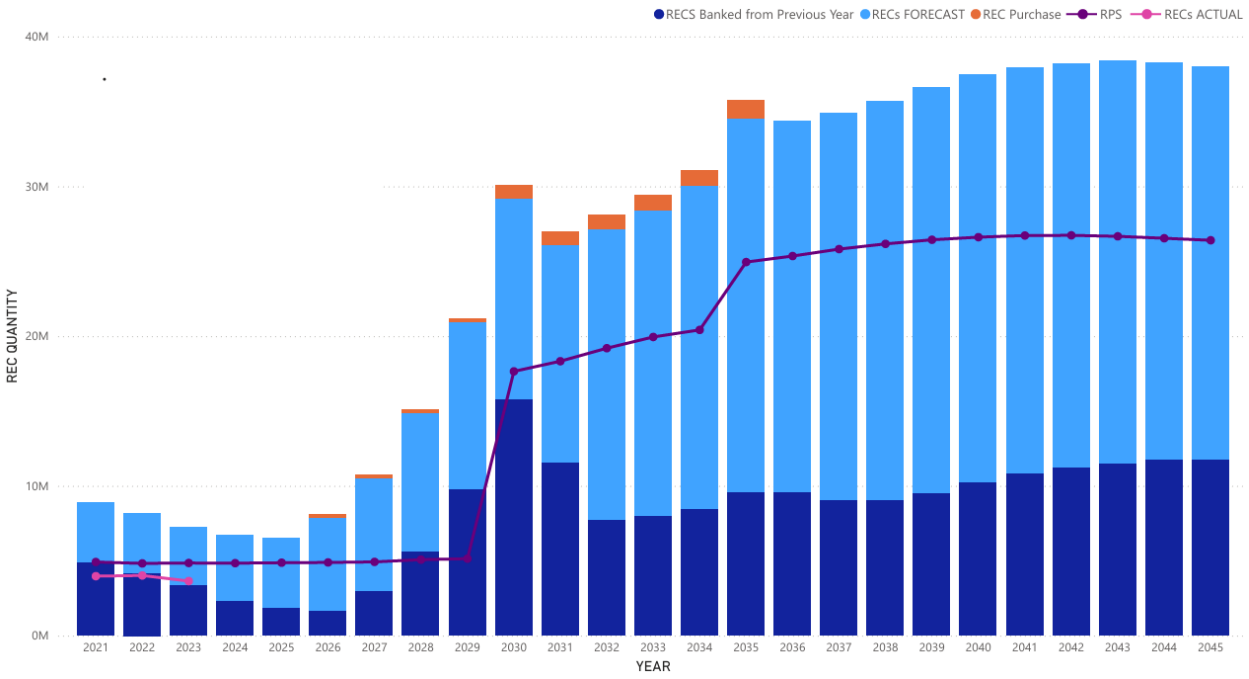
A. The Company developed a RE Plan amendment that complies with Act 235 effective February 2024; all while providing a reasonable and prudent path to safe, reliable, and affordable renewable energy for customers. Included in this amendment are the plans for adding new wind and solar assets to support the Company's IRP and voluntary Renewable

Energy Program, a proposal to cap the transfer price, a REC forecast through 2045 that complies with the new REC portfolio standard, and a proposal to use the excess interconnection capacity with battery energy storage located at the Company's owned renewable asset sites. Additionally, the Company has taken the position of moving cost recovery of certain renewable energy projects from its electric rate cases to the RE Plan.

The first chart below provides a high-level picture of the Company's planned resource mix of existing, new, and planned solar and wind assets, through 2045. The second chart, provides the current projected REC forecast, including banked RECs and REC purchases, also through 2045.



	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
New Solar	0	0	0	600	1,100	1,600	2,100	2,600	3,100	3,600	4,100	4,600	5,100	5,475	5,725	5,850	5,850	5,850	5,850	5,850	5,850
New VGP Solar	0	0	0	0	120	240	360	480	600	720	734	734	734	734	734	734	734	734	734	734	734
Planned VGP Solar	0	309	394	731	731	731	731	731	731	731	731	731	731	731	731	731	731	731	731	731	731
Existing/Planned IRP Solar	473	1,273	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723
New Wind	0	0	0	100	300	500	500	2,000	2,000	2,000	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
Existing Wind	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224
Existing Other	227	219	207	196	204	201	202	183	164	164	164	164	163	163	152	142	142	142	142	142	142



Q. Please describe the amendments included in the Company's RE Plan.

A. The Company's Amended RE Plan can be summarized as follows:

- Maintain the Company's RE Plan as approved in Case No. U-21374. This includes:
  - The approval of up to 100 MW of Company-owned solar energy consistent with the assumptions in Case No. U-18231;
  - The approval of over 1,400 MW of new solar facilities, based on customer subscriptions, to support the Company's Renewable Energy Program growth as approved in Case No. U-21374; and
  - The approval of up to 5.5 MW of Company-owned solar to serve the Company's Solar Gardens program.
- Modify the RE Plan to do the following:
  - The approval of up to 8,000 MW of both purchased and Company-owned solar energy resources supported by Mr. Cole and consistent with the Company's settlement agreement in its 2021 IRP Case No. U-21090;
  - The approval of up to 2,800 MW of Company-owned wind energy resources to support the increasing levels of REC compliance in 2030 and 2035 as discussed by Mr. Cole;

- The approval of the Company's projections for REC compliance considering the inclusion of calculation modifications for DG outflow, VGP program participation, procurement of Midcontinent Independent System Operator, Inc. ("MISO") generated RECs, and the removal of RECs associated with generation from tire-derived fuel ("TDF"); and

- Maintaining 15% REC portfolio standard compliance ("REC compliance") through 2029; 50% REC compliance through 2034, and 60% REC compliance in 2035 and beyond as supported by Mr. Obikwelu.

The renewable energy resource additions to support the Renewable Energy Program, Solar Gardens, and compliance with the new REC standard are discussed in the direct testimony of Mr. Cole.

Q. How do these proposals affect the costs of the Company's Amended RE Plan?

A. The Company's proposals for the addition of wind and solar assets to comply with the 15% REC compliance through 2029; the 50% REC compliance through 2034, and the 60% REC compliance in 2035 and beyond will increase the total costs of the RE Plan compared to the total costs in the currently approved RE Plan. The addition of solar assets to support the Company's Renewable Energy Program will have a negligible effect on the total costs of the RE Plan due to subscription revenue offsets of the levelized costs of energy.

Q. How do the costs of the RE Plan presented in this filing compare to the costs of the RE Plan as most recently approved by the Commission?

A. The total cost of this RE Plan pursuant to MCL 460.1047(2)(a)(i,ii,iii,iv) is approximately $27.8 billion, compared to the total cost of approximately $3.0 billion currently approved in the RE Plan. The total amount recovered through the PSCR process for this RE Plan is expected to be approximately $24.9 billion, compared to the PSCR expense of approximately $3.1 billion in the currently approved RE Plan. The change in cost is primarily driven by the addition of wind and solar assets required to comply with the 50% REC standard in 2030 and the 60% REC standard in 2035. This amended RE Plan reflects

total incremental costs of compliance of ($304 million), compared to the total incremental costs of compliance of $201 million in the RE Plan approved in MPSC Case No. U-21374.

Q. What information is presented on Exhibit A-1 (KDJ-1)?

A. Exhibit A-1 (KDJ-1) presents the overall summary of the Company's Amended RE Plan. Section 1 of the exhibit presents the retail sales and REC requirement calculation for the period from 2024 through 2045. The Company employs the three-year average retail sales methodology to calculate its REC requirement.

Section 2 of the exhibit presents the reconciliation of RECs for the period from 2024 through 2045 which includes the Company's projected sources of RECs including its REC purchases. Section 3 of the exhibit presents the overview of the revenue requirement for the period from 2024 through 2045 including all the sources of RE Plan costs less any revenue from Renewable Energy Sales. Section 4 of the exhibit presents the cost recovery for the period from 2024 through 2045 which primarily reflects the amount of cost transferred to the PSCR from Company-owned renewable energy resources.

Section 5 of the exhibit presents the planned non-volumetric revenue recovery and Section 6 of the exhibit presents the planned volumetric revenue recovery. As can be seen on lines 41 through 71, the Company has not proposed to implement a revenue recovery mechanism for the 20-year RE Plan period which I will discuss in more detail later in this direct testimony. Finally, Section 7 of the exhibit presents the projected regulatory liability balance for the period from 2024 through 2045. The exhibit consists of three pages with page 3 presenting the support for each of the line items presented on pages 1 and 2.

Q. Do the forecasted RECs in the Company's Amended RE Plan meet the REC compliance targets set forth in Act 235?

A. Yes. The Company's proposed renewable energy credit portfolio reflects the delivery of RECs which will allow the Company to comply with the 15% REC compliance through 2029; the 50% REC compliance through 2034, and the 60% REC compliance in 2035 and beyond.

Q. Does the Company's ability to achieve the REC compliance targets rely on assumptions outlined in this Amended RE Plan?

A. Yes. The Company's ability to comply with 15% REC compliance through 2029; the 50% REC compliance through 2034, and the 60% REC compliance in 2035 and beyond relies on the Company's ability to onboard a significant level of wind and solar assets throughout the RE Plan period. Further, the Company's compliance is also based on the accuracy of the Company's delivery forecast through 2045. Unknown increases to that forecast could impact the Company's ability to comply with the REC standard. Other assumptions that could impact the Company's ability to achieve the REC standard include the actual levels of DG outflow generation, VGP Program participation, and actual renewable energy generation.

Q. What has changed in the utility industry since Consumers Energy filed its last Amended RE Plan?

A. The rapid advancement of artificial intelligence ("AI") and the need for large data centers to support this technology has had an impact on the Company's delivery forecast as reflected in the delivery forecast supported by Company witness Breuring. Specifically,

the participation growth in the Company's Large Economic Development ("LED") rate could create challenges to the Company's ability to achieve the RPS compliance targets.

Q. What risks could affect the development of renewable energy systems required to meet the higher REC compliance targets?

A. There are a number of risks which could impact the development of renewable energy systems required to meet the higher RPS targets. These most significant risks include the continuation of the favorable tax credits, the MISO interconnection queue, and the siting of renewable energy systems.

SECTION II: ACT 235 OVERVIEW

Q. Please provide an overview of the pertinent changes reflected in Act 235.

A. Act 235 was signed by Governor Whitmer on November 28, 2023, with an effective date of February 27, 2024. For purposes of this Amended RE Plan, Act 235 established new REC standard compliance targets, provided new compliance options for certain qualifying customers, revised the eligible REC sources for compliance, revised the REC standard compliance determination, established a new timeline for issuance of RE Plan Amendment orders, established the cadence of subsequent RE Plan Amendment filings, and modified the incremental cost of compliance calculation. I will discuss the applicability of each of these revisions in my direct testimony.

Q. Please discuss the new REC compliance requirements reflected in Act 235.

A. Pursuant to MCL 460.1028(1)(a)-(c), the Company shall continue to achieve 15% REC compliance through 2029, 50% REC compliance in 2030 through 2034, and 60% REC Compliance in 2035 and each year thereafter.

Q. Please discuss the modifications to the calculation of the incremental costs of compliance reflected in Act 235.

A. The primary changes to MCL 460.1047 include the provision for a FCM for contracted renewable energy resources and specification of the Company's authorized rate of return on renewable energy resources used to comply with the renewable energy standard in place prior to the effective date of the clean energy standard created in MCL 460.1051, or February 27, 2024.

Q. Does the Company's Amended RE Plan reflect the recovery of an FCM?

A. Yes. The Company's RE Plan reflects the recovery of an FCM through the PSCR mechanism. Pursuant to MCL 460.1047(2)(a)(v)(C) and MCL 460.1028(8), the Company has calculated the FCM for all contracts it has executed and/or contracts it expects to execute after June 30, 2024.

Q. How does the Company's Amended RE Plan reflect the return on equity language in MCL 460.1047?

A. As discussed in the direct testimony of Company witness Bleckman, the Company has utilized the Company's prevailing return on equity for all Company-owned renewable energy resources added to comply with the renewable energy standard of 50% in 2030 and the 60% renewable energy standard in 2035. The Company has also employed its prevailing return on equity for all Company-owned renewable energy resources added to support VGP subscriptions. For all renewable energy resources supporting the Company's compliance with the 15% renewable energy standard, the Company has continued to employ the rate of return and debt-to-equity ratio that was in effect when its RE Plan was originally approved by the Commission.

Q. Please discuss the changes to the eligible sources for RECs reflected in Act 235.

A. Act 235 reflected several changes to the eligible sources for RECs to comply with the REC standard. These changes include the elimination of RECs produced by TDF the elimination of credits from advanced cleaner energy systems, the inclusion of up to 5% RECs from within the MISO footprint, and the use of RECs provided by certain eligible customers, as discussed later in this direct testimony. In addition, pursuant to MCL 460.1028(7), the conversion of energy waste reduction ("EWR") credits to RECs now occurs after incremental annual energy savings of 2% versus the previous incremental annual energy savings amount of 1.5%, thereby potentially reducing the number of EWR credits that get converted into RECs, all else being equal.

Q. How has the Company modeled these changes in its amended RE Plan?

A. Act 235 became effective on February 27, 2024, and as such, the Company has discontinued the use of RECs generated from TDF for REC compliance as of Act 235's effective date. With respect to the ability to purchase RECs up to 5% of the REC standard compliance from within the MISO footprint ("MISO RECs"), the Company has modeled those purchases to begin after Commission approval of this Amended RE Plan, or October 2025. Pursuant to MCL 460.1028(5)(c), the ability to use MISO RECs ends in 2035. The 5% MISO RECs determination is based upon the updated REC standard calculation that I will discuss later in this direct testimony. With respect to the level of EWR credits converted to RECs, Mr. Obikwelu's presentation of REC compliance reflects a decrease in RECs converted from EWR credits. Note the EWR credits converted to RECs reflects a one-year lag (2022 EWR credits converted to RECS for 2023 compliance), and as such,

the Company projects this decrease beginning in 2025 based upon a change in law beginning February 27, 2024.

Q. Did the Company model the procurement of DG RECs in its modeling?

A. No. The August 22, 2024 Order in Case No. U-21374 required the Company to include a proposal for procurement of DG RECs that comports with Act 235 in its next VGP filing. The Company plans to make its next VGP filing in October 2025. In addition, the August 22, 2024 Order in Case No. U-21374 required the Company to conduct a customer outreach within 60 days of the order.

Q. Did the Company hold its customer outreach as required by the August 22, 2024 Order in Case No. U-21374?

A. Yes. On September 25, 2024, the Company held its outreach to receive proposals from interested parties for the purchase of DG RECs which comports with Act 235. The Company invited all parties from its 2023 RE Plan/VGP Biennial Case No. U-21374 as well as its 2024 Electric Rate proceeding, Case No. U-21585.

The customer outreach was well attended and included representation from the Company, MPSC Staff ("Staff"), MEIBC, Advanced Energy United, RESA, GLREA, Chart House Energy, and Five Lakes Energy. Various parties provided proposals for the procurement of DG RECs which the Company will consider as part of its future proposal. Staff requested the Company to align with DTE Electric on its proposal.

Q. Please discuss the changes to the REC compliance determination reflected in Act 235.

A. The REC standard compliance for the Company is defined in MCL 460.1028(2)(b)(ii), which states:

> (ii) The average number of megawatt hours of electricity sold by the electric provider annually during the previous 3 years

> to retail customers in this state, less the amount of sales attributable to customers participating in an electric provider's voluntary green pricing program under section 61 and the outflow from customers participating in the distributed generation program under section 173 for that year.

As such, the Company will subtract from the average sales of electricity for the prior three years both the VGP sales and the DG outflow for the preceding year.

Q. Please discuss the forecast of DG outflow presented in Exhibit A-3 (KDJ-3).

A. Exhibit A-3 (KDJ-3) presents the Company's projection for DG outflow. The projection reflects outflow from both the Company's legacy net metering program and the Company's DG program, as defined in Section C11.3 of the Company's electric rate book. The DG outflow forecast specifically relies on the actual data for the two program types from 2022 and 2023. The forecast essentially relies on the DG outflow increase for the two program types from 2022 to 2023.

Q. Do these projections include any generation consumed by the customer for their own use?

A. No. These amounts only include excess generation that is sent to the grid, over and above customer consumption. The DG consumption by the customer is already reflected in Mr. Breuring's delivery forecast. Mr. Obikwelu uses the DG generation outflow to calculate the annual REC standard compliance target.

Q. Does the Company's forecast reflect reaching the 10% DG cap established in Act 235?

A. No. The Company's forecast does not project attainment of the 10% limit established in MCL 460.1073(3) which states:

> An electric utility or alternative electric supplier is not required to allow for a distributed generation program that is greater than 10% of its average in-state peak load for the preceding 5 calendar years. The electric utility or alternative

> electric supplier shall notify the commission if its distributed generation program reaches the 10% limit under this subsection. The 10% limit under this subsection shall be allocated as follows:
>
> > (a) Not less than 50% for customers with an eligible electric generator capable of generating 20 kilowatts or less.
> >
> > (b) Not more than 50% for customers with an eligible electric generator capable of generating more than 20 kilowatts but not more than 550 kilowatts.

Q. Please discuss the new compliance options for certain qualifying customers reflected in Act 235.

A. Pursuant to Act 235, certain eligible customers have the option of providing their own RECs to satisfy the REC standard. MCL 460.1029(4)(a) & (b) states as follows:

> (4) Renewable energy credits produced in the continental United States and owned by a customer of an electric provider may be utilized by the electric provider to meet the renewable energy credit standard if the electric customer chooses to report renewable energy credits to its electric provider as attributable to the customer's electric load. Any renewable energy credits reported by an electric customer for use by its electric provider shall be applied to the electric customer's proportional share of a renewable energy credit portfolio requirement for the year in which renewable energy credits are used to comply with the renewable energy credit standard. On an annual basis, not later than December 1, the electric customer shall provide the electric provider with an update on its 5-year forecast and notify the electric provider of the expected amount of renewable energy credits to be used toward compliance in the coming year. If the projected amount of renewable energy credits available for compliance will be less than what the electric customer projected in its 5-year forecast, then the electric customer shall notify the electric provider at least 5 years before the compliance year in which a projected reduction in renewable energy credits will occur. If the electric provider's rates are regulated by the commission and the electric provider uses the reported renewable energy credits to comply with the renewable energy credit portfolio standard, the electric

> provider shall grant the customer an appropriate cost-based rate credit against the cost of compliance under section 47. As used in this subsection, "customer of an electric provider" or "customer" means any of the following:
>
> (a) A customer taking service under a rate approved by the commission under section 10gg of 1939 PA 3, MCL 460.10gg.
>
> (b) A customer whose manufacturing complex is described in section 10a(4)(c) of 1939 PA 3, MCL 460.10a, and that takes service for a portion of its load from an alternative electric supplier licensed under section 10a of 1939 PA 3, MCL 460.10a, on the effective date of the amendatory act that added section 51.

For purposes of this filing, the Company has assumed that its REC standard compliance will not be met with customers that are eligible to provide their proportional share of RECs. To the extent that any customer decides to meet compliance through the provision of RECs, the Company will ensure that no costs associated with the attainment of the REC standard are reflected in their electric bills.

Q. How would the Company determine the proportional share of RECs for eligible customers?

A. The Company would calculate the proportional shares of RECs for eligible customers based upon their average full-service sales during the prior three years. Pursuant to MCL 460.1028(2)(b)(ii), the Company's chosen REC standard is based upon the average number of MWh of electricity sold during the prior three years with adjustments for (a) subscribed sales to customers participating in its VGP Programs pursuant to MCL 460.1061 and (b) the outflow from customers participating in the distributed generation program pursuant to MCL 460.1173. As such, the Company believes that the fairest and most consistent methodology for the determination of the proportional share of RECs for eligible customers

for the compliance year is to use the same calculation utilized by the Company less the adjustments for other programs.

Q. How would the Company propose to compensate eligible customers for reporting their RECs to the Company?

A. The Company will ensure that each of these customers completely avoids any costs associated with the Company's compliance with the REC standard if eligible customers report their proportional share of RECs to the Company. MCL 460.1029(4) includes the following language:

> If the electric provider's rates are regulated by the commission and the electric provider uses the reported renewable energy credits to comply with the renewable energy credit portfolio standard, the electric provider shall grant the customer an appropriate cost-based rate credit against the cost of compliance under section 47.

In accordance with this language, the Company would not impose a revenue recovery mechanism on either of these customers should they report their proportional share of RECs to the Company. In addition, the Company would ensure that eligible customers are not exposed to any increased PSCR costs as a result of the Company's compliance with the REC standard.

Q. How will the Company ensure that eligible customers do not contribute to the recovery of REC standard compliance costs through the PSCR?

A. To the extent that eligible customers are subject to increased rates as a result of recovering renewable energy resource costs through the PSCR, the Company will provide a bill credit to offset the increased PSCR costs. One of the eligible customers are currently situated differently with respect to PSCR as one of the eligible customers receives its electric supply through the Company's Long-Term Industrial Load Retention Rate ("LTILRR") which is

not impacted by the transfer of costs from renewable energy resources to the PSCR. However, another eligible customer's full-service accounts receive electric supply through Company rates which includes PSCR and, as a result, is subject to increased costs from the transfer of costs from renewable energy resources to the PSCR. As such, this eligible customer would receive a bill credit if they decided to report their proportional share of RECs to the Company.

Q. Please explain how the Company would calculate the bill credit.

A. The Company would compare the total amount of renewable energy resource cost that is transferred to the PSCR pursuant to REC standard compliance to the amount of energy cost that would have been recovered through the PSCR based upon market prices and provide a credit for a customer's prorated share of the increased amount. A sample calculation is presented in Exhibit A-2 (KDJ-2).

Q. Please explain Exhibit A-2 (KDJ-2).

A. Line 1 presents the historical renewable energy amount transferred to the PSCR in 2023 from renewable energy contracts and owned renewable energy resources. Line 2 presents the total transfer cost to the PSCR from renewable energy contracts and owned renewable energy resources in 2023, and line 3 calculates the average transfer cost to the PSCR from renewable energy contracts and owned renewable energy resources in 2023. Line 4 presents an illustrative locational marginal price ("LMP") for energy purchases during 2023 and line 5 presents the total cost of renewable energy transferred to the PSCR during 2023 at the average LMP. Line 6 represents the incremental cost of renewable energy transferred to the PSCR in 2023 as compared to the LMP, line 7 represents the total 2023 PSCR sales upon which the incremental cost of renewable energy is recovered, and line 8

presents the average incremental cost of renewable energy transferred to the PSCR. Line 9 represents illustrative eligible customer sales and line 10 represents a theoretical credit to an eligible customer subject to PSCR based upon the average incremental cost of renewable energy transferred to the PSCR.

Q. Please describe how a bill credit would be administered.

A. As part of the Company's renewable cost reconciliation, the Company would calculate an appropriate credit and apply it to the eligible customer's invoice. The credit would be funded from the cost of compliance. The Company has not reflected this credit in its calculation of its incremental cost of compliance for this proceeding as no eligible customer has indicated its preference for compliance.

Q. Do customers eligible to bring their own RECs have other options for REC compliance?

A. Yes. Each of the eligible customers have the option to do nothing or participate in the Company's VGP Programs. Doing nothing would subject them to all applicable PSCR and revenue recovery mechanism charges resulting from the Company's compliance with the REC standard, like all other full-service customers. Participating in the Company's VGP Programs at a subscription level of 50% or more would allow them to avoid revenue recovery mechanism charges but would not allow them to bypass applicable PSCR charges resulting from the Company's compliance with the REC standard.

Q. Please discuss the timeline established for issuance of RE Plan Amendment orders and the cadence of subsequent RE Plan Amendment filings reflected in Act 235.

A. Pursuant to MCL 460.1022(3), the Commission is required to issue a final order within 300 days of the filing date of the Amended RE Plan. Further, subsequent amended renewable

energy plans shall be filed within two years of an order received in the previous amended renewable energy plan.

Q. Why is this RE Plan Amendment filing timeline important?

A. This timeline is important as it identifies the period during which the Company could implement a renewable energy recovery mechanism. The Company does not plan to accumulate a regulatory liability balance to fund future renewable energy resources, rather it plans to consider a revenue requirement mechanism over the 20-year renewable energy period reflected in its filing. To the extent that a revenue requirement mechanism is determined to be necessary, the Company would design a revenue recovery mechanism to only recover its costs of compliance for the period in between amended RE Plan orders.

For instance, the Company expects to receive an order in this proceeding no later than September 2025. To the extent necessary, the Company would propose to implement a revenue recovery mechanism beginning in October 2025 and impose that charge on customers' bills through July 2028, at which time a new revenue recovery mechanism could be implemented based upon a final order in its next amended RE Plan (to be filed no later than September 2027 with a final order no later than July 2028). See Figure 1 below which presents the projected timeline for a potential revenue recovery mechanism.

FIGURE 1: Revenue Recovery Mechanism Timeline

Renewable Energy Plan Filing									
	1	2	3	4	5	6	7	8	9
Renewable Energy Plan Amendment	11/15/2024	9/11/2027	7/7/2030	5/3/2033	2/27/2036	12/23/2038	10/19/2041	8/15/2044	6/11/2047
Renewable Energy Plan Order	9/11/2025	7/7/2028	5/3/2031	2/27/2034	12/23/2036	10/19/2039	8/15/2042	6/11/2045	4/6/2048
Renewable Energy Plan Revenue Recovery Mechanism Start	10/1/2025	8/1/2028	6/1/2031	3/1/2034	1/1/2037	11/1/2039	9/1/2042	7/1/2045	5/1/2048
Renewable Energy Plan Revenue Recovery Mechanism End	7/31/2028	5/31/2031	2/28/2034	12/31/2036	10/31/2039	8/31/2042	6/30/2045	4/30/2048	

Q. Has the Company proposed to implement a revenue recovery mechanism for its incremental costs of compliance in this proceeding?

A. No. As discussed in more detail in the direct testimony of Mr. Bleckman, the Company has chosen not to implement a revenue recovery mechanism in this filing. While the Company's filing reflects that the Company will experience incremental costs of compliance on an annual basis through 2034, the incremental costs of compliance turned decidedly negative in 2035 through 2041, resulting in a projected regulatory liability at the end of the 20-year RE Plan period. As such, a levelized revenue recovery mechanism, as provided for in MCL 460.1045(3), for the 20-year period is unnecessary.

Q. Are there other reasons for not implementing a revenue recovery mechanism?

A. Yes. If the Company were to implement a revenue recovery mechanism for a shorter period, it would essentially pre-pay for Company-owned renewable energy resources that would benefit future electric customers and likely necessitate a large revenue recovery mechanism credit surcharge for future beneficiaries of Company-owned renewable energy resources.

In addition to following principles of cost causation, the Company also recognizes that it may ultimately solicit and execute contracts for a higher percentage of renewable energy resources as compared to its proposed plan. That scenario would lead to far lower incremental costs of compliance and, ultimately, an even greater need to avoid the implementation of a revenue recovery mechanism.

Q. Does the Company intend to build a large regulatory liability balance at the end of the 20-year RE Plan period?

A. No. To the extent that a large regulatory liability balance continues to persist in 2037 and beyond, the Company will take measures to adjust the revenues to minimize that balance. Potential measures include a reduction to the transfer price and/or the implementation of a credit surcharge. However, given the 20-year RE Plan period and the periodic filing of RE Plan Amendments, the Company has sufficient time to address that potential in future RE Plan Amendment filings.

SECTION III: RESOURCE ADDITIONS FOR REC COMPLIANCE

Q. Please discuss the modifications to the locational requirements for renewable energy systems reflected in Act 235.

A. Pursuant to MCL 460.1029(1), renewable energy systems that provide RECs used to satisfy the REC standard can be located anywhere in Michigan. In addition, the renewable energy systems can be located outside of Michigan provided that the capacity from the renewable energy system is used to achieve the Company's resource adequacy obligation to MISO. Further, MCL 460.1029(2) states that the Company does not have to obtain firm transmission rights to ensure the deliverability of renewable energy resources to MISO resource adequacy Zone 7.

Q. Has the Company projected the ownership or contracting of renewable energy resources outside of Michigan in its Amended RE Plan?

A. No. The Company has modeled the assets for its Amended RE Plan to all be sourced within Michigan, MISO Zone 7. However, to the extent that the Company is able to identify out of state renewable energy resources that are more financially viable than Michigan

renewable energy resources due to factors such as construction cost or capacity factor, the Company will consider executing purchased power agreements for those assets; the Company does not intend to own out of state renewable energy resources.

Q. What is the basis for the cost assumptions for the renewable energy wind resource additions?

A. The Company's modeling in this filing reflects a LCOE of $55.44/MWh for wind energy resource additions with a January 1, 2028 commercial operation date ("COD"). The Company's modeling reflects a 2% annual escalation or reduction for projects with CODs in subsequent or prior years, respectively. The LCOE is based upon an installation cost of $1,843/kW for installation, a weighted average cost of capital of 7.25%, a nominal capacity factor of 29.0%, an effective tax rate of 25.7%, an annual operating and maintenance ("O&M") of $30.45/kW (escalated by 2% beyond 2028), and a useful life of 30 years.

Q. What is the basis for the cost assumptions for the renewable energy solar resource additions?

A. The Company's modeling in this filing reflects a LCOE of $70.31/MWh for solar energy resource additions with a January 1, 2028 COD. The Company's modeling reflects a 2% annual escalation or reduction for projects with CODs in subsequent or prior years, respectively. The LCOE is based upon an installation cost of $1,766/kW for installation, a weighted average cost of capital of 7.25%, a nominal capacity factor of 23.0%, an effective tax rate of 25.7%, an annual O&M of $22.68/kW (escalated by 2% beyond 2028), and a useful life of 30 years.

Q. What is the Company's request for project approval for solar and wind renewable energy resources?

A. The Company is requesting that the Commission allow the Company to receive ex parte approval for future projects for solar and wind renewable energy resources that have a LCOE which is up to 140% above the LCOEs targets discussed above. For wind energy projects with a COD of January 1, 2028, this means the Company would be able to receive ex parte approval for projects with LCOEs of up to $77.62/MWh. For solar energy projects with a COD of January 1, 2028, this means the Company would be able to receive ex parte approval for projects with LCOEs of up to $98.44/MWh.

Q. What is the basis for the Company's request for a threshold multiplier of 140%?

A. There are several reasons why the Company believes that a multiplier of 140% is reasonable. The 140% multiplier will reflect risks associated with developers. Some of these risks include not passing along tax credits, developers pricing in the risk of tax credit being repealed, MISO interconnection queue delay risk, the Company's experience in its competitive solicitations that few MW (out of the 500 MW targets) are priced at or below the target LCOE, Federal tariffs on solar panels, and bids reflecting those risks, increasing / inflating construction labor costs, and increasing / inflating cost of land acquisition.

Q. Please quantify the impact of the risks.

A. The Company's competitive solicitations have resulted in fewer solar MWs at a competitive price. A review of the solar bids offered that would achieve the Company's solicitation targeted capacity (500 MW per year), reveals that the marginal bid is approximately $97/MWh (or approximately 140%). To the extent that developers are pricing in the risk of losing tax credits (repeal of the Inflation Reduction Act or simply not

passing the tax credit revenues along to customers), the $70.31/MWh LCOE the Company has modeled would increase to $97/MWh (or approximately 140%). As such, the Company believes that a threshold multiplier of 140% would allow the Company to efficiently implement its RE Plan.

Q. Has the Company reflected the ownership or contracting of energy storage resources in its Amended RE Plan?

A. No. The Company has not included any costs associated with energy storage resources in its Amended RE Plan. However, Company witness Clark does present the Company's proposal for co-located energy storage including a proposed threshold levelized cost which could be used as a reasonable basis under which the Company could move forward with the addition of energy storage. Pursuant to Act 235, the Company is required to petition the Commission for necessary approvals for the addition of its share of eligible energy storage systems by December 31, 2029. MCL 460.101(1) states:

> By December 31, 2029, each electric provider whose rates are regulated by the commission shall petition the commission for any necessary approvals, and each alternative electric supplier shall submit a plan to the commission, to construct or acquire eligible energy storage systems or enter into eligible energy storage contracts to meet its share of a statewide energy storage target of a combined capacity of at least 2,500 megawatts. An electric provider's share of the statewide energy storage target shall be apportioned based on the electric provider's annual average contribution to in-state retail electric peak load for the 5-year period immediately preceding the filing of the electric provider's plan under this subsection.

Q. Please discuss the modifications to the cost recovery methodology reflected in Act 235.

A. Subject to MCL 460.1047, Act 235 modified MCL 460.1045 to eliminate surcharges based upon maximum per meter charges and instead established the option to implement a revenue recovery mechanism whose design must be consistent with the production

allocation approved in the Company's most recent general rate case under section 6a of 1939 PA 3, MCL 460.6a. Act 235 continued the recovery of renewable energy costs of compliance from the PSCR.

COMPANY-OWNED IRP SOLAR ASSETS

Q. How does the Company plan to recover the costs of Company-owned solar assets that were solicited pursuant to its IRP Clean Energy Plan?

A. As presented in the testimony and exhibits of other witnesses in this proceeding, the Company intends to recover all costs associated with its Clean Energy Plan as well as compliance with the new REC standard through its RE Plan. Prior to enactment of Act 235, the Company's cost recovery plans reflected the recovery of costs of renewable energy resource power purchase agreements ("PPAs") through the PSCR and the recovery of costs associated with Company-owned renewable energy resources through base electric rates.

Q. Has the Company requested cost recovery of Company-owned renewable energy assets in its ongoing Electric Rate Case No. U-21585?

A. Yes. The Company's filed position in its Electric Rate Case No. U-21585 reflected cost recovery associated with four separate Company-owned assets: Mustang Mile, Washtenaw, Muskegon, and Spring Creek. These four projects were selected in the Company's 2019, 2020, 2021, and 2022 IRP solicitations respectively, with the first two projects representing build-transfer agreements and the second two being self-perform projects.

Q. Has the Company revised its position regarding cost recovery of Company-owned renewable energy assets in its Electric Rate Case No. U-21585?

A. Yes. Staff witness Jesse J. Harlow proposed the removal of costs associated with these Company-owned projects from the electric rate case and recommended that they be recovered through the Company's RE Plan. The Company supported Mr. Harlow's proposal in its rebuttal testimony, and as such, has reflected its cost recovery in this RE Plan.

Q. How will the Company proceed in this RE Plan if Mr. Harlow's proposal in Electric Rate Case No. U-21585 is rejected by the Commission?

A. The Company will simply remove the recovery of these assets from this RE Plan and renewable cost reconciliation proceedings and recover those assets through electric rate cases. In addition, the Company will adjust its 2025 PSCR Plan to remove any costs transferred to the PSCR because of these additions. That said, the Company continues to believe that recovery of the costs of renewable energy resources in its RE Plan is the appropriate forum to best present the costs of its renewable energy standard compliance.

SECTION IV: VGP RENEWABLE ENERGY PROGRAM SUMMARY

Q. Please provide a summary of the Renewable Energy Program.

A. The Renewable Energy Program is available to all customers, residential, small to medium business, and large business alike with two enrollment options: (1) annual subscriptions of <1,000,000 kWh, and (2) annual subscriptions of ≥1,000,000 kWh.[1] Eligible customers can subscribe to have up to 100% of their annual energy requirements served by renewable energy resources in 1% increments. Renewable Energy Program customers may also select

[1] The LC-REP predecessor program required a minimum load of 150 kW.

a subscription level at a fixed volume of their monthly kWh energy use subject to Company approval.

Q. How are Renewable Energy Program customers charged for participation?

A. Renewable Energy Program customers pay the LCOE of the asset to which they are subscribed for their energy usage for the duration of their contract. As an offset to the subscription price, Renewable Energy Program customers receive monthly credits for the energy and capacity value of the resource(s) to which they subscribed. To the extent that the Company's solicitations, which are described in more detail by Mr. Cole, result in the contracting of renewable energy resources to support the Renewable Energy Program, the subscription price will be a combination of the contract price plus the FCM.

Q. Are there any cost changes to the Company's Renewable Energy Program?

A. Yes. Act 235 provides for the application of an FCM on PPAs for renewable energy resources executed after June 2024. Because MCL 460.1061 requires VGP customers to fully pay for the costs of the program, the subscription amount will have to include the PPA cost plus the FCM cost on any PPAs for renewable energy resources for the Renewable Energy Program.

Q. Is the FCM rate equivalent to the rate applied to new renewable energy resources owned by the Company?

A. No. The FCM is based upon the Company's pre-tax weighted average cost of permanent capital which includes the Company's long-term debt and equity as determined in the Company's most recent electric rate case. Specifically, MCL 460.1028(8) states:

> If an electric provider whose rates are regulated by the commission enters into a purchase power agreement for renewable energy resources or a third-party contract for an energy storage system or clean energy system with an entity

> that is not an affiliate, the commission shall authorize an annual financial incentive for the electric provider. The financial incentive shall be calculated as the product of contract payments in that year multiplied by the electric provider's pre-tax weighted average cost of permanent capital comprised of long-term debt obligations and equity of the electric provider's total capital structure as determined by the commission's final order in the electric provider's most recent general rate case. The pre-tax weighted average cost of permanent capital used to calculate the financial incentive shall not be fixed throughout the entire term of the contract at the pre-tax weighted average cost of capital applicable in the first year but shall be updated based on the commission's final order in each succeeding general rate case for the electric provider. The financial incentive shall apply to each contract described in this subsection from the date the contract is executed for the entire term of the contract. This subsection applies to any contract entered into after June 30, 2024.

Q. What pre-tax weighted average cost of permanent capital rate has been used by the Company to calculate the FCM?

A. The Company has used a pre-tax weighted average cost of permanent capital rate of 8.7% in its calculation of the FCM expense in this proceeding. Company witness Cole uses this rate in his calculations on Exhibit A-29 (ZSC-6) to determine the amount to be transferred to the PSCR for renewable energy contracts executed after June 30, 2024.

Q. What level of VGP renewable asset additions has been approved by the Commission?

A. The August 22, 2024 Order in the Company's 2023 RE Plan Amendment, Case No. U-21374, removed the 1,000 MW limit on the addition of new wind and solar facilities to serve the Renewable Energy Program. The Company will not add new renewable energy resource additions until it has achieved subscriptions totaling 75% of the expected energy production. To model the impacts on the Regulatory Liability Account and not allocate costs to non-subscribing customers, the Company has modeled the new renewable energy

additions as being fully subscribed with no amount of new renewable energy cost transferred to the PSCR through the transfer price mechanism.

Q. What is the basis for the Company's projections for the addition of VGP renewable energy resources?

A. As discussed by Company witness Cole, the implementation of the residential Renewable Energy Program and Green Giving Program on January 1, 2025, the Company has projected subscription rates for each of these new programs which support the addition of renewable energy resources which, all else being equal, support a lower cost RE Plan for non-subscribing customers. The proposed VGP additions will allow the Company to satisfy both the existing and growing demand for its Renewable Energy Program participation. Further, the proposed addition of VGP renewable energy resources through the RE Plan allows the Company to continue to accelerate its movement to a cleaner renewable energy portfolio through the costs borne by subscribing customers and also supports the Company's efforts to achieve REC standard compliance.

SECTION V: REC STANDARD COMPLIANCE CALCULATION

Q. What modeling changes did the Company incorporate in its calculation of the costs of compliance for the new renewable energy resources for its VGP program and incremental renewable energy plan?

A. The Company's modeling, as supported by Company witness Bleckman, for the planned addition of renewable energy assets to support its REC standard compliance beyond 15% and its VGP programs (Renewable Energy Program and Solar Gardens), utilized the Company's prevailing return on equity. This treatment is consistent with Act 235 for incremental assets required to achieve increasing levels of REC standard compliance as

well as how the Commission has previously approved the addition of VGP assets through the RE Plan.

Q. Is the Company proposing any changes to the transfer prices that are currently in place?

A. Yes. The Company has a number of transfer price schedules which are more detailed in nature than the annual transfer price schedules provided by Staff in Case No. U-15800. Specifically, the detailed transfer price schedules include transfer costs for capacity, on-peak energy, off-peak energy, and RECs. In this proceeding, the Company is requesting approval of two separate transfer price schedules (one for owned and one for contracted) for those assets currently subject to the detailed transfer price schedules, Company witness Cole describes the methodology he utilized to develop the single transfer price schedule applicable to the detailed transfer price schedules.

Q. How will the new transfer price schedule impact the amount of cost transferred to the PSCR?

A. As discussed by Company witness Cole, the new transfer price schedule will not increase the amount of expense which is transferred to the PSCR on an annual basis. The cost amounts transferred for each contract will remain capped at the total contract amount for the RE Plan Year.

Q. What are the Company's plans for the transfer price schedule in this amended RE Plan?

A. Because the Company's modeling assumes that no costs from the new renewable energy resources will be transferred to the PSCR via the transfer price mechanism until they achieve commercial operation, the modeling indicates that the original transfer price

mechanism that was re-established in Case No. U-20483 needs to continue to remain in place to maintain a regulatory liability balance. Through the renewable energy cost reconciliation filings, the Company has previously committed to returning to limiting transfer price to the LCOE for Company-owned facilities when the risk of dipping into a regulatory asset position is low. The modeling in this proceeding is based upon a return to that transfer price methodology beginning in 2034. The Company will continue to report on the status of the regulatory liability balance in its annual renewable energy cost reconciliation proceedings.

Q. How do existing and new VGP assets affect the PSCR via the transfer price mechanism?

A. Subscribed portions of VGP assets have zero impact on the PSCR as no costs are transferred to the PSCR. As previously discussed, customers that participate in VGP programs pay the LCOE of the asset(s) to which they are subscribed for their energy usage for the duration of their contract. As an offset to the subscription price, VGP customers receive monthly credits for the energy and capacity value of the resource(s) to which they subscribed. To the extent that any unsubscribed portions of VGP facilities exist, they would be transferred to the PSCR at their LCOE.

CONCLUSION

Q. Please summarize the Company's RE Plan Amendment.

A. The Company has developed a solid plan for meeting the new compliance requirements of PA 235. The Company's RE Plan Amendment leverages its 2021 Clean Energy Plan as a basis and has strategically supplemented it with incremental wind energy renewable resources to achieve compliance with the 50% and 60% REC compliance requirements in

2030 and 2035, respectively. In addition, the Company has continued to support its voluntary Renewable Energy Program which not only allows its customers to accelerate the Company's generation transition to renewable and clean, but also reduces the cost impact on non-subscribing customers.

The Company's RE Plan Amendment includes a proposal for the co-location of battery energy storage with the Company's owned renewable energy assets to optimize the renewable assets. The Company has developed a plan that contributes to the Company's delivery of safe, reliable, affordable, and clean energy and does this without the need to implement a surcharge on customers' bills. For all these reasons, I believe that the Company's Amended RE Plan is both reasonable and prudent and should be approved by the Commission.

Q. Does this conclude your direct testimony?

A. Yes, it does.

APPENDIX A

BUSINESS EXPERIENCE

In May 1983, I accepted a contract position as a vibration engineer for Detroit Edison ("Detroit Edison" or "DTE") in the Applied Mechanics and Metallurgy Group, Power Systems Division, Engineering Research Department. As a vibration engineer, I was responsible for vibration monitoring, evaluation, and analysis of rotating machinery at Detroit Edison Power Plants.

I was formally hired by Detroit Edison in August 1985 as a planning and scheduling engineer at the Fermi 2 Nuclear Power Plant. In this capacity, I developed, programmed, and directed the production of plant outage schedules, including equipment maintenance and testing, plant system restoration, and plant startup.

In March 1989, I was assigned the duties of Preventive Maintenance Specialist, Nuclear Production-Maintenance, and was responsible for evaluation and implementation of the preventive maintenance program.

In January 1990, I was promoted to the position of Materials Engineer, Nuclear Materials Management, and over the years progressed to principal (lead) engineer. In this capacity, I was responsible for the work direction of engineers and technicians in the performance of material engineering, parts planning, and receipt inspection activities. During the time I held this position, I also represented Detroit Edison as a member of the EPRI Obsolete Items Database Technical Working Group and the General Electric Boiling Water Reactor Pooled Inventory Management Equipment Committees.

In August 1995, I transferred to the position of Principal Mechanical Maintenance Engineer, Rotating Equipment, Maintenance Engineering, Nuclear Production. In this

capacity, I provided field engineering support for mechanical maintenance activities, managed the resolution of emerging technical issues, monitored, and evaluated the performance of rotating equipment, and performed troubleshooting and root cause analyses for equipment failures.

In January 1997, I became a facilitator with the Energy Partnership, Customer Energy Solutions. In this position, I was responsible for the development, implementation, and management of the Energy Conservation Program at the General Motors Proving Ground in Milford, Michigan. Responsibilities in that position included the identification, financial evaluation, and implementation of natural gas and electric energy projects related to boiler and steam systems, lighting systems, air compressors, and heating, ventilation, and air conditioning systems.

In June 1999, I became a Principal Supplier Account Manager with the Supplier Transactions Group of the Electric Choice Implementation Team. In this capacity, I was responsible for the management of relationships with Alternative Electric Suppliers including supplier education, supplier qualification, supplier billing, customer enrollment, customer billing, and electronic data management.

In January 2003, I transferred to Regulatory Affairs as a Principal Project Manager and, in September 2007, I was promoted to Consultant. In this capacity, I managed and provided expert testimony on behalf of Detroit Edison in a variety of regulatory proceedings before the Michigan Public Service Commission ("MPSC" or the "Commission") and the Federal Energy Regulatory Commission ("FERC").

In February 2011, I was promoted to Manager of the DTE Electric Choice Program. As Manager of the Electric Choice Program, I was responsible for managing the processes

that enable customers to seamlessly migrate between DTE Electric Full Service and Electric Choice Service in accordance with Michigan law, Commission orders, and DTE Electric's tariffs.

In April 2015, I was promoted to Manager of Community Lighting. As Manager of Community Lighting, I was responsible for managing: (i) the marketing and sales, planning and construction, and asset management of more than 190,000 DTE Electric-owned streetlights and outdoor protective lights; (ii) the maintenance and provision of energy to municipally owned streetlights; and (iii) the provision of energy-only service to municipalities, in accordance with DTE Electric's MPSC-approved tariffs.

In November 2018, I accepted a position with Consumers Energy on the Electric Supply Regulatory Strategies team. My responsibilities include providing regulatory strategy, sponsoring expert witness testimony, and providing witness support for various regulatory proceedings before the MPSC including depreciation, Power Supply Cost Recovery ("PSCR") plan, PSCR reconciliation, Renewable Energy Plan ("RE Plan") Amendment, renewable cost reconciliation, General Electric Rate, and securitization cases before the MPSC.

PAST MPSC REGULATORY CASE EXPERIENCE

I have sponsored testimony in and/or managed more than four dozen proceedings before the Commission including:

- PSCR plan and reconciliation cases,
- Stranded cost cases,
- Gas and electric rate cases,

- RE Plan amendments,
- Renewable cost reconciliation cases,
- Electric depreciation cases, and
- formal complaint cases.

In addition, I have submitted affidavits supporting changes to:

- DTE Electric's Retail Access Service Rider,
- Outdoor Protective Lighting tariff, and
- the approval of renewable energy, renewable energy engineering, procurement and construction, and renewable energy credit contracts before the MPSC.

I was also the case manager and submitted several affidavits regarding energy imbalance service and the recalculation of energy imbalance service costs in FERC Docket EL04-31-000, "Complaint of Quest Energy, LLC to receive proper compensation for imbalance services."

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

EXHIBITS

OF

KENNETH D. JOHNSTON

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-1 (KDJ-1)
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Date: November 2024

RENEWABLE ENERGY PLAN SUMMARY

Row No.		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	**Sales and Requirement Calculation (1)**												
2	**Method: Weather Normalized or 3 Year Average**												
3	If Selected Weather Normalized:												
4	Current Year Sales to Retail Customers												
5	Less Number of Megawatt Hours Sold from Nuclear Energy												
6	Current Year Weather Normalization Factor												
7	Less VGP Sales												
8	Less Outflow from DG Customers												
9	Current Year Weather Normalized Sales (Row 4 * 6)												
10	**If Selected 3 Year Average:**												
11	Current year Retail Sales to Retail Customers	32,608,729	33,619,270	34,845,036	36,365,868	36,873,154	38,711,293	41,128,801	42,731,748	43,835,465	44,545,304	45,537,465	46,233,500
12	Less Number of Megawatt Hours Sold from Nuclear Energy												
13	Less VGP Sales	360,920	392,838	392,838	933,918	1,087,730	1,719,697	1,957,794	2,182,475	2,397,223	2,601,286	2,795,198	2,979,468
14	Less Outflow from DG Customers	41,772	51,595	61,418	71,241	81,064	90,887	100,710	110,533	120,356	130,179	140,002	149,825
15	3 year Average of Retail Sales	32,649,851	32,768,960	32,892,336	33,691,012	34,943,391	36,028,019	37,316,772	38,904,416	40,857,281	42,565,338	43,704,172	44,639,411
16	RECs Reported to Provider Subject to Section 29(4)												
17	RPS Required Renewable Energy Credits (For 2024 through 2029 15%, 2030 through 2034 50%, 2035 and beyond 60%)	4,837,074	4,848,679	4,865,712	4,902,878	5,066,190	5,132,615	17,629,134	18,305,704	19,169,851	19,916,936	20,384,486	24,906,071
18	**Energy Credits (2) ***												
19	Energy Credit Beginning Balance	2,270,723	1,864,299	1,684,907	2,993,563	5,671,551	10,725,613	17,550,616	14,198,424	11,147,881	12,143,953	13,403,056	15,312,774
20	Plus: Energy Credits Obtained through Generation/BOT	2,692,177	2,584,106	3,680,808	4,625,205	6,091,078	7,054,573	8,821,066	9,317,025	9,887,003	10,404,068	10,975,790	11,751,605
21	Plus: Energy Credits Obtained Through PPA	1,740,689	2,087,284	2,496,086	2,958,594	4,032,988	4,907,353	5,460,516	5,942,919	10,285,163	10,778,426	11,325,071	13,910,254
22	Plus: Energy Credits Obtained through REC Purchases	0	0	243,286	245,144	253,310	256,631	881,457	915,285	958,493	995,847	1,019,224	1,245,304
23	Less: Energy Credit Sold	0	0	0	0	0	0	0	0	0	0	0	0
24	Available Energy Credits Obtained (Row 20+21+22)	4,432,866	4,671,389	6,420,180	7,828,943	10,377,375	12,218,556	15,163,040	16,175,228	21,130,659	22,178,341	23,320,085	26,907,162
25	Less: Compliance Requirement	4,837,074	4,848,679	4,865,712	4,902,878	5,066,190	5,132,615	17,629,134	18,305,704	19,169,851	19,916,936	20,384,486	24,906,071
26	Less: Energy Credit Expired	0	0	0	0	0	0	0	0	0	0	0	0
27	Energy Credit Ending Balance (Row 19 + 24 - 25 - 26)	1,866,515	1,687,009	3,239,375	5,919,628	10,982,736	17,811,554	15,084,522	12,067,949	13,108,690	14,405,358	16,338,655	17,313,865
28	**Revenue Requirement (3)**												
29	Cost of Renewable Energy Generation/BOT	$ 138,579,148	$ 219,552,780	$ 310,888,624	$ 408,573,983	$ 478,295,168	$ 578,709,211	$ 669,289,359	$ 803,084,030	$ 832,648,494	$ 884,301,937	$ 964,254,204	$ 937,157,252
30	Cost of Renewable Energy PPA	$ 105,531,081	$ 116,381,792	$ 118,425,687	$ 120,931,077	$ 146,762,909	$ 195,174,276	$ 252,403,180	$ 297,804,657	$ 333,006,862	$ 371,687,062	$ 416,406,541	$ 464,532,676
31	Cost of Renewable Energy Credit Purchases	$ -	$ -	$ 486,571	$ 490,288	$ 506,619	$ 513,262	$ 1,762,913	$ 1,830,570	$ 1,916,985	$ 1,991,694	$ 2,038,449	$ 2,490,607
32	Cost of Administration of Renewable Energy Plan	$ 107,883	$ 113,502	$ 123,674	$ 127,644	$ 134,141	$ 140,558	$ 150,386	$ 157,846	$ 166,783	$ 171,572	$ 176,204	$ 183,736
33	Less: Revenue obtained from Renewable Energy Sales (Non-retail)	$ (17,436,719)	$ (17,436,319)	$ (41,900,428)	$ (60,255,241)	$ (102,189,020)	$ (119,437,670)	$ (136,451,802)	$ (152,647,149)	$ (168,450,519)	$ (182,781,819)	$ (196,824,050)	$ (206,216,336)
34	Renewable Energy Plan Total Revenue Requirement for (Rows 29 + 30 + 31 + 32 - 33)	$ 226,781,394	$ 318,611,756	$ 388,024,128	$ 469,867,751	$ 523,509,817	$ 655,099,636	$ 787,154,036	$ 950,229,955	$ 999,288,606	$ 1,075,370,445	$ 1,186,051,348	$ 1,198,147,936
35	**Cost Recovery (4)**												
36	Forecasted Transfer Price per MWH *	$ 84.40	$ 84.00	$ 82.25	$ 82.04	$ 81.43	$ 80.16	$ 79.83	$ 80.32	$ 79.22	$ 80.13	$ 68.00	$ 68.27
37	MWH of Renewable Energy *	2,914,918	3,033,422	3,758,195	4,507,268	5,727,920	7,477,159	8,983,269	9,954,960	14,751,393	15,665,996	16,635,943	19,644,899
38	Amount Recovered through the PSCR (Rows 36 * 37)	$ 246,024,213	$ 254,797,448	$ 309,106,923	$ 369,761,711	$ 466,445,899	$ 599,394,544	$ 717,176,375	$ 799,545,280	$ 1,168,642,658	$ 1,255,345,401	$ 1,131,193,050	$ 1,341,090,388
39	Incremental Cost of Compliance (Rows 34 - 38)	$ (19,242,820)	$ 63,814,308	$ 78,917,205	$ 100,106,040	$ 57,063,917	$ 55,705,092	$ 69,977,662	$ 150,684,676	$ (169,354,052)	$ (179,974,956)	$ 54,858,298	$ (142,942,452)
40	**Non-Volumetric Meter/Customer) Charge Forecast (5)**												
41	Residential	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
42	Secondary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
43	Primary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
44	Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
45	**Meter/Customer Count**												
46	Residential	1,659,930	1,667,942	1,677,703	1,686,933	1,695,832	1,703,345	1,707,603	1,711,872	1,716,152	1,720,442	1,724,744	1,729,055
47	Secondary	226,635	226,926	227,182	227,402	227,586	227,690	227,794	227,898	228,002	228,106	228,210	228,210
48	Primary	3,767	3,774	3,777	3,780	3,784	3,785	3,785	3,786	3,787	3,787	3,788	3,788
49	Other	5,560	5,561	5,561	5,562	5,562	5,562	5,562	5,563	5,563	5,563	5,563	5,563
50	**Planned Non-Volumetric Revenue**												
51	Residential (Rows 41*46)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
52	Secondary (Rows 42*47)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
53	Primary (Rows 43*48)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
54	Other (Rows 44*49)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
55	Total (Rows 51+52+53+54)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
56	**Volumetric (kWh) Charge Forecast (6)**												
57	Residential	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
58	Secondary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
59	Primary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
60	Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
61	kWh												
62	Residential	12,413,092	12,603,436	12,624,190	12,800,055	12,891,333	13,165,682	13,655,282	14,166,097	14,527,118	14,973,837	15,354,723	15,605,629
63	Secondary	7,069,041	7,065,416	7,045,959	7,038,650	6,988,476	7,036,755	6,959,491	6,932,109	7,180,293	7,280,199	7,493,086	7,648,110
64	Primary	12,928,709	13,745,766	14,971,487	16,325,031	16,793,126	18,308,019	20,315,396	21,435,692	21,923,120	22,083,483	22,475,795	22,761,475
65	Other	197,887	204,651	203,399	202,132	200,219	200,837	198,632	197,850	204,934	207,785	213,861	218,286
66	Planned Volumetric Revenue												
67	Residential (Rows 57*62)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
68	Secondary (Rows 58*63)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
69	Primary (Rows 59*64)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
70	Other (Rows 60*65)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
71	Total (Rows 67+68+69+70)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
72	**Year End Regulatory Liability Balance (7)**												
73	Forecasted ending Balance	$ (19,242,820)	$ 63,814,308	$ 78,917,205	$ 100,106,040	$ 55,345,638	$ 51,081,961	$ 62,404,387	$ 140,116,089	$ (183,040,451)	$ (196,741,043)	$ 34,943,477	$ (166,073,260)
74	Carrying Charges	$ (1,975,804)	$ (766,210)	$ 3,814,624	$ 10,583,768	$ 16,989,045	$ 22,081,002	$ 27,798,281	$ 37,159,160	$ 38,297,694	$ 27,302,339	$ 23,414,879	$ 20,357,652
75	Total Cumulative Reg Liablity (Rows 73+74)	$ (21,218,624)	$ 63,048,097	$ 82,731,830	$ 110,689,808	$ 72,334,683	$ 73,162,962	$ 90,202,668	$ 177,275,249	$ (144,742,757)	$ (169,438,705)	$ 58,358,356	$ (145,715,608)

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

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RENEWABLE ENERGY PLAN SUMMARY

Row No.		2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	**Sales and Requirement Calculation (1)**										
2	**Method: Weather Normalized or 3 Year Average**										
3	**If Selected Weather Normalized:**										
4	Current Year Sales to Retail Customers										
5	Less Number of Megawatt Hours Sold from Nuclear Energy										
6	Current Year Weather Normalization Factor										
7	Less VGP Sales										
8	Less Outflow from DG Customers										
9	Current Year Weather Normalized Sales (Row 4 * 6)										
10	**If Selected 3 Year Average:**										
11	Current year Retail Sales to Retail Customers	46,873,032	47,288,148	47,601,628	47,759,103	47,845,375	47,661,386	47,438,330	47,204,870	46,989,597	46,722,213
12	Less Number of Megawatt Hours Sold from Nuclear Energy										
13	Less VGP Sales	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453	3,107,453
14	Less Outflow from DG Customers	159,648	169,471	179,294	189,117	198,940	208,763	218,586	228,409	238,232	248,055
15	3 year Average of Retail Sales	45,438,756	46,214,666	46,798,227	47,254,269	47,549,626	47,735,369	47,755,288	47,648,364	47,434,862	47,210,932
16	RECs Reported to Provider Subject to Section 29(4)										
17	RPS Required Renewable Energy Credits (For 2024 through 2029 15%, 2030 through 2034 50%, 2035 and beyond 60%)	25,302,993	25,762,645	26,106,888	26,374,620	26,545,940	26,651,492	26,657,549	26,587,501	26,453,506	26,313,255
18	**Energy Credits (2) ***										
19	Energy Credit Beginning Balance	16,061,038	16,301,063	17,143,662	18,390,184	19,813,807	21,248,087	22,418,196	23,432,806	24,464,139	25,245,481
20	Plus: Energy Credits Obtained through Generation/BOT	11,068,761	11,605,573	11,979,124	12,195,243	12,270,805	12,186,349	12,106,254	12,084,808	12,040,333	11,967,006
21	Plus: Energy Credits Obtained Through PPA	14,482,022	15,007,688	15,382,473	15,611,293	15,717,748	15,643,571	15,574,217	15,542,364	15,202,774	14,997,327
22	Plus: Energy Credits Obtained through REC Purchases	0	0	0	0	0	0	0	0	0	0
23	Less: Energy Credit Sold	0	0	0	0	0	0	0	0	0	0
24	Available Energy Credits Obtained (Row 20+21+22)	25,550,783	26,613,261	27,361,597	27,806,537	27,988,553	27,829,919	27,680,471	27,627,171	27,243,107	26,964,333
25	Less: Compliance Requirement	25,302,993	25,762,645	26,106,888	26,374,620	26,545,940	26,651,492	26,657,549	26,587,501	26,453,506	26,313,255
26	Less: Energy Credit Expired	0	0	0	0	0	0	0	0	0	0
27	Energy Credit Ending Balance (Row 24 - 25 - 26)	16,308,828	17,151,679	18,398,372	19,822,101	21,256,420	22,426,515	23,441,118	24,472,476	25,253,740	25,896,559
28	**Revenue Requirement (3)**										
29	Cost of Renewable Energy Generation/BOT	$ 991,046,479	$ 1,034,490,493	$ 1,092,833,262	$ 1,093,684,211	$ 1,117,304,799	$ 1,113,289,354	$ 1,300,228,906	$ 1,299,447,383	$ 1,308,085,207	$ 1,416,265,179
30	Cost of Renewable Energy PPA	$ 505,850,391	$ 549,234,181	$ 581,903,799	$ 604,553,622	$ 616,762,382	$ 618,144,732	$ 617,618,720	$ 619,413,869	$ 616,790,445	$ 609,752,895
31	Cost of Renewable Energy Credit Purchases	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
32	Cost of Administration of Renewable Energy Plan	$ 185,337	$ 188,308	$ 190,763	$ 192,984	$ 194,846	$ 194,294	$ 193,871	$ 193,358	$ 192,821	$ 192,326
33	Less: Revenue obtained from Renewable Energy Sales (Non-retail)	$ (205,638,998)	$ (204,623,745)	$ (203,614,135)	$ (202,724,300)	$ (202,178,926)	$ (201,342,847)	$ (200,364,595)	$ (199,840,010)	$ (199,246,065)	$ (197,861,998)
34	Renewable Energy Plan Total Revenue Requirement for (Rows 29 + 30 + 31 + 32 - 33)	$ 1,291,443,209	$ 1,379,289,237	$ 1,471,313,688	$ 1,495,706,516	$ 1,532,083,101	$ 1,530,285,534	$ 1,717,676,902	$ 1,719,214,601	$ 1,725,822,408	$ 1,828,348,403
35	**Cost Recovery (4)**										
36	Forecasted Transfer Price per MWH *	$ 68.94	$ 69.67	$ 70.25	$ 70.70	$ 70.99	$ 71.12	$ 71.23	$ 71.32	$ 71.11	$ 71.30
37	MWH of Renewable Energy *	20,649,437	21,587,635	22,273,661	22,717,087	22,952,605	22,885,419	22,801,880	22,788,971	22,683,570	22,448,710
38	Amount Recovered through the PSCR (Rows 36 * 37)	$ 1,423,647,788	$ 1,504,004,383	$ 1,564,821,953	$ 1,606,172,790	$ 1,629,290,672	$ 1,627,617,127	$ 1,624,236,647	$ 1,625,218,426	$ 1,613,016,088	$ 1,600,681,195
39	Incremental Cost of Compliance (Rows 34 - 38)	$ (132,204,578)	$ (124,715,146)	$ (93,508,264)	$ (110,466,274)	$ (97,207,571)	$ (97,331,593)	$ 93,440,256	$ 93,996,175	$ 112,806,319	$ 227,667,208
40	**Non-Volumetric Meter/Customer) Charge Forecast (5)**										
41	Residential	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
42	Secondary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
43	Primary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
44	Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
45	**Meter/Customer Count**										
46	Residential	1,733,378	1,736,845	1,739,450	1,740,320	1,740,494	1,740,668	1,740,842	1,741,016	1,741,070	1,741,074
47	Secondary	228,315	228,398	228,461	228,481	228,486	228,490	228,494	228,498	228,499	228,499
48	Primary	3,788	3,789	3,789	3,789	3,789	3,789	3,789	3,789	3,789	3,789
49	Other	5,563	5,564	5,564	5,564	5,564	5,564	5,564	5,564	5,564	5,564
50	**Planned Non-Volumetric Revenue**										
51	Residential (Rows 41*46)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
52	Secondary (Rows 42*47)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
53	Primary (Rows 43*48)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
54	Other (Rows 44*49)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
55	Total (Rows 51+52+53+54)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
56	**Volumetric (kWh) Charge Forecast (6)**										
57	Residential	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
58	Secondary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
59	Primary	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
60	Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
61	kWh										
62	Residential	15,823,567	15,991,006	16,087,164	16,165,274	16,189,072	16,083,736	15,943,443	15,796,224	15,646,784	15,497,734
63	Secondary	7,786,667	7,881,195	7,956,881	7,984,522	7,998,009	7,978,887	7,950,063	7,920,028	7,888,831	7,855,889
64	Primary	23,040,558	23,191,009	23,330,484	23,381,420	23,430,022	23,371,037	23,317,920	23,262,571	23,228,826	23,144,374
65	Other	222,240	224,938	227,098	227,887	228,272	227,726	226,904	226,046	225,156	224,216
66	Planned Volumetric Revenue										
67	Residential (Rows 57*62)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
68	Secondary (Rows 58*63)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
69	Primary (Rows 59*64)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
70	Other (Rows 50*65)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
71	Total (Rows 67+68+69+70)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
72	**Year End Regulatory Liability Balance (7)**										
73	Forecasted ending Balance	$ (158,627,724)	$ (154,496,339)	$ (125,757,616)	$ (144,358,206)	$ (131,890,135)	$ (131,928,350)	$ 59,051,165	$ 59,662,830	$ 78,624,911	$ 193,756,398
74	Carrying Charges	$ 10,058,620	$ (225,755)	$ (4,274,932)	$ (8,294,684)	$ (12,518,868)	$ (16,685,619)	$ (18,218,252)	$ (17,031,400)	$ (15,527,955)	$ (12,046,836)
75	Total Cumulative Reg Liablity (Rows 73+74)	$ (148,569,104)	$ (154,722,095)	$ (130,032,548)	$ (152,652,890)	$ (144,409,003)	$ (148,613,969)	$ 40,832,912	$ 42,631,431	$ 63,096,956	$ 181,709,561

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-1 (KDJ-1)
Page: 3 of 3
Witness: KDJohnston
Date: November 2024

RENEWABLE ENERGY PLAN SUMMARY

(1) Provided Title Row
(2) Provided Title Row
(3) N/A
(4) N/A
(5) N/A
(6) N/A
(7) N/A
(8) N/A
(9) N/A
(10) Provided Title Row
(11) See Exhibit A-33 (CCO-1), column (b)
(12) N/A
(13) See Exhibit A-32 (ZSC-9), column (e)
(14) See Exhibit A-3 (KDJ-3), line 4
(15) See Exhibit A-33 (CCO-1), column (c)
(16) N/A
(17) See Exhibit A-33 (CCO-1), column (f)
(18) Provided Title Row
(19) Energy Credit Beginning Balance Exhibit A-38 (CCO-6) Col (g)
(20) Energy Credits through Generation/BOT Exhibit A-36 (CCO-4), col (e) plus column (k)
(21) Energy Credits through PPA Exhibit A-35 (CCO-3), pg 1, col (z), lines 2-23
(22) Energy Credits through PPA REC Purchases Exhibit A-36 (CCO-4), pg 1, col (s), lines 4-13
(23) Energy Credits Sold Exhibit A-38 (CCO-6), col (d) less Exhibit A-36 (CCO-4), pg 1, col (s)
(24) Provided Calculation
(25) Compliance Target Exhibit A-33 (CCO-1) col (f)
(26) No REC expiration forecasted
(27) Provided Calculation
(28) Provided Title Row
(29) Financial Forecasting work papers
(30) Financial Forecasting work papers
(31) Financial Forecasting work papers
(32) Financial Forecasting work papers
(33) Financial Forecasting work papers
(34) Provided Calculation
(35) Provided Title Row
(36) Exhibit A-27 (ZSC-4)
(37) Exhibit A-26 (ZSC-3)
(38) Provided Calculation
(39) Provided Calculation
(40) Provided Title Row
(41) Electric Deliveries work papers
(42) Electric Deliveries work papers
(43) Electric Deliveries work papers
(44) Electric Deliveries work papers
(45) Provided Title Row
(46) Electric Deliveries work papers
(47) Electric Deliveries work papers
(48) Electric Deliveries work papers
(49) Electric Deliveries work papers
(50) Provided Title Row
(51) Based upon $0 Renewable Energy Surcharge
(52) Based upon $0 Renewable Energy Surcharge
(53) Based upon $0 Renewable Energy Surcharge
(54) Based upon $0 Renewable Energy Surcharge
(55) Provided Calculation
(56) Provided Title Row
(57) Based upon $0 Renewable Energy Surcharge
(58) Based upon $0 Renewable Energy Surcharge
(59) Based upon $0 Renewable Energy Surcharge
(60) Based upon $0 Renewable Energy Surcharge
(61) Provided Title Row
(62) Electric Deliveries work papers
(63) Electric Deliveries work papers
(64) Electric Deliveries work papers
(65) Electric Deliveries work papers
(66) Provided Title Row
(67) Based upon $0 Renewable Energy Surcharge
(68) Based upon $0 Renewable Energy Surcharge
(69) Based upon $0 Renewable Energy Surcharge
(70) Based upon $0 Renewable Energy Surcharge
(71) Provided Calculation
(72) Provided Title Row
(73) See Exhibit A-5 (MRB-2), "Regulatory Liability Balance"
(74) See Exhibit A-5 (MRB-2), "Regulatory Liability Balance"
(75) Provided Calculation

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company
Illustrative Customer Credit

Case No.: U-21816
Exhibit No.: A-2 (KDJ-2)
Page: 1 of 1
Witness: KDJohnston
Date: November 2024

Line No.		
1	Renewable Energy transferred to the PSCR (MWh)	2,315,681
2	Average Transfer Price ($/MWh)	$86.27
3	Total Cost Transferred to the PSCR	$199,773,800
4	Average Locational Marginal Price ($/MWh)	$36
5	Renewable Energy transferred to the PSCR at average LMP	$83,364,516
6	Incremental Cost transferred to the PSCR	$116,409,284
7	Total PSCR sales subject to transfer costs (MWh)	30,091,733
8	Average Incremental Cost transferred to the PSCR ($/kWh)	$0.00387
9	Illustrative Customer Sales (MWh)	200,000
10	Illustrative Customer Credit	$ 773,696

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company
Distributed Generation Outflow Forecast

Case No.: U-21816
Exhibit No.: A-3 (KDJ-3)
Page: 1 of 1
Witness: KDJohnston
Date: November 2024

Line No.	Total Net Metering/Distributed Outflow (in MWH) Actuals and Forecast (2009-2044)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Net Metering (Actual)	18,955	18,852																						
2	DG (Actual)	12,994	22,920																						
3	Total (Actual)	31,949	41,772																						
4	*y = 9823x + 22126*	31,949	41,772	51,595	61,418	71,241	81,064	90,887	100,710	110,533	120,356	130,179	140,002	149,825	159,648	169,471	179,294	189,117	198,940	208,763	218,586	228,409	238,232	248,055	257,878
5		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

MARC R. BLECKMAN

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Marc R. Bleckman, and my business address is One Energy Plaza, Jackson, Michigan 49201.

Q. By whom are you employed and in what capacity?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company") as the Executive Director of Financial Planning and Analysis.

Q. What are your current responsibilities?

A. My responsibilities include preparation of the monthly forecasts, annual budgets, and long-term financial plans for Consumers Energy and CMS Energy, the parent company of Consumers Energy. As a part of my role, I conduct financial analyses and studies required for making various strategic decisions such as equity issuance, sale of businesses, and new investments. I assist the Chief Financial Officer in preparing the presentations for Board of Directors meetings, quarterly earnings calls, investor meetings, and industry conferences. My responsibilities also include preparation of the Renewable Energy Plan ("RE Plan") forecast model, which is a responsibility I have continued to assume from a previously held position.

Q. Please describe your educational background and describe any positions held prior to your current position.

A. I received a Master of Business Administration Degree with a Finance concentration from the Katz Graduate School at the University of Pittsburgh in 2002. Upon receiving this degree in May 2002, I joined Ford Motor Company as a Financial Analyst. During my seven years of employment at Ford, I worked in various finance roles throughout the company, including Assembly Operations, Powertrain Operations, Ford Motor Credit, and

the General Auditor's Office. My responsibilities within these organizations included, but were not limited to, forecasting of and variance reporting on, all Income Statement and Balance Sheet line items, as well as business process auditing. In July 2009, I left Ford Motor Company to join Consumers Energy as a Principal Financial Analyst in the Company's Risk, Strategy, and Financial Advisory Services group. My responsibilities in this role included, but were not limited to, supporting the financial analysis and forecasting of the Company's renewable energy development plans, as well as conducting the Company's Enterprise Risk Management Program. In September 2012, I took on the role of Manager of Earnings Analysis in the Company's Financial Planning and Analysis Group. I assumed my current position as the Executive Director of Financial Planning and Analysis in February 2016.

Q. Have you previously testified before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Yes. I provided testimony in:

- Case No. U-16543, the Company's 2011 RE Plan Amendment;
- Case No. U-16581, the Company's 2011 RE Plan biennial review;
- Case No. U-17301, the Company's 2013 RE Plan biennial review;
- Case No. U-17752, the Company's 2015 RE Plan Amendment;
- Case No. U-17792, the Company's 2015 RE Plan biennial review;
- Case No. U-18231, the Company's 2017 RE Plan biennial review;
- Case No. U-20322, the Company's 2018 Gas Rate Case;
- Case No. U-20483, the Company's 2018 RE Plan cost reconciliation;
- Case No. U-20650, the Company's 2019 Gas Rate Case;

- Case No. U-20697, the Company's 2020 Electric Rate Case;
- Case No. U-20722, the Company's 2019 RE Plan cost reconciliation;
- Case No. U-20963, the Company's 2021 Electric Rate Case;
- Case No. U-20984, the Company's 2021 RE Plan Amendment;
- Case No. U-21009, the Company's 2020 RE Plan cost reconciliation;
- Case No. U-21148, the Company's 2021 Gas Rate Case;
- Case No. U-21197, the Company's 2021 RE Plan cost reconciliation;
- Case No. U-21224, the Company's 2022 Electric Rate Case;
- Case No. U-21308, the Company's 2022 Gas Rate Case;
- Case No. U-21352, the Company's 2022 RE Plan cost reconciliation;
- Case No. U-21374, the Company's 2023 RE Plan Amendment;
- Case No. U-21389, the Company's 2023 Electric Rate Case;
- Case No. U-21490, the Company's 2023 Gas Rate Case;
- Case No. U-21549, the Company's 2023 RE Plan cost reconciliation; and
- Case No. U-21585, the Company's 2024 Electric Rate Case.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to address the calculation of the costs of compliance (total and incremental) of Consumers Energy's 2024 RE Plan Amendment, as well as the projection of the RE Plan regulatory balance.

Q. Are you sponsoring any exhibits?

A. I am sponsoring the following exhibits:

Exhibit A-4 (MRB-1)	Incremental Costs of Compliance projection; and
Exhibit A-5 (MRB-2)	Regulatory Balance projection.

Q. Were these exhibits prepared by you or at your direction?

A. Yes.

INCREMENTAL COSTS OF COMPLIANCE

Q. Please describe the Incremental Costs of Compliance ("ICC") calculation.

A. Section 47 of Public Act 235 of 2023 ("Act 235") sets forth the ICC calculation. Based on my understanding of the definition, I have calculated the ICC in Exhibit A-4 (MRB-1) as the sum of the costs in lines 2 through 6, less the sum of the cost offsets in lines 8 through 13 and 15.

Q. Is the calculation of the ICC for this filing performed in the same manner as it was for the approved 2023 RE Plan Amendment in Case No. U-21374?

A. Yes, with one additional item of note. The Financial Compensation Mechanism ("FCM") on any new Purchased Power Agreements ("PPA") is a new addition to this RE Plan filing in accordance with MCL 460.1047(2)(a)(v)(C). FCM costs are included in Line 4 (Costs of Power Purchase Agreement Contracts). The collection of the FCM costs related to PPAs are included in line 10 (Costs Recovered under the PSCR (Transfer Rate) or line 12 (Additional Revenue as Determined by the Commission). There is zero net impact to the regulatory liability/(asset) related to the FCM as collections assumed in the RE Plan are perfectly offset with assumed costs in any given year.

Q. Please describe how the costs in Exhibit A-4 (MRB-1), line 2, are calculated.

A. This line reflects all projected financing and capital costs (including a Return on Common Equity ("ROE") investment), depreciation expense, general taxes, and Operation and Maintenance ("O&M") expenses associated with the Company's investment to build renewable energy systems as part of its RE Plan to comply with 2008 PA 295("Act 295"),

as amended by 2016 PA 342 ("Act 342") and Act 235 and the investments made to provide resources for customers electing to participate in a Voluntary Green Pricing Program ("VGP"), as authorized by Section 61 of Act 342.

Q. Please describe how the forecasted return on investment associated with the Company's investment in renewable energy systems is calculated.

A. The Company forecasts the annual capital expenditures which it expects will be required to achieve its plan to build, own, and operate new renewable energy systems as part of its RE Plan. The resulting average annual balances for the Company's Construction Work in Progress ("CWIP") and net plant in service for new renewable energy systems are summed and multiplied by the Company's approved pre-tax Weighted Average Cost of Capital ("WACC") for each time frame. Consistent with prior RE Plan Amendments, the WACC applied to assets intended to comply with the initial 15% renewable standard reflects a 10.7% ROE, in accordance with MCL 460.1047(1) that states that capital costs for those projects "…shall remain fixed at the rate of return and debt-to-equity ratio that was in effect when the electric provider's amended renewable energy plan that first included the renewable energy system was approved by the commission."

Consistent with MCL 460.1047(1), average balances to comply with the 15% renewable standard will be multiplied each month by the pretax authorized WACC from the prevailing electric rate case order, adjusted for the following:

(1) The authorized Long-Term Debt and Common Equity amounts are revised to maintain the debt/equity ratio from the Order in Case No. U-15245, which was the Order in effect when the Company's RE Plan was approved on May 26, 2009; and

(2) The authorized ROE portion of the WACC will remain fixed at 10.70%, which was the ROE authorized by the Commission in its Order in MPSC Case No. U-15245 that established the general rates in effect when the Company's RE Plan was originally approved; and

- A modified WACC of 7.70% based on Case No. U-21389, was multiplied by average CWIP balances for the entire RE Plan period in the filing.

For any VGP assets and assets constructed to comply with Act 235 included in this RE Plan Amendment, those assets were calculated based directly on the prevailing approved capital structure from Case No. U-21389. A WACC of 7.25% based on Case No. U-21389 was multiplied by the average CWIP balances for these assets for the entire RE Plan period in the filing.

Q. Have you included Allowance for Funds Used During Construction ("AFUDC)" in the CWIP balances?

A. No. AFUDC cost recovery is not required as Act 295 allows for recovery of financing costs on CWIP balances.

Q. How did the Company calculate the forecasted capital expenditures for new renewable energy systems?

A. The Company's capital forecast for assets to meet the 15% renewable energy credit ("REC") portfolio standard ("RPS") is based on projects already approved by the MPSC. All of these assets are fully operational and include the following facilities:

- Lake Winds Energy Park ("Lake Winds") is a 100.8 MW, 56 turbine wind facility that commenced commercial operation in November 2012. The total cost of Lake Winds was approximately $235 million. Lake Winds is projected to have a levelized cost of approximately $110/MWh.

- Cross Winds Energy Park ("Cross Winds") is a 111 MW, 62 turbine wind facility that commenced commercial operation in December 2014. Capital costs for Cross Winds were approximately $247 million. Cross Winds is projected to have a levelized cost of approximately $59/MWh.

- Cross Winds Energy Park II ("Cross Winds II") added 44 MW and 19 turbines with capital costs of $85 million. Cross Winds II has been operational since January 2018 and is projected to have a levelized cost of approximately $45/MWh.

- Cross Winds Energy Park III ("Cross Winds III") added an additional 76 MW and 33 turbines with capital costs of $141 million. Cross Winds III has been in operation since December 2019 and is projected to have a levelized cost of approximately $46/MWh.

- Gratiot Farms Wind Project ("Gratiot") is a 150 MW, 60 turbine wind facility that commenced commercial operation in December 2020 with capital costs of approximately $260 million. Gratiot is projected to have a levelized cost of approximately $52/MWh.

- Crescent Wind Project ("Crescent") is a 166 MW, 60 turbine wind facility that commenced commercial operation in February 2021 with capital costs of approximately $246 million. Crescent is projected to have a levelized cost of approximately $48/MWh.

- Heartland Wind Project ("Heartland") is a 198 MW, 72 turbine wind facility that commenced commercial operation in December 2024 with capital costs of $358 million. Heartland is projected to have a levelized cost of approximately $53/MWh.

In this filing, the Company plans to build, own, and operate approximately 3.8 GW of solar facilities and 2.8 GW of wind facilities to comply with renewables standards in Act 235. 690 MW of the solar capacity is comprised of the following four Integrated Resource Plan ("IRP") solar projects that will be incorporated in the RE Plan starting in 2025:

- Muskegon Solar is a 250 MW facility with projected capital costs of approximately $360 million, a projected commercial operation date of January 2026, and a projected levelized cost of approximately $52/MWh.

- Spring Creek is a 140 MW facility with projected capital costs of approximately $250 million, a projected commercial operation date of June 2026, and a projected levelized cost of approximately $57/MWh.

- Washtenaw Solar is a 150 MW facility with projected capital costs of approximately $235 million, a projected commercial operation date of January 2027, and a projected levelized cost of approximately $72/MWh.

- Mustang Mile is a 150 MW facility with projected capital costs of approximately $280 million, a projected commercial operation date of January 2027, and a projected levelized cost of approximately $57/MWh.

The remaining solar and wind assets to comply with Act 235 are based on wind and solar proxy levelized cost models. These models are escalated for future years based on an inflation rate of approximately 2%. As a result, construction costs and levelized cost increase as commercial operation dates of proxy facilities move further into the future. Further discussion for these economic assumptions can be found in the testimony of Company witness Kenneth D. Johnston. Capital expenditures for assets intended to comply with Act 235 are projected to total approximately $13 billion ($7 billion of solar and $6 billion of wind).

In this filing, the Company also includes plans to build, own, and operate nearly 1.1 GW of VGP solar facilities, all located in the state of Michigan. 731 MW are based on the following specifically identified projects:

- SunFish II Solar Project ("SunFish") is a 309 MW solar facility that is currently under construction with a projected commercial operation date of April 2026. Capital costs for SunFish are projected to be approximately $460 million. SunFish is projected to have a levelized cost of approximately $51/MWh.

- Karn Solar Energy Project ("Karn") is an up to 85 MW solar facility that is currently under construction with a projected commercial operation date of January 2027. Capital costs for Karn are projected to be approximately $145 million. Karn is projected to have a levelized cost of approximately $59/MWh.

- A proxy 117 MW solar facility with a projected commercial operation date of January 2028. Capital costs for this facility are projected to be approximately $225 million with a projected levelized cost of approximately $60/MWh.

- A proxy 220 MW solar facility with a projected commercial operation date of January 2028. Capital costs for this facility are projected to be approximately $380 million with a projected levelized cost of approximately $59/MWh.

The remaining MW of VGP solar facilities is based on a proxy levelized cost model that is considered competitive with recent pricing for solar power purchase agreements. This model is escalated for future years with an inflation factor of approximately 2%. As a result, construction costs and levelized cost are increased as the year of commercial

operation date of each proxy facility moves further out in the future. The proxy facilities are expected to have a net capacity factor of 23%, capital costs of approximately $685 million in total, and a subscription rate ranging from $73.66 to $82.95. All VGP solar facilities are expected to qualify for 100% Production Tax Credits ("PTCs") and the total capital costs for all 1,000 MW is expected to be approximately $1.9 billion. Further support for these economic assumptions can be found in the testimony of Company witness Kenneth D. Johnston. The Company's RE Plan Amendment assumes these projects, once operational, will be 100% subscribed by VGP customers and will not have costs recovered through PSCR transfer costs.

In this filing, the Company also plans to expand on the existing Solar Gardens Community Solar Program by building, owning, and operating an incremental 5.5 MW of solar facilities. This expansion is projected based on proxy facilities with a net capacity factor of 24%, capital costs of approximately $15 million, and a levelized cost of approximately $98/MWh. The filing assumes the Solar Gardens expansion will consist of 2.5 MW in 2026 and additional 3.0 MW in 2030. All of the Solar Gardens expansion is expected to qualify for 100% PTCs and to be ultimately fully subscribed. Further details on the planned expansion of this program can be found in the testimony of Company witnesses Zachary S. Cole and Johnston.

Q. How did the Company calculate the forecasted recovery of capital invested for new wind energy systems?

A. The Company calculated the forecasted recovery of its in-service wind project capital by utilizing the actual depreciation rate for each asset currently in service and assumed that expense based on that rate will continue through the end of the RE Plan period. For wind

project capital not yet in service, a composite depreciation rate based on existing wind project assets was utilized for forecast future depreciation. The depreciation rate utilized for future wind capital is 3.35%.

Q. What depreciation rate does the Company propose to utilize for the solar facilities?

A. The solar depreciation rate assumed in the RE Plan is 3.97%, which is the prevailing depreciation rate for solar projects, as approved in Case No. U-20849.

Q. How did the Company project the O&M expenses for the new renewable energy systems?

A. The O&M projections for the existing renewable facilities are projected primarily on the Company's experience in operating several existing wind facilities which are already operational under the RE Plan. An inflation factor of approximately 2% is utilized for O&M expense beyond 2029. The O&M expenses for the new wind and solar facilities are estimated based on the cost projections in levelized cost models for projects currently under construction or proxy facilities in the future.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 3, are calculated.

A. This line includes the estimated costs from purchases of RECs. The Company would multiply the projected number of RECs purchased against the current or projected rate. This line reflects $14 million in this RE Plan Amendment for the purchase of RECs. Further discussion for these assumptions can be found in the testimony and exhibits of Company witness Chibuzo C. Obikwelu.

Q. Please describe how the costs in Exhibit A-4 (MRB-1), line 4, are calculated.

A. The values in this line include the following:

- Forecasted costs associated with contracts for long-term renewable energy supply under Renewable Energy Purchase Agreements ("REPAs"). These

costs are incurred as revenue requirements when the associated generation is used for Act 295 and Act 235 compliance. These projected costs are detailed in the testimony and exhibits of Company witness Cole.

- Forecasted costs associated with PPAs from the Company's VGP program. These projected costs are detailed in the testimony and exhibits of Company witness Cole.

- Forecasted costs associated with the FCM applied to all applicable PPAs. These projected costs are detailed in the testimony and exhibits of Company witness Cole.

- Forecasted costs associated with return applied to the REC inventory balance. The contracts and REC inventory balance are discussed further in the direct testimony and exhibits of Company witness Obikwelu.

Q. Please describe how the costs in Exhibit A-4 (MRB-1), line 5, are calculated.

A. These costs are an estimate of the fees required to be paid in order to access and utilize the Michigan Renewable Energy Certification System ("MIRECS"). These projected costs are detailed in the testimony and exhibits of Company witness Obikwelu.

Q. Please describe how the costs in Exhibit A-4 (MRB-1), line 6, are calculated.

A. This line includes estimated costs associated with the Company's Advanced Renewable Tariff, as part of the Company's Experimental Advanced Renewable Program ("EARP")-Solar and EARP-Anaerobic Digestion ("EARP-AD"). These projected costs are detailed in the testimony and exhibits of Company witness Cole.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 8, are calculated.

A. This line includes the estimated revenues from potential sales of RECs. The Company would multiply the projected number of RECs sold against the current or project rate. The Company has not made and does not project any future REC sales.

Q. Please describe how the values in Exhibit A-4 (MRB-1), line 9, are calculated.

A. This line includes the estimated value of federal tax credits designed to promote the development of renewable energy. The tax benefits reflected in line 9 are gross up for taxes in order to be a true offset to customer pre-tax revenue requirements.

Q. Has the Company received, or does the Company expect to receive, any federal tax credits or incentives?

A. Yes. As approved in Case No. U-16581, the Company elected to receive the Section 1603 Cash Grant ("Cash Grant") in lieu of tax credits for the 2012 Lake Winds project. In December 2010, Congress extended the Cash Grant Program by one year, to be available to projects for which physical construction commenced in 2011 and commercial operation began by December 31, 2012. The Lake Winds construction and commercial operation schedule met these new timing requirements, and a Cash Grant was received from the United States Treasury Department in January 2012 in the amount of approximately $69.2 million.

The Company is also receiving and will continue to receive PTCs for other wind facilities to meet the 15% RPS, which includes Cross Winds, Gratiot, Crescent, and Heartland. Additionally, all additional solar and wind facilities planned for the VGP Program, the expansion of the Solar Gardens program, and to comply with Act 235 also now qualify for PTCs under the Inflation Reduction Act ("IRA") of 2022. PTCs are projected to be available for every project in the RE Plan and estimated to increase for inflation through the RE Plan period. The RE Plan projects all assets will qualify for 100% PTCs except for Heartland, which currently receives a 110% PTC as the project qualifies

for the 10% Energy Community Tax Credit Bonus. The total of all federal tax credits assumed in the RE Plan is approximately $8.9 billion.

Q. Please describe how the values in Exhibit A-4 (MRB-1), line 10, are calculated.

A. This line includes the portion of the total costs of compliance that the Company has included as part of its transfer rate forecast and expects to recover as part of its Power Supply Cost Recovery ("PSCR") Plan cases. This is calculated by multiplying the projected energy generated from the Company's proposed projects and REPAs by the calculated Transfer Prices. Further discussion of these costs, including calculation of the Transfer Prices, can be found in the direct testimony and exhibits of Company witness Zachery S. Cole. It is projected that the PSCR transfer rate for unsubscribed facilities can once again be capped at the project's respective levelized cost of energy starting on January 1, 2034 to ensure the RE Plan remains in a regulatory liability position at the end of the RE Plan period included in this filing. However, the balance of the regulatory liability or asset will continue to be monitored for final determination of when the PSCR transfer rate cap can be restored. This will be discussed in greater detail later in my testimony.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 11, are calculated.

A. This line includes the projected revenue from wholesale renewable energy sales. Consistent with prior RE Plan amendments, the Company does not project to enter into wholesale renewable energy sale agreements.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 12, are calculated.

A. This line refers to any additional revenue considered by the Commission to be attributable to Act 235 compliance. The Company utilizes this line to forecast the subscription

payments received from participating customers in the Company's Solar Garden Program and the Renewable Energy Program. These revenues are detailed in the testimony and exhibits of Company witnesses Cole and Johnston.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 13, are calculated.

A. This line may be used in the future for any RE Plan-related revenues that could be mistakenly recovered in general rates. There are no costs included in this line for the years projected in this RE Plan.

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 15, are calculated.

A. The values in this line include the Company's forecast of interest paid to customers on projected regulatory liability balances or Company return on projected regulatory asset balances as included on Exhibit A-5 (MRB-2), line 3. Interest on a regulatory liability balance is charged at the Company's short-term average borrowing rate. The Company projects its average short-term borrowing rate for 2024 to be 5.2%, which is equal to the year-to-date average through August and a monthly estimate of 5.0% for the remainder of 2024. Short-term borrowing rates are projected to be 4.26% in 2025, 3.12% in 2026, 2.93% in 2027, 2.93% in 2028, and 2.89% thereafter. Projected rates from 2025 through 2029 are based on the average of projections from Blue Chip and IHS Markit. The 2029 projection is carried forward through the remaining years in the RE Plan period. The Company has applied the projected pre-tax WACC against projected regulatory asset balances, in accordance with MCL 460.1047(3).

Q. Please describe how the revenues in Exhibit A-4 (MRB-1), line 16 are calculated.

A. Line 16 is the ICC for the RE Plan Amendment. It is the sum of all the costs in lines 2 through 6, less the sum of all cost offsets in lines 8 through 13 and line 15.

Q. Please summarize the calculation of the regulatory balance performed in Exhibit A-5 (MRB-2).

A. The calculation begins with the annual ICC from line 14 of Exhibit A-4 (MRB-1), with a positive number indicating that there are incremental costs generated in the year to be collected. A net positive ICC in a given year would either decrease a liability balance or increase an asset balance.

Line 2 indicates if there is a surcharge to be collected. As described in the testimony of Company witness Johnston, however, the Company is not proposing a surcharge in this case. Therefore, there are no values in this line.

Line 3 calculates the amount of short-term interest or pre-tax WACC applied in the year if the balance is in a liability or asset position, respectively. Interest on a liability balance would decrease the liability balance while pre-tax WACC return would increase the asset position.

Line 4 shows the annual increase (more liability) or decrease (less liability) to the balance while line 5 shows the projected year-end balance.

Q. Please describe the projected regulatory balance associated with the Company's RE Plan, as calculated in Exhibit A-5 (MRB-2).

A. Due to the Company's position in this case to not implement a surcharge, the Company projects the balance to move from its current liability position into an asset position, peaking at approximately $0.6 billion in the early 2030s driven by the Company-owned portion of the RPS compliance portfolio. The Company then proposes that, in 2034, it will be in position to cap the PSCR transfer rates for its owned assets at the respective project LCOEs, and that this cap will have the effect of lowering the regulatory balance back into

a liability position by the late 2030s where it will remain for the rest of this RE Plan period. The projected regulatory liability is projected to also peak at approximately $0.7 billion in the early 2040s and is projected to be approximately $0.3 billion at the end of this RE Plan period. The Company sees this as a balanced approach which does not go too far into either a liability or asset position while minimizing upfront customer costs by not implementing a surcharge.

Q. Does this complete your direct testimony?

A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

EXHIBITS

OF

MARC R. BLECKMAN

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

Case No: U-21816
Exhibit: A-4 (MRB-1)
Page: 1 of 1
Witness: MRBleckman
Date: November 2024

Calculation of Incremental Costs of Compliance

($ Millions)

Line	PA295 Reference	Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1	Sec. 47 (2)(a)												
2	Sec. 47 (2)(a)(i,ii,iii,iv)	Capital, O&M, ROE, Financing, Interconnect & Substation, & Ancillary	$218.7	$288.4	$426.9	$568.9	$713.2	$862.8	$1,003.0	$1,130.2	$1,393.8	$1,470.7	$1,551.9
3	Sec. 47 (2)(a)(v)(A)	Costs of REC Purchases	0.0	0.0	0.5	0.5	0.5	0.5	1.8	1.8	1.9	2.0	2.0
4	Sec. 47 (2)(a)(v)(B)(C)	Costs of Power Purchase Agreement Contracts	105.2	116.0	118.1	120.6	146.8	195.2	252.4	297.8	333.0	371.7	416.4
5	Sec. 47 (2)(a)(vi)	State & Federal Government Actions Related to Renewable Energy	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
6	Sec. 47 (2)(a)(vii)	Additional Costs Determined necessary by the Commission	0.3	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Sec. 47 (2)(b)	**Subtractions from the Sum of Costs:**											
8	Sec. 47 (2)(b)(i)	Revenue from the Sale of Environmental Attributes - REC Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Sec. 47 (2)(b)(iii)	Tax Credits to Promote Renewable Energy	(80.1)	(68.8)	(116.0)	(160.3)	(234.9)	(284.1)	(333.7)	(327.1)	(561.1)	(586.4)	(587.7)
10	Sec. 47 (2)(b)(iv)	Cost Recovered under the PSCR (Transfer Rate)	(246.0)	(254.8)	(309.1)	(369.8)	(468.2)	(604.0)	(724.7)	(810.1)	(1,182.3)	(1,272.1)	(1,151.1)
11	Sec. 47 (2)(b)(v)	Revenue from Wholesale Renewable Energy Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Sec. 47 (2)(b)(vi)	Additional Revenue as Determined by the Commission	(17.4)	(17.4)	(41.9)	(60.3)	(102.2)	(119.4)	(136.5)	(152.6)	(168.5)	(182.8)	(196.8)
13	Sec. 47 (2)(b)(vii)	Revenues Recovered in Rates for Renewable Energy Costs Included in (a)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14		**Subtotal - Prior to Interest on Regulatory Liabilities**	**($19.2)**	**$63.8**	**$78.9**	**$100.1**	**$55.3**	**$51.1**	**$62.4**	**$140.1**	**($183.0)**	**($196.7)**	**$34.9**
15	Sec. 47 (2)(a)(ii)	Interest on Regulatory Liabilities - from Exhibit A-5 (MRB-2) line 3	(2.0)	(0.8)	3.8	10.6	17.0	22.1	27.8	37.2	38.3	27.3	23.4
16		**Total Incremental Costs of Compliance**	**($21.2)**	**$63.0**	**$82.7**	**$110.7**	**$72.3**	**$73.2**	**$90.2**	**$177.3**	**($144.7)**	**($169.4)**	**$58.4**
			$226.8	$318.6	$388.0	$469.9	$523.5	$655.1	$787.2	$950.2	$999.3	$1,075.4	$1,186.1

Line	PA295 Reference	Description	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
	(a)	(b)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(v)	(v)	(w)
1	Sec. 47 (2)(a)	**Sum of Costs:**												
2	Sec. 47 (2)(a)(i,ii,iii,iv)	Capital, O&M, ROE, Financing, Interconnect & Substation, & Ancillary	$1,696.4	$1,719.8	$1,734.6	$1,732.7	$1,715.6	$1,686.8	$1,649.5	$1,617.0	$1,582.8	$1,558.2	$1,521.3	$27,843.2
3	Sec. 47 (2)(a)(v)(A)	Costs of REC Purchases	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$14.0
4	Sec. 47 (2)(a)(v)(B)(C)	Costs of Power Purchase Agreement Contracts	464.5	505.9	549.2	581.9	604.6	616.8	618.1	617.6	619.4	616.8	609.8	$8,877.7
5	Sec. 47 (2)(a)(vi)	State & Federal Government Actions Related to Renewable Energy	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	$3.7
6	Sec. 47 (2)(a)(vii)	Additional Costs Determined necessary by the Commission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$1.3
7	Sec. 47 (2)(b)	**Subtractions from the Sum of Costs:**												
8	Sec. 47 (2)(b)(i)	Revenue from the Sale of Environmental Attributes - REC Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Sec. 47 (2)(b)(iii)	Tax Credits to Promote Renewable Energy	(759.2)	(728.7)	(700.1)	(639.9)	(621.9)	(569.5)	(536.2)	(316.7)	(283.4)	(250.2)	(105.1)	($8,851.2)
10	Sec. 47 (2)(b)(iv)	Cost Recovered under the PSCR (Transfer Rate)	(1,364.2)	(1,450.1)	(1,533.8)	(1,597.1)	(1,640.1)	(1,664.0)	(1,662.2)	(1,658.6)	(1,659.6)	(1,647.2)	(1,634.6)	($24,903.7)
11	Sec. 47 (2)(b)(v)	Revenue from Wholesale Renewable Energy Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0.0
12	Sec. 47 (2)(b)(vi)	Additional Revenue as Determined by the Commission	(206.2)	(205.6)	(204.6)	(203.6)	(202.7)	(202.2)	(201.3)	(200.4)	(199.8)	(199.2)	(197.9)	($3,419.5)
13	Sec. 47 (2)(b)(vii)	Revenues Recovered in Rates for Renewable Energy Costs Included in (a)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0.0
14		**Subtotal - Prior to Interest on Regulatory Liabilities**	**($166.1)**	**($158.6)**	**($154.5)**	**($125.8)**	**($144.4)**	**($131.9)**	**($131.9)**	**$59.1**	**$59.7**	**$78.6**	**$193.8**	**($434.3)**
15	Sec. 47 (2)(a)(ii)	Interest on Regulatory Liabilities - from Exhibit A-5 (MRB-2) line 3	20.4	10.1	(0.2)	(4.3)	(8.3)	(12.5)	(16.7)	(18.2)	(17.0)	(15.5)	(12.0)	$130.3
16		**Total Incremental Costs of Compliance**	**($145.7)**	**($148.6)**	**($154.7)**	**($130.0)**	**($152.7)**	**($144.4)**	**($148.6)**	**$40.8**	**$42.6**	**$63.1**	**$181.7**	**($304.0)**

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

Case No: U-21816
Exhibit: A-5 (MRB-2)
Page: 1 of 1
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Date: November 2C

Regulatory Liability Balance

Prior Year Regulatory Liability **$ 28.7**

Line	Parameter	Units	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1	Incremental Cost of Compliance	$Mil	-19.2	63.8	78.9	100.1	55.3	51.1	62.4	140.1	-183.0	-196.7	34.9
2	Proposed Surcharge	$Mil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Interest on Regulatory Balance	$Mil	2.0	0.8	-3.8	-10.6	-17.0	-22.1	-27.8	-37.2	-38.3	-27.3	-23.4
4	Increase(Decrease) in Regulatory Balance	$Mil	21.2	-63.0	-82.7	-110.7	-72.3	-73.2	-90.2	-177.3	144.7	169.4	-58.4
5	Year-end Regulatory Balance	$Mil	49.9	(13.1)	(95.9)	(206.6)	(278.9)	(352.1)	(442.3)	(619.5)	(474.8)	(305.3)	(363.7)

Line	Parameter	Units	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Incremental Cost of Compliance	$Mil	-166.1	-158.6	-154.5	-125.8	-144.4	-131.9	-131.9	59.1	59.7	78.6	193.8
2	Proposed Surcharge	$Mil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Interest on Regulatory Balance	$Mil	-20.4	-10.1	0.2	4.3	8.3	12.5	16.7	18.2	17.0	15.5	12.0
4	Increase(Decrease) in Regulatory Balance	$Mil	145.7	148.6	154.7	130.0	152.7	144.4	148.6	(40.8)	(42.6)	(63.1)	(181.7)
5	Year-end Regulatory Balance	$Mil	(218.0)	(69.4)	85.3	215.3	368.0	512.4	661.0	620.2	577.5	514.4	332.7

Sources

Lines 1 & 2: Exhibit A-4 (MRB-1)

Line 3: Prior Year Line 5 times - half Line 1 + half of Line 2 times the average short-term borrowing rate of :
(pre-tax WACC multiplied against asset balances)

2024	2025	2026	2027	2028	2029+
5.16%	4.26%	3.12%	2.93%	2.93%	2.89%

Line 4: Line 2 + Line 3 - Line 1

Line 5: Prior Year Line 5 + Line 4

	2024-2029
WACC	7.25%

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

EUGÈNE M.J.A. BREURING

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Eugène M.J.A. Breuring, and my business address is One Energy Plaza, Jackson, Michigan 49201.

Q. By whom are you employed and in what capacity?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company") as a Principal Sales Forecasting Analyst in Financial Planning & Analysis.

Q. Please describe your qualifications.

A. In 1992, I graduated from Grand Valley State University with a Bachelor of Business Administration in Accounting. In 1996, I graduated from Thunderbird School of Global Management with a Master of Business Administration in International Management. I have also attended trade-specific conferences and seminars related to Michigan and United States economies, Michigan economic forecasts, as well as regression modeling.

Prior to joining Consumers Energy in 2013, I worked at the Kellogg Company, Tecumseh Products Company, and Stryker Corporation, mostly in a financial planning, budgeting, and forecasting capacity. In January 2013, I accepted the position of Senior Rate Analyst II. In 2020, I was promoted to Senior Analyst III, and again in 2023 to Principal Sales Forecasting Analyst, which is my current position at Consumers Energy. In this capacity, I am responsible for preparing the Company's official electric deliveries and customer forecasts, sponsoring the deliveries and customer forecast testimony and exhibits, industry research, and various economic studies. Also, I am responsible for creating the Company's revenue forecast related to the electric business.

Q. Have you sponsored testimony in any previous cases before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Yes, I have presented the Company's electric business sales and revenues forecasts in the following cases:

U-17771	2016 – 2017 Energy Optimization Plan;
U-17990	General Electric Rate Case;
U-18142	2017 Power Supply Cost Recovery ("PSCR") Plan;
U-18231	2017 Biennial Renewable Energy Plan;
U-18261	Amended Energy Optimization Plan;
U-18322	General Electric Rate Case;
U-18402	2018 PSCR Plan;
U-20134	General Electric Rate Case;
U-20165	2018 Integrated Resource Plan ("IRP");
U-20219	2019 PSCR Plan;
U-20372	2019 Energy Waste Reduction ("EWR") Electric and Gas Plan;
U-20525	2020 PSCR Plan;
U-20697	General Electric Rate Case;
U-20802	2021 PSCR Plan;
U-20875	2022-2025 EWR Plan;
U-20963	General Electric Rate Case;
U-21048	2022 PSCR Plan;
U-21090	2021 IRP;
U-21257	2023 PSCR Plan;

U-21321	2024-2025 EWR Plan;
U-21389	General Electric Rate Case;
U-21423	2024 PSCR Plan;
U-21585	General Electric Rate Case; and
U-21592	2025 PSCR Plan.

Furthermore, I have been involved in preparing the forecasts sponsored by other Company witnesses in prior cases before the MPSC.

Q. Please explain the purpose of your direct testimony in this proceeding.

A. The purpose of my testimony in this Renewable Energy Plan ("RE Plan") proceeding is to present the Company's forecasted electric retail sales for use in calculating the renewable energy compliance targets over the 2025 – 2045 time horizon.

Q. Are you sponsoring any exhibits in support of your direct testimony in this case?

A. Yes. I am providing the following exhibit:

A-6 (EMB-1)	Electric Retail Sales Forecast.

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please describe your exhibit.

A. Exhibit A-6 (EMB-1) is a single-page exhibit that summarizes the forecasted electric retail sales used in calculating the RE Plan renewable energy compliance targets, from years 2024 through 2045.

Q. How is electric retail sales defined for purposes of the RE Plan?

A. In Case No. U-15800, the Commission defined electric retail sales as bundled sales to residential, commercial, industrial, streetlighting, and inter-departmental classes. As

defined, retail sales exclude electric sales for wholesale, intersystem, and electric customer choice classes. The forecasted electric sales shown in Exhibit A-6 (EMB-1) exclude these latter classes.

Q. Does this conclude your testimony?

A. Yes.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

EXHIBIT

OF

EUGÈNE M.J.A. BREURING

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Electric Retail Sales Forecast

2024-2045 Forecasted

(MWh)

Case No.: U-21816
Exhibit No.: A-6(EMB-1)
Page: 1 of 1
Witness: EMBreuring
Date: November 2024

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Line No.	Year	Residential	Commercial	Industrial	Industrial LED [1]	Streetlighting	Inter-departmental	**Total Retail [2]**	Non-Jurisdictional [3]	Jurisdictional	Jurisdictional %
1	2024	12,413,092	11,259,942	8,793,065	11,016	99,473	32,141	**32,608,729**	16,508	32,592,221	99.95%
2	2025	12,603,436	11,363,123	9,260,264	256,639	105,200	30,608	**33,619,270**	15,133	33,604,137	99.95%
3	2026	12,624,190	11,333,182	9,074,454	1,678,600	104,002	30,608	**34,845,036**	14,834	34,830,202	99.96%
4	2027	12,800,055	11,322,093	8,953,405	3,156,893	102,814	30,608	**36,365,868**	14,536	36,351,332	99.96%
5	2028	12,891,333	11,237,727	8,819,720	3,792,124	101,642	30,608	**36,873,154**	14,245	36,858,909	99.96%
6	2029	13,165,682	11,316,288	8,756,507	5,340,566	101,642	30,608	**38,711,293**	14,245	38,697,048	99.96%
7	2030	13,655,282	11,086,649	8,764,293	7,490,327	101,642	30,608	**41,128,801**	14,245	41,114,556	99.97%
8	2031	14,166,097	11,106,008	8,666,310	8,661,083	101,642	30,608	**42,731,748**	14,245	42,717,503	99.97%
9	2032	14,527,118	11,619,735	8,865,209	8,691,153	101,642	30,608	**43,835,465**	14,245	43,821,220	99.97%
10	2033	14,973,837	11,879,333	8,892,477	8,667,407	101,642	30,608	**44,545,304**	14,245	44,531,059	99.97%
11	2034	15,354,723	12,335,533	9,047,552	8,667,407	101,642	30,608	**45,537,465**	14,245	45,523,220	99.97%
12	2035	15,605,629	12,689,152	9,139,062	8,667,407	101,642	30,608	**46,233,500**	14,245	46,219,255	99.97%
13	2036	15,823,567	13,010,451	9,215,611	8,691,153	101,642	30,608	**46,873,032**	14,245	46,858,787	99.97%
14	2037	15,991,006	13,248,857	9,248,628	8,667,407	101,642	30,608	**47,288,148**	14,245	47,273,903	99.97%
15	2038	16,087,164	13,441,212	9,273,595	8,667,407	101,642	30,608	**47,601,628**	14,245	47,587,383	99.97%
16	2039	16,165,274	13,519,566	9,274,606	8,667,407	101,642	30,608	**47,759,103**	14,245	47,744,858	99.97%
17	2040	16,189,072	13,561,530	9,271,370	8,691,153	101,642	30,608	**47,845,375**	14,245	47,831,130	99.97%
18	2041	16,083,736	13,516,646	9,261,347	8,667,407	101,642	30,608	**47,661,386**	14,245	47,647,141	99.97%
19	2042	15,943,443	13,449,137	9,246,093	8,667,407	101,642	30,608	**47,438,330**	14,245	47,424,085	99.97%
20	2043	15,796,224	13,379,198	9,229,791	8,667,407	101,642	30,608	**47,204,870**	14,245	47,190,625	99.97%
21	2044	15,646,784	13,307,516	9,211,894	8,691,153	101,642	30,608	**46,989,597**	14,245	46,975,352	99.97%
22	2045	15,497,734	13,233,937	9,190,885	8,667,407	101,642	30,608	**46,722,213**	14,245	46,707,968	99.97%

Notes:

[1] "LED" = Large Economic Development customers (Industrial Class)

[2] "Total Retail" = Total deliveries less Wholesale and ROA

[3] "Non-Juris" = Grand Rapids Streetlighting

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

THOMAS P. CLARK

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Thomas P. Clark, and my business address is 1945 West Parnall Road, Jackson, Michigan 49201.

Q. By whom are you employed?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company").

Q. In what capacity are you employed?

A. I am the Executive Director of the Clean Energy Development Department.

Q. Please describe your educational background.

A. I received the degree of Bachelor of Science in Engineering from Western Michigan University in 2004. Since 2010, I have been a Registered Professional Engineer in the state of Michigan. In December 2016, I received the degree of Master of Business Administration from the Ross School of Business at the University of Michigan Ann Arbor.

Q. Please describe your business experience.

A. In August 2004, I joined Consumers Energy as an Electric System Owner. In 2005, I accepted a position as an Engineer in Transactions and Resource Planning responsible for administration of the Resource Conservation Plan and the Qualified Facility Reduced Dispatch Agreements. In this role, I assisted with proposal evaluation and the administration of power purchase contracts. In early 2009, I took on responsibilities associated with the Company's Renewable Energy Plan ("RE Plan"), including the calculation of the Transfer Price associated with renewable energy and capacity and Renewable Energy Credit tracking and forecasting. In June 2013, I was assigned to the Smart Energy Department where I was responsible for the development and implementation of demand response programs associated with the Company's deployment

of Advanced Metering Infrastructure. In March 2015, I accepted the role of Manager of the Company's Resource Planning Department where I was responsible for all the Company's short-, mid-, and long-term electric generation resource planning, including the development of the Company's Integrated Resource Plans ("IRP"). In July 2017, I added Real-Time and Day-Ahead Midcontinent Independent System Operator, Inc. ("MISO") Market Operations to my Resource Planning responsibilities. In March 2021, I was promoted to Executive Director of Electric Supply where I had responsibility for purchasing and transport functions for fuel for electric generation, interaction in the MISO markets, Power Supply Cost Recovery ("PSCR") activities, wholesale settlement and transaction functions, and contract strategy functions including distribution agreements, solicitations for energy and capacity, renewable energy compliance, and distributed generation programs. In December 2021, I was assigned my current role of Executive Director of Clean Energy Development where I am responsible for the engineering, development and acquisition of all Company-owned renewable energy resources, including solar, wind, and storage projects.

Q. Have you previously presented testimony before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Yes. I provided testimony in the following cases:

- Case No. U-15675-R, the Company's 2009 PSCR Reconciliation;
- Case No. U-16300, the Company's 2009 Renewable Cost Reconciliation;
- Case No. U-16543, the Company's RE Plan Amendment;
- Case No. U-16045-R, the Company's 2010 PSCR Reconciliation;
- Case No. U-16301, the Company's 2010 Renewable Cost Reconciliation;
- Case No. U-16581, the Company's Biennial RE Plan Review;

- Case No. U-16432-R, the Company's 2011 PSCR Reconciliation;
- Case No. U-16655, the Company's 2011 Renewable Cost Reconciliation;
- Case No. U-17301, the Company's 2013 Biennial RE Plan Review;
- Case No. U-17321, the Company's 2012 Renewable Cost Reconciliation;
- Case No. U-18250, the Company's application for a financing order approving the securitization of qualified costs and related approval;
- Case No. U-18322, the Company's 2017 Electric Rate Case;
- Case No. U-20165, the Company's 2018 IRP;
- Case No. U-20963, the Company's 2021 Electric Rate Case;
- Case No. U-21090, the Company's 2021 IRP;
- Case No. U-21224, the Company's 2022 Electric Rate Case;
- Case No. U-21389, the Company's 2023 Electric Rate Case; and
- Case No. U-21585, the Company's 2024 Electric Rate Case.

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is to support the inclusion of energy storage systems in the Company's RE Plan and support the cost recovery of Muskegon, Spring Creek, Mustang Mile, and Washtenaw Solar in the RE Plan.

- Mustang Mile Solar - a 150 megawatt ("MW") solar generation facility located in Macon Township, Lenawee County, being developed and constructed by Mustang Mile Solar Energy LLC (a wholly owned subsidiary of Invenergy Renewables Global LLC) that will be acquired through a Build Transfer Agreement ("BTA");
- Washtenaw Solar - a 150 MW solar generation facility located in Saline Township, Washtenaw County, being developed and constructed by Washtenaw Solar Energy, LLC (a wholly owned subsidiary of Invenergy Renewables Global LLC) that will be acquired through a BTA;

- Muskegon Solar Energy Center - a 250 MW solar generation facility located in Mooreland Township, Muskegon County, being developed and constructed by Consumers Energy ("Self-Perform"); and

- Spring Creek Solar - a 140 MW solar generation facility located in both Bedford Charter Township, Calhoun County, and Johnstown Township, Barry County, being developed and constructed by Consumers Energy (Self-Perform).

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the following exhibits:

Confidential Exhibit A-7 (TPC-1)	Muskegon Solar: Module Sale Agreement by and between First Solar (U.S.), Inc. and Consumers Energy Company, dated as June 10th , 2022;
Confidential Exhibit A-8 (TPC-2)	Muskegon Solar: Purchase Order by and between First Solar (U.S.), Inc. and Consumers Energy Company, dated as June 13, 2022;
Confidential Exhibit A-9 (TPC-3)	Muskegon Solar: First Solar signed contract change order, dated June 10, 2022, which identifies cost and delivery schedule changes;
Confidential Exhibit A-10 (TPC-4)	Muskegon Solar: First Solar signed changed order, dated June 10, 2022, which identifies changes to Appendix 1- Section 4 – Other Terms and Conditions;
Confidential Exhibit A-11 (TPC-5)	Muskegon Solar: Main Power Step Up Transformer Major Equipment Purchase Contract by and between Virgina Transformer Corporation and Consumers Energy Company, dated as September 4, 2022;
Confidential Exhibit A-12 (TPC-6)	Muskegon Solar: Purchase Order by and between Virgina Transformer Corporation and Consumers Energy Company, dated as September 29, 2022;
Confidential Exhibit A-13 (TPC-7)	Muskegon Solar: Engineering, Procurement and Construction Contract Agreement by and between Burns & McDonnell Michigan Inc.,

	and Consumers Energy Company, dated as October 4, 2023;
Confidential Exhibit A-14 (TPC-8)	Muskegon Solar: Burns & McDonnell signed contract change order, dated June 17, 2024, which identifies cost and delivery schedule changes;
Exhibit A-15 (TPC-9)	Muskegon Solar - project schedule;
Exhibit A-16 (TPC-10)	Muskegon Solar: Board Resolution Approving a capital expenditure for the Muskegon Solar Project, dated January 25, 2023;
Confidential Exhibit A-17 (TPC-11)	Spring Creek: Master Supply Agreement by and between Trina Solar (U.S.) Inc. and Consumers Energy Company, dated February 3, 2023;
Confidential Exhibit A-18(TPC-12)	Spring Creek: Purchase Order by and between Trina Solar (U.S.) Inc. and Consumers Energy Company, dated November 21, 2023;
Confidential Exhibit A-19 (TPC-13)	Spring Creek: Main Power Step Up Transformer Agreement by and between HICO America and Consumers Energy Company, dated December 15, 2023;
Confidential Exhibit A-20 (TPC-14)	Spring Creek: Purchase Order by and between HICO America and Consumers Energy Company, dated December 20, 2023;
Confidential Exhibit A-21 (TPC-15)	Spring Creek: Engineering, Procurement and Construction Agreement by and between Burns & McDonnell and Consumers Energy Company, dated March 15, 2024;
Exhibit A-22 (TPC-16)	Spring Creek Solar: project schedule; and
Exhibit A-23 (TPC-17)	Spring Creek Solar: Board Resolution approving capital expenditures for Spring Creek Solar, dated August 2, 2023.

Q. Were these exhibits created by you or under your supervision?

A. Yes. The Major Procurement Contracts for the Muskegon Solar Energy Center and Spring Creek Solar projects were negotiated by my organization and executed in the normal course of business.

ENERGY STORAGE SYSTEM PROJECTS

Q. What is energy storage?

A. Energy storage is a resource capable of receiving energy and storing it for later injection into the transmission or distribution system. Energy storage encompasses a wide range of technologies, including but not limited to, batteries, flywheels, compressed air, and pumped storage. Typically, an energy storage project is characterized by its rated power capacity [MW], energy capacity [MWh], storage duration [hours], and rated life [years]. For any given project, the technology and storage duration chosen will be heavily dependent upon the intended application. Currently, the rated power capacities for energy storage projects range anywhere from 0.1 MW to 750 MW, while storage durations can range from minutes to 100 hours or more. Energy storage is often classified by storage duration as: short duration (up to 4 hours); long duration (10+ hours); and seasonal energy storage (100+ hours), although these classifications are not standard across the industry.

Q. What value does energy storage offer to customers?

A. Energy storage provides value in many different ways, some more quantifiable than others. The most obvious and easily quantified are those recognized in the various wholesale energy markets. These values include capacity value, energy value (realized through energy arbitrage), and ancillary services. Less defined are the various transmission and distribution services that energy storage provides. These include transmission congestion

relief, Volt-VAR control, backup power, and upgrade deferral. Finally, under Michigan's renewable portfolio standard, energy storage can provide renewable energy credits that can be used to meet compliance obligations under the law. It is important to note that energy storage is capable of "stacking" or providing multiple services, sometimes simultaneously. The combination of these values position energy storage as an enabler of renewable energy.

Q. What do you mean by "an enabler of renewable energy"?

A. Energy storage, through its various value streams, facilitates the penetration of large quantities of renewable energy into the grid by operating in coordination with renewable generation assets, like wind and solar, to smooth the inherent fluctuations caused by intermittency in renewable generation. For example, excess generation from a solar photovoltaic ("PV") facility during mid-day can be stored and shifted for use in the evening when solar PV generation is tapering off. Simultaneously, energy storage can ramp rapidly to address sudden, unpredicted reductions or increases in renewable output caused by cloud cover or wind gusts. Energy storage's ability to firm intermittent generation reduces strain on the electric grid which reduces curtailment of renewable generation. Less curtailment improves the capacity factor of wind and solar projects due to the increased renewable generation overall.

Q. How will energy storage support the Company's RE Plan directly?

A. As mentioned earlier, energy storage can produce renewable energy credits. Specifically, Public Act 295 of 2008, as amended ("Act 295") specifies that energy storage is eligible for incentive renewable energy credits ("IRECs") which are granted under specific circumstances. For energy storage, the Michigan Renewable Energy Certification System issues 1 REC and 1/5 IREC for each MWh of electricity generated from a renewable energy

system during off-peak hours, stored using advanced electric storage technology or a hydroelectric pumped storage facility, and used during peak hours. For compliance purposes, 1 IREC is equivalent to 1 REC. The utilization of storage IRECs to meet the Company's compliance obligations is a direct contribution to the Company's RE Plan.

Q. What are the different types of energy storage projects?

A. The Company defines the different types of energy storage projects based on the process used to interconnect the storage project to the grid. Specifically, based on the options provided for by MISO. This yields five different energy storage project types as detailed below:

- **Standalone –** A new energy storage project without ties to other existing renewables or conventional generation assets and requires a full MISO Generation Interconnection Application.
- **Replacement** – An energy storage project that is installed at a retiring generating facility's interconnection via the MISO Generation Replacement Process. MISO defines a replacement project as one that is "planning to replace one or more generating units and/or storage devices at an Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection."
- **Co-located –** A Co-located energy storage project is an energy storage project that shares a point of interconnection ("POI") with another generating facility, but each facility participates in the market as separate resources by resource type (i.e. an energy storage facility paired with a solar facility that operates as two independent facilities at a shared interconnection). Co-located energy storage projects can be built alongside existing generation facilities or as entirely new projects.
- **Surplus –** A surplus energy storage project leverages the surplus interconnection process as defined by MISO. The surplus interconnection process results in a "restricted Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an Existing Generating Facility without increasing the total amount of Interconnection Service at the Point of Interconnection." Therefore, a surplus energy storage project is a Co-located energy storage project that utilizes MISO's surplus interconnection process and where the energy storage project is contemplated after the hosting project has already advanced through MISO's full Generator Interconnection Process.

- **Hybrid –** A new renewable energy project with multiple resource types utilizing a shared interconnection and participating in the market as a single resource (e.g. an energy storage project paired with a solar and/or wind project). A hybrid energy storage project is a Co-located energy storage project where all generation resources utilize the same full MISO interconnection application during development.

Q. Why would the Company choose to pursue Standalone energy storage projects?

A. Standalone energy storage projects can be considered the baseline to which the other alternative applications are compared. Unlike surplus projects, standalone projects avoid interfering with the MISO accreditation of existing generation assets and are not restricted to the limits of existing interconnection agreements like surplus and replacement projects. Standalone projects are ideal when targeting a specific size or location or if replacement or surplus opportunities do not exist. Locations can be selected where capacity availability is the highest and provides the highest grid stability/reliability.

Q. Why would the Company choose to pursue Replacement energy storage projects?

A. Replacement energy storage projects allow the Company to leverage existing POIs, real estate, and infrastructure. Due to both the shorter interconnection application process and the utilization of existing interconnection infrastructure in comparison to the conventional MISO Generator Interconnection Agreement ("GIA") process, replacement projects shorten timelines and reduce cost. Unlike other energy storage types, Replacement energy storage replaces existing, retiring generation.

Q. Why would the Company choose to pursue Co-located energy storage projects?

A. All assets within Co-located projects share an interconnection but participate as separate resources within the market, allowing the value of each individual asset to be maximized. Like Replacement projects, Co-located energy storage projects benefit by having its

individual resources share a POI and other infrastructure which can reduce costs and shorten project timelines.

Q. Why would the Company choose to pursue Surplus energy storage projects?

A. Surplus energy storage projects are advantageous because they allow for a shorter interconnection timeline compared to the conventional interconnection process. Per the MISO tariff, the conventional interconnection process spans approximately 373 days while the Surplus interconnection process spans 240 days. Therefore, the Surplus interconnection process is a faster path to an executed GIA for energy storage projects.

Like Replacement energy storage projects, Surplus energy storage projects can leverage existing infrastructure potentially reducing project costs and shortening the development timeline. Likewise, Surplus energy storage projects will be built without increasing the existing interconnection service, meaning potential network upgrade requirements and associated costs that may otherwise be incurred through the conventional interconnection process can be avoided.

Q. Why would the Company choose to pursue Hybrid energy storage projects?

A. Hybrid resources allow for the combined nameplate capacity of the generating facility, which often utilize intermittent resource types, to exceed the total interconnection service. As a result, a lower interconnection service means hybrid projects can potentially avoid the need for network upgrades. Hybrid energy storage projects offer many of the same benefits as Surplus and Co-located energy storage projects, but allow for the size of storage and renewable resources to be co-optimized from the outset versus Surplus energy storage projects which are optimized based on the existing generating facility's nameplate capacity and the available interconnection service.

Q. Why should energy storage be included in the Company's RE Plan?

A. As described above, there are three reasons to include energy storage in the Company's RE Plan. First, energy storage provides many different value streams to customers in the form of energy, capacity, ancillary services, transmission, and distribution benefits. Second, energy storage is a renewable energy "enabler." It will help reduce curtailment of renewable generation assets and increase utilization of renewable energy infrastructure. Using energy storage to firm renewable resources will help improve the total energy output from those assets resulting in increased RECs. Finally, and most importantly, off-peak renewable energy that is stored and used during on-peak hours yields IRECs which will be used to demonstrate REC Portfolio Standard compliance which is the key objective of the Company's RE Plan.

Q. Should all types of energy storage be considered in the RE Plan?

A. The benefits described above are true for all energy storage projects, meaning all energy storage projects contribute to the Company's RE Plan. But for this case, the Company recommends a focus on surplus, hybrid, and co-located energy storage within the RE Plan due to use of shared interconnection infrastructure, ease of charging from renewable sources, and the ability to directly improve functionality and capacity of renewable generation assets.

Q. How much energy storage does the Company expect to include in the RE Plan?

A. The Company intends to pursue energy storage projects as part of the RE Plan only if they share a point of interconnection with a renewable energy system. The capacity of existing solar and wind assets that have a GIA with MISO is nearly 1,100 MW.

Q. What are the Company's cost assumptions for the energy storage resource additions?

A. The Company anticipates a Levelized Cost of Energy ("LCOE") of $143.54/MWh for energy storage resources with a Commercial Operation Date ("COD") of January 1, 2028. This cost is based on the costs from the recently executed Power Purchase Agreement with Century Oaks Energy Storage LLC that has been reviewed and approved by the MPSC in Case No. U-21585. The Company proposes relying on the costs presented in that case as a target for energy storage projects under the RE Plan.

Q. How does the Company propose recovering costs for energy storage projects included in the RE Plan?

A. The Company proposes to recover all costs of RE Plan energy storage projects through the RE Plan cost of compliance.

Q. What is the Company's request for project approval for energy storage resources?

A. The Company intends to file for project approval with the MPSC for up to 1,100 MW of energy storage projects that share an interconnection with a renewable energy system. The Company is requesting that the Commission allow the Company to seek ex parte approval for future energy storage projects that have an LCOE which is up to 140% above the LCOE target discussed above. For energy storage projects with a COD of January 1, 2028, this means the Company would be able to seek ex parte approval for projects with LCOEs of up to $200.96/MWh.

Q. What is the basis for the Company's request for a threshold multiplier of 140%?

A. The basis for the 140% is discussed in detail in the testimony of Company witness Kenneth D. Johnston.

SOLAR PROJECTS

Q. Why is the Company presenting these four IRP solar assets in the RE Plan?

A. As discussed in the testimony of Company witness Johnston, the Company supports the position taken by MPSC Staff ("Staff") witness Jesse J. Harlow in Case No. U-21585 regarding the recovery of these projects in the RE Plan. The information that follows supports the cost recovery for these projects.

SPRING CREEK SOLAR

Q. Is the Spring Creek Project a result of a Competitive Solicitation?

A. Yes. The Company issued its fourth annual IRP competitive solicitation on December 8, 2022 (the "2022 IRP Solicitation"), seeking 500 MW of new solar resource capacity on or before June 1, 2025; 204 MW of new solar resource capacity on or before June 1, 2026; and 500 MW of new solar resource capacity on or before June 1, 2027. The Company used an independent administrator to independently and without bias administer a fair and transparent solicitation, including collecting and scoring proposals and producing scored shortlists. A total of 38 proposals covering 30 unique projects representing nearly 1,665 MW of nameplate capacity were submitted on a confidential basis in the 2022 competitive solicitation. Of those, 11 proposals were for Utility-owned projects and 27 were for long-term Power Purchase Agreements ("PPAs"). Thirteen projects that participated were Public Utility Regulatory Policies Act ("PURPA") Qualifying Facilities ("QFs") at or below the Company's must purchase obligation MW threshold located in Consumers Energy's service territory. As a result of this solicitation, a Self-Perform project, Spring Creek, was selected. This required the Company to enter into several Major Procurement Agreements which are presented for approval: (1) Module Sale Agreement;

(2) Engineering, Procurement, and Construction ("EPC") Agreement (includes Racking, Inverters and Piles); and (3) Substation Transformer Agreement.

Q. Please provide an overview of the Spring Creek Solar Project.

A. The Spring Creek Solar Project is a 140 MW solar facility located in both Bedford Charter Township, Calhoun County, and Johnstown Township, Barry County, Michigan. All required land rights for the project have been secured. The project intends to connect to the Michigan Electric Transmission Company ("METC") 138 kV transmission system. An Engineering Design and Procurement Agreement between METC and the Company, executed on November 2, 2023, initiated design and procurement activities to that end, as a MISO GIA continues to be developed.

Q. Which Major Procurement Agreements has the Company executed to date?

A. Confidential Exhibit A-17 (TPC-11) and Confidential Exhibit A-18 (TPC-12) include the Master Supply Agreement and associated Purchase Order with Trina Solar Inc, dated February 3, 2023 and November 21, 2023, respectively, and Confidential Exhibit A-19 (TPC-13) and Confidential Exhibit A-20 (TPC-14) include the Substation Transformer Agreement and associated Purchase Order with HICO America, dated December 15, 2023 and December 20, 2023, respectively. Confidential Exhibit A-21 (TPC-15) is the EPC Agreement with Burns & McDonnell dated March 15, 2024. Consumers Energy requests approval of these contracts associated with the Spring Creek Solar project.

Q. What is the project schedule for the Spring Creek Solar project?

A. The project will achieve Commercial Operation on or before June 1, 2026, as seen in Exhibit A-22 (TPC-16). All major agreements have been fully executed and work toward delivery of the project is actively underway.

Q. What is the projected cost of the Spring Creek Solar Project?

A. Based on the contracts executed and other forecasted costs, the Spring Creek Solar project is estimated to be $253 million, with an LCOE of $56.55/MWh. This pricing is consistent with the proposal selected in the Company's 2022 IRP Competitive Solicitation.

Q. Has the Spring Creek Solar project been approved by the Company's Board of Directors?

A. Yes. Exhibit A-23 (TPC-17) indicates that on August 2, 2023, the CMS Energy Board of Directors ("Board") approved the capital expenditure for the Spring Creek Solar Project of up to $250 million. Additionally, $9 million for land acquisition was previously approved in 2021, bringing the total capital expenditures approved by the Board for the project to $259 million.

MUSKEGON SOLAR

Q. Is the Muskegon Project a result of a Competitive Solicitation?

A. Yes. The Company issued its third annual IRP competitive solicitation on September 24, 2021 (the "2021 IRP Solicitation"), seeking 500 MW of new solar resource capacity in 2024, of which up to 250 MW would be Company-owned. The Company used an independent administrator to independently and without bias administer a fair and transparent solicitation, including collecting and scoring proposals and producing scored shortlists. A total of 28 proposals covering 22 unique projects representing nearly 1,500 MW of nameplate capacity were submitted on a confidential basis in the 2021 competitive solicitation. Of those, 9 proposals were for Company-owned projects and 19 were for long-term PPAs. Three projects that participated were PURPA QFs at or below the Company's must purchase obligation MW threshold located in Consumers Energy's

service territory. As a result of this solicitation, a Self-Perform project, Muskegon Solar, was selected. This required the Company to enter into several Major Procurement Agreements: (1) Module Sale Agreement; (2) EPC Agreement (includes Racking, Inverters and Piles); and (3) Substation Transformer Agreement.

Q. Please provide an overview of the Muskegon Solar Energy Center Project.

A. The Muskegon Solar Project is a 250 MW solar facility located in Moorland Township, Muskegon County, Michigan. All required land rights for the project have been secured and a Special Land Use Permit has been granted. The project will be connected to the METC 138 kV transmission system in accordance with the terms and conditions outlined in the MISO GIA, executed on March 27, 2023.

Q. Which Major Procurement Agreements has the Company executed to date?

A. Confidential Exhibit A-7 (TPC-1) and Confidential Exhibit A-8 (TPC-2) include the Module Sale Agreement and associate Purchase Order with First Solar Inc, dated June 10, 2022 and June 13, 2022, respectively. Confidential Exhibit A-11 (TPC-5) and Confidential Exhibit A-12 (TPC-6) include the Substation Transformer Agreement and associated Purchase Order with Virginia Transformer, dated September 4, 2022, and September 29, 2022, respectively. Finally, Confidential Exhibit A-13 (TPC-7) is the EPC Agreement with Burns & McDonnell, dated October 4, 2023. Consumers Energy requests approval of these contracts associated with the Muskegon Solar Project.

Q. What is the project schedule for the Muskegon Solar project?

A. The project will achieve COD on or before December 31, 2025, as seen in Exhibit A-15 (TPC-9). All major agreements have been fully executed and work toward delivery of the project is actively underway.

Q. What is the expected cost of the Muskegon Solar project.

A. Based on the contracts executed and other forecasted costs, the Muskegon Solar project is estimated to be $354 million, with an LCOE of $51.51/MWh. This price is consistent with the proposal selected in the Company's 2021 IRP Competitive Solicitation.

Q. Has the Muskegon Solar project been approved by the Company's Board of Directors?

A. Yes. Exhibit A-16 (TPC-10) indicates that on January 25, 2023, the Board approved capital expenditures to deliver the Muskegon Solar project for an amount of up to $354 million.

WASHTENAW SOLAR

Q. Please provide an overview of the Washtenaw Solar Project and explain how it relates to the Company's 2020 IRP Competitive Solicitation.

A. The Company issued its second IRP Competitive Solicitation on July 29, 2020, seeking 300 MW of new solar resource capacity by 2023, of which up to 150 MW would be Company owned. As a result of this solicitation, a BTA was executed between Consumers Energy and Washtenaw Solar Energy, LLC (a wholly owned subsidiary of Invenergy Renewables Global LLC), dated as of October 4, 2021, for the acquisition of a new 150 MW solar resource which will ultimately be owned by the Company ("Washtenaw Solar" or "Washtenaw Solar Project").

The Washtenaw Solar Project is a 150 MW solar facility located in Saline Township, Washtenaw County, Michigan. The project will be interconnected with the International Transmission Company's 345 kV transmission system in accordance with the terms and conditions outlined in its MISO GIA, executed April 23, 2021. The project has secured land rights for more than 1,100 acres, but due to changes to Saline Township

zoning ordinances enacted after the execution of the BTA, the project will require additional land rights in order to be sited locally or will need to rely on the recently passed state certification process.

Q. What is the project schedule and projected cost for the Washtenaw Solar project?

A. Given the passage and implementation of state siting regulations, the Company is working with Invenergy on a revised schedule and cost for the project. Neither of these have been determined at this time; therefore, the Company does not have any further details. We are confident that we will be able to reach an agreement with Invenergy and will then present it to the Commission for approval.

MUSTANG MILE

Q. Please provide an overview of the Mustang Mile Solar Project and explain how it relates to the Company's 2019 IRP Competitive Solicitation.

A. Consumers Energy issued its first annual IRP competitive solicitation on September 30, 2019, seeking 300 MW of new solar resource capacity in 2022, of which up to 150 MW would be Company-owned. As a result of this solicitation, a BTA was executed between Consumers Energy and Mustang Mile Solar Energy LLC (a wholly owned subsidiary of Invenergy Renewables Global LLC), dated as of January 21, 2021, for the acquisition of a new 150 MW solar resource which will ultimately be owned by the Company ("Mustang Mile" or "Mustang Mile Solar Project").

The Mustang Mile Solar Project is a 150 MW solar facility located in Macon Township, Lenawee County, Michigan. The project will be connected to the METC 138 kV transmission system in accordance with the terms and conditions outlined in the MISO GIA, executed on August 6, 2020. All required land rights for the project have been

secured and a special land use permit has been granted; however, legal challenges to the permit are currently being litigated which is preventing the completion of the project. While the Company expects that the opposition groups will ultimately fail in their legal challenge, the project has been delayed because of these challenges therefore a revision to the original project schedule is required. The unpredictable duration of the legal issues makes it difficult to assume an accurate revised COD at this time.

Q. What is the project schedule and projected cost for the Mustang Mile Solar project?

A. The Company is working with Invenergy on a revised schedule and cost for the project. Neither of these have been determined at this time; therefore, we do not have any further details. The Company is confident that it will be able to reach an agreement with Invenergy and will then present it to the Commission for approval.

Q. Does this conclude your direct testimony?

A. Yes.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

PUBLIC

EXHIBITS

OF

THOMAS P. CLARK

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Exhibits A-7 (TPC-1) through A-14 (TPC-8) are Confidential and being provided under seal to the Michigan Public Service Commission

Consumers Energy — Count on Us®

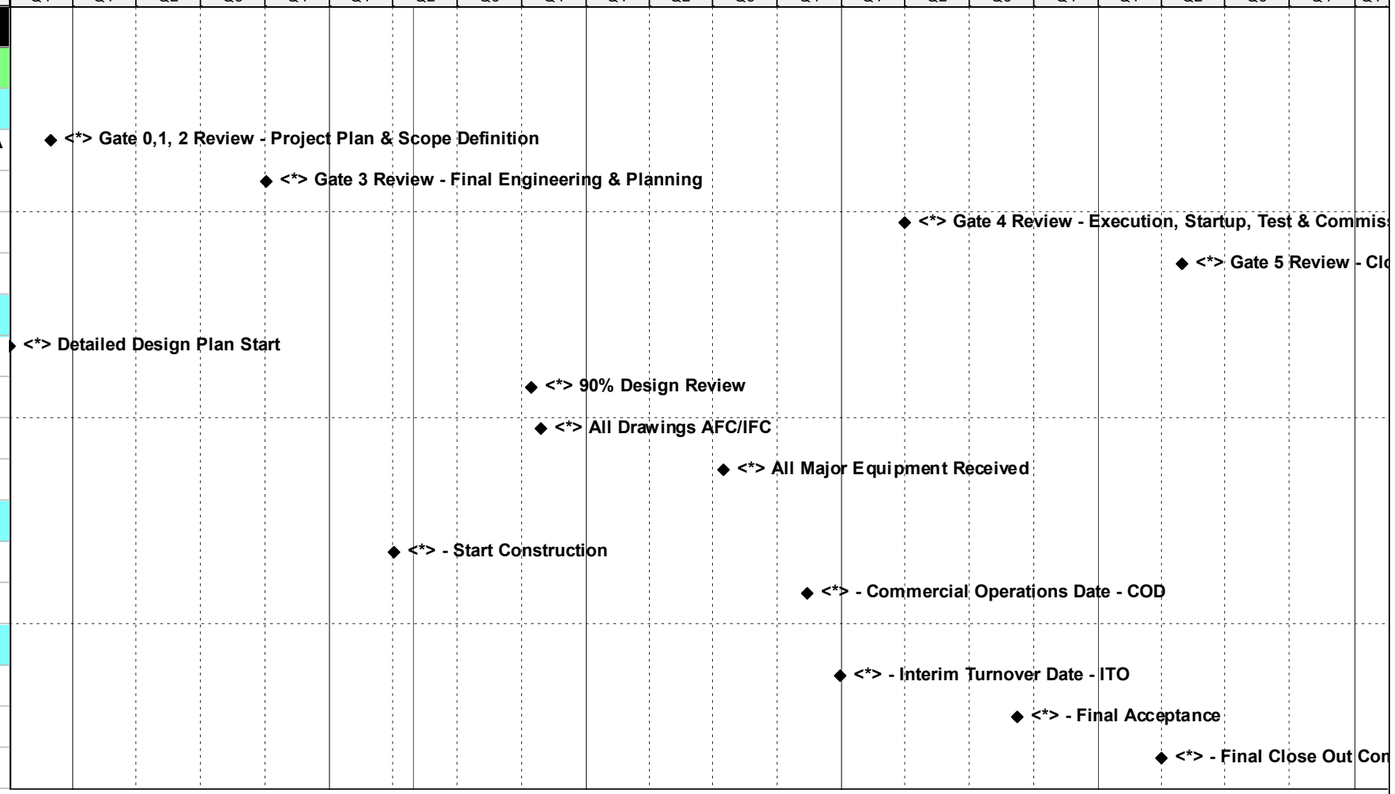
EPM Project Management

PS-00006 Muskegon Solar Energy Ctr 250MW

Level 1 Schedule

07-May-24 07:46

#	Activity Name	Start	Finish
1	**PS-00006 Muskegon Solar Energy Ctr 250MW**		
2	**MILESTONES**		
3	**Milestones for Gates**		
4	<*> Gate 0,1, 2 Review - Project Plan & Scope Definition		30-Nov-22 A
5	<*> Gate 3 Review - Final Engineering & Planning		04-Oct-23 A
6	<*> Gate 4 Review - Execution, Startup, Test & Commissioning		01-Apr-26*
7	<*> Gate 5 Review - Closeout		01-May-27*
8	**Milestones for Engineering**		
9	<*> Detailed Design Plan Start	03-Oct-22 A	
10	<*> 90% Design Review		15-Oct-24
11	<*> All Drawings AFC/IFC		28-Oct-24
12	<*> All Major Equipment Received		15-Jul-25
13	**Milestones for Construction**		
14	<*> - Start Construction	02-Apr-24 A	
15	<*> - Commercial Operations Date - COD		12-Nov-25
16	**Milestones for Closeout**		
17	<*> - Interim Turnover Date - ITO		29-Dec-25
18	<*> - Final Acceptance		07-Sep-26
19	<*> - Final Close Out Complete		01-Apr-27*



Remaining Level of Effort | Actual Level of Effort | Actual Work

TASK filters: EPM Milestone, WBS is Milestones.

CONSUMERS ENERGY COMPANY
FINANCE COMMITTEE

CAPITAL EXPENDITURE APPROVAL –
MUSKEGON SOLAR ENERGY CENTER PROJECT

Pursuant to provisions of the Financial Authorities Policy, as amended on November 11, 2022, it is necessary for the Finance Committee to approve capital expenditures greater than $125 million for any individual multi-year project up to $425 million.

There is presented to the meeting information related to Consumers Energy Solar Team's completion of the Muskegon Solar Energy Center Project, a solar project located in Muskegon County, Michigan and expected to be up to 250 megawatts, with costs totaling up to $354 million (the "Project"). The Project will involve completion of all development activities, major equipment procurement (solar modules, solar racking systems and generator step-up transformer), interconnection costs, property rights and permits, and construction of the Project, among other items (the "Project Assets").

RECOMMENDATION

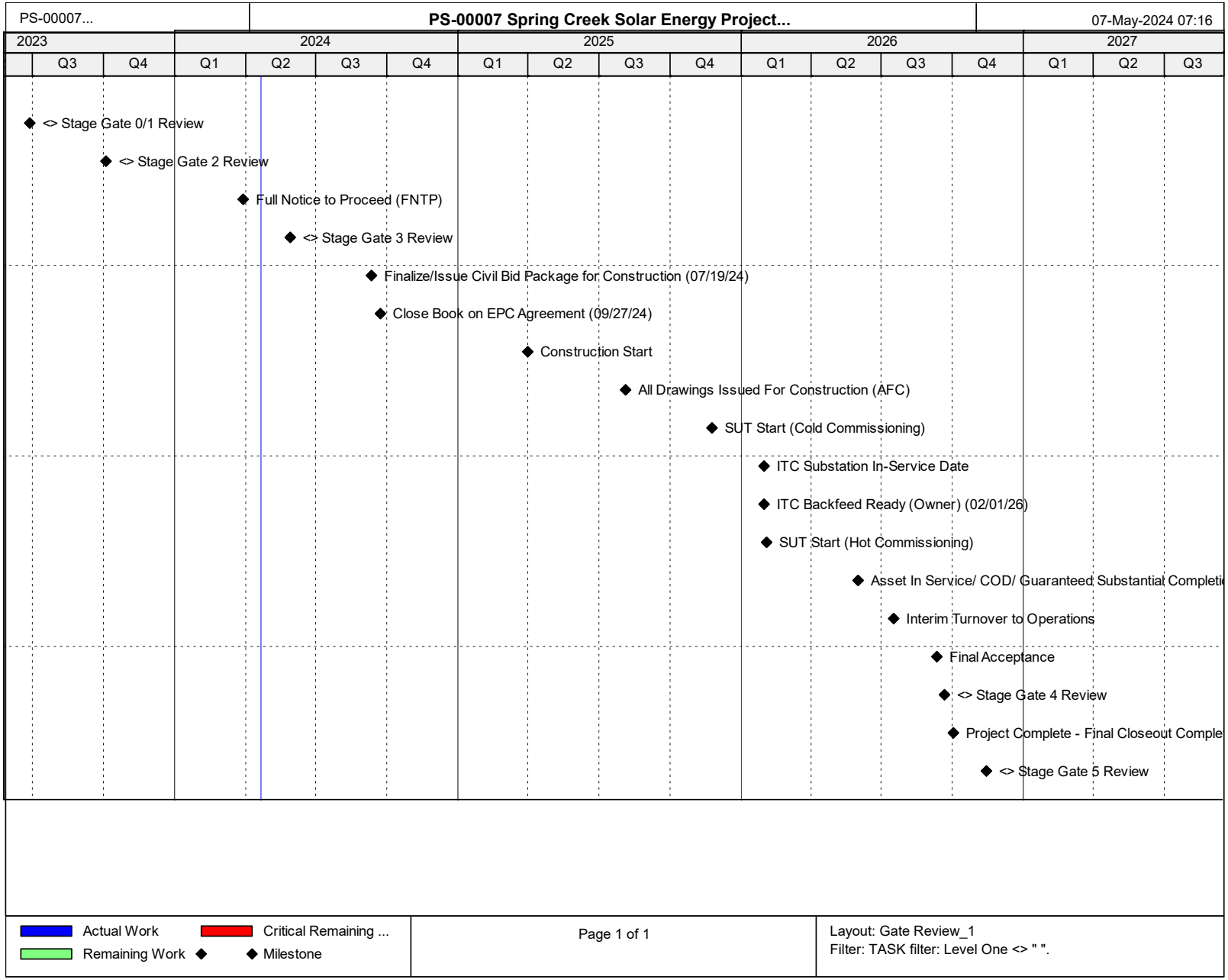
The Finance Committee is being asked to: (i) approve the requested capital expenditures of $354 million for the Project; and (ii) authorize the officers of the Company to fully and timely complete the Project, without further action of the Committee unless the total Project cost exceeds the authorized amount by 10% or more as provided for under the Financial Authorities Policy. The Committee is being asked to approve the capital expenditure for the Project as presented to and discussed at the meeting and adopt the following resolutions.

PROPOSED FINANCE RESOLUTIONS APPROVING A CAPITAL EXPENDITURE FOR THE MUSKEGON SOLAR ENERGY CENTER PROJECT

RESOLVED: That the Finance Committee (the "Committee") of Consumers Energy Company (the "Company") approves a capital expenditure in an amount of $354 million for the Muskegon Solar Energy Center Project, a solar project located in Muskegon County, Michigan and expected to be up to 250 megawatts (the "Project"), as discussed at the meeting; and

RESOLVED FURTHER: That the officers of the Company, and each of them, are authorized and directed, for and on behalf of the Company, to execute any and all documents and take all actions and do all things they may deem necessary or appropriate, and as counsel may advise, to fully and timely complete the Project without further action of the Committee unless the total Project cost exceeds the authorized amount by 10% or more as provided for under the Financial Authorities Policy.

Exhibits A-17 (TPC-11) through A-21 (TPC-15) are Confidential and being provided under seal to the Michigan Public Service Commission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Finalize/Issue Civil Bid Package for Construction (07/19/24)
Close Book on EPC Agreement (09/27/24)
Construction Start
All Drawings Issued For Construction (AFC)
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ITC Backfeed Ready (Owner) (02/01/26)
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Extract from the minutes of the Board of Directors of Consumers Energy Company, duly called and held on August 2, 2023.

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RESOLUTIONS APPROVING A CAPITAL EXPENDITURE FOR THE SPRING CREEK SOLAR ENERGY CENTER PROJECT

RESOLVED: That, upon the recommendation of Management of Consumers Energy Company (the "Company"), the Board of Directors (the "Board") of the Company approves a capital expenditure in an amount of $250 million for the Spring Creek Solar Energy Center Project, a solar project located in Barry County and Calhoun County, Michigan with an expected nameplate capacity of 140 megawatts (the "Project"), as discussed at the meeting; and

RESOLVED FURTHER: That the officers of the Company, and each of them, are authorized and directed, for and on behalf of the Company, to execute any and all documents and take all actions and do all things they may deem necessary or appropriate, and as counsel may advise, to fully and timely initiate and complete the Project referred to in the foregoing resolution, without further action of the Board, unless the total Project cost exceeds the authorized amount by 10% or more as provided for under the Financial Authorities Policy.

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

ZACHERY S. COLE

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Zachery S. Cole, and my business address is 1945 West Parnall Road, Jackson, Michigan 49201.

Q. By whom are you employed and in what capacity?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company") where I am a Renewables Engineer responsible for Renewable Resources within the Electric Supply Regulatory Strategies Department.

QUALIFICATIONS

Q. Please describe your educational background and business experience.

A. I received a Bachelor of Science Degree in Civil Engineering in 2020 from Michigan Technological University. From 2021 to 2022, I worked as a Design Engineer at Spicer Group Inc., where I was responsible for permitting, design, construction administration, and cost estimating of water resource related projects. In 2022, I joined Consumers Energy as an Associate Economics Engineer responsible for economic analyses related to new power purchase agreements ("PPAs"), renegotiation of existing PPAs, and analysis for ad hoc projects that support the Company's renewable energy electric generation strategy. In September 2023, I was promoted to a new role as a Renewables Engineer where my responsibilities were expanded to include implementation and the Company's compliance with its Renewable Energy Plan ("RE Plan").

Q. What are your present responsibilities and duties as Renewables Engineer?

A. My responsibilities include the implementation of the RE Plan, including (1) the development of competitive solicitations that add generation under the RE Plan, (2) negotiations and development of PPAs, and (3) ensuring compliance with the RE Plan.

Q. Have you completed other courses of study or attended any professional seminars?

A. Yes. I completed a training program entitled IPU Annual Regulatory Studies Program Fundamentals offered by the Institute of Public Utilities at Michigan State University.

Q. Have you previously provided testimony before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Yes. I provided testimony in:

- Case No. U-21049: RE Plan expenses in the reconciliation of Power Supply Cost Recovery ("PSCR") Costs and Revenues for the Calendar Year 2022;
- Case No. U-21258: RE Plan expenses in the reconciliation of PSCR Costs and Revenues for the Calendar Year 2023;
- Case No. U-21549: the Company's 2024 Renewable Energy Cost Reconciliation case, regarding the actual and expected expenses incurred to implement the Company's approved RE Plan in 2023, the billed surcharge revenues, and a discussion on the Company's Regulatory Liability Balance projection; and
- Case No. U-21592: the Company's 2025 PSCR plan case for the 12 months ending December 31, 2025.

PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is to provide the following:

- Provide an overview of the Company's recent and future Voluntary Green Pricing ("VGP") request for proposals ("RFPs");
- Explain any new additions to the RE Plan;
- Support the continuation of the current PSCR methodology (transfer price) and regulatory liability balance for Company-owned assets in the RE Plan through December 2045;
- Support the Company's newly proposed simplified transfer price schedules which would replace the Company's transfer price schedules approved in Case Nos. U-15805 and U-16581; and
- Support the Company's VGP demand forecast.

Q. Are you sponsoring any exhibits with your direct testimony?

A. Yes, I am sponsoring the following exhibits:

Exhibit A-24 (ZSC-1)	Renewable Projected Electric Production – On Peak Generation;
Exhibit A-25 (ZSC-2)	Renewable Projected Electric Production – Off Peak Generation;
Exhibit A-26 (ZSC-3)	Renewable Projected Electric Production – Total Generation;
Exhibit A-27 (ZSC-4)	Renewable Energy Plan Projected Capped Transfer Costs;
Exhibit A-28 (ZSC-5)	Renewable Energy Plan Transfer Price Limits;
Exhibit A-29 (ZSC-6)	Renewable Energy Plan Projected FCM;
Exhibit A-30 (ZSC-7)	Simplified Transfer Price Schedules;
Exhibit A-31 (ZSC-8)	Existing vs Proposed Transfer Cost Comparison; and
Exhibit A-32 (ZSC-9)	VGP Subscription Forecast.

Q. Were these exhibits prepared by you or under your direction and supervision?

A. Yes.

RENEWABLE ENERGY GENERATION

Q. How many renewable energy systems included in the Company's RE Plan are expected to produce renewable generation through 2045?

A. There are several categories of renewable energy systems that can produce renewable generation through December 2045. They include:

1. Purchases of energy, capacity, and renewable energy credits ("RECs") through Renewable Energy Purchase Agreements ("REPAs") or PPAs;
2. Provider-owned renewable energy systems;
3. Renewable energy systems for which Commission authorization was previously obtained; and

4. Additional provider-owned VGP renewable energy systems for which Commission authorization is being sought in this filing.

The Transfer Price, as described and discussed further below, is only applied to: (i) purchases of energy, capacity, and RECs through REPAs and PPAs; (ii) production from provider-owned renewable energy systems; and (iii) production from Commission-authorized renewable energy systems. In 2024, the Company anticipates costs associated with: (i) REPAs supplying energy, capacity, and RECs in accordance with MCL 460.1047; (ii) Provider-owned renewable energy resources supplying energy, capacity, and RECs constructed in accordance with MCL 460.1047; and (iii) Commission-authorized renewable energy systems that participate in either Experimental Advanced Renewable Program ("EARP")-Solar or EARP-Anaerobic Digestion ("EARP-AD"). Costs for renewable energy systems for which recovery in electric rates was approved as of October 6, 2008 (the effective date of 2008 PA 295 ("Act 295") are recovered as part of power supply costs and general rates and are not considered in calculating Transfer Costs.

Q. What are the major Company-owned renewable energy additions to the RE Plan?

A. The Company has modeled the recovery of Muskegon Solar, Mustang Mile Solar, Spring Creek Solar, and Washtenaw Solar in the RE Plan, as discussed in the direct testimony of Company witness Kenneth D. Johnston. The Company is proposing to use the MPSC Staff's ("Staff") 2023 extended Transfer Price schedule, as filed in Case No. U-15800, for these four resources. Similarly, the Company is proposing to move recovery of all future renewable Integrated Resource Plan ("IRP") projects from the general rate case into the RE Plan. Additionally, the Company has selected two projects from the 2023 VGP RFP solicitation which are currently under negotiations. Finally, the Company anticipates

additional VGP and Solar Gardens projects to meet increasing demand. These projects can be seen in Exhibits A-24 (ZSC-1) through A-29 (ZSC-6).

Q. Are there major REPAs or PPAs for renewable energy being added to the RE Plan?

A. Yes. The Company is proposing to move the recovery and reconciliation of all future renewable IRP projects from the general rate case into the RE Plan, including PPAs. The Company is not proposing to move any existing PPAs to the RE Plan, however, all future renewable PPAs will be included in the RE Plan. For modeling purposes, the Company is assuming that roughly 50% of all future VGP and RE Plan solicitations for solar energy resources will be supplied via PPAs and the other 50% supplied by Company owned projects. The actual portfolio split may be different than the 50/50 split modeled in this case since the Company selects projects from VGP RFPs based on project economics. Exhibits A-24 (ZSC-1) through A-29 (ZSC-6) provide more insight into the assumed projects to be added to the RE Plan through 2045.

Q. Please summarize the sizes of renewable energy resources recoverable through the transfer price mechanism included in this plan.

A. This plan includes a total of 8,104 MW of solar projects which would be recoverable via the transfer price mechanism. Of that, 504 MW are solar projects already in the RE plan and 690 MW are due to the moving of 4 IRP assets into the RE plan. The remaining 6,910 MW are unnamed proxy solar projects, which includes 1,060 MW of unnamed proxy solar VGP projects. The additional 1,060 MW of proxy solar VGP projects combined with the existing 398 MW of named solar VGP projects and the 120 MW of named VGP wind projects brings the total VGP size to 1,578 MW.

Additionally, this plan includes a total of 2,800 MW of unnamed proxy wind projects and 1,200 MW existing wind projects recoverable via the transfer price mechanism. Finally, this plan includes 20 MW of existing resources that are not wind or solar technologies which are recoverable via the transfer price mechanism.

Q. Please provide an update on the 2023 VGP RFP.

A. On May 25, 2023, the Company's Independent Administrator, Enel X, issued the 2023 VGP solicitation on behalf of the Company to acquire up to 606 MW of additional aggregate nameplate capacity projects. The Company used a competitive VGP solicitation process consistent with prior solicitations for RE Plan assets, the Commission's 2008 Guidelines for Competitive Request for Proposal for Renewable and Advanced Cleaner Energy which were issued as Attachment D in the December 4, 2008 Order in Case No. U-15800, and the Commission's Competitive Procurement Guidelines for Rate-Regulated Electric Utilities (Not for PURPA Compliance) approved on September 9, 2021, in Case No. U-20852. On October 31, 2023, the Company provisionally awarded three solar projects, however after further due diligence, one of the projects has since been released. The Company continues to work toward execution of major contracts for the remaining two projects which would provide an estimated 347 MW of solar capacity for the Renewable Energy Program. Additional details regarding the 2023 VGP solicitation and the selected projects will be available when the Company files for MPSC approval of those projects.

Q. Has the Company issued additional VGP solicitations?

A. Yes. On July 3, 2024, the Company's Independent Administrator, Enel X, issued the 2024 Clean solicitation. The 2024 Clean solicitation solicited for up to 1,500 MW of clean generation to serve the Company's IRP, VGP, and the RE Plan.

Q. Is the 2024 Clean solicitation intended to supply all customers or just VGP?

A. The 2024 Clean solicitation allows the Company to be flexible when awarding projects. The Company could award a project to supply all customers, only VGP customers, or projects for both programs.

Q. What is the projected timeline for the 2024 Clean solicitation?

A. Bids for the 2024 Clean solicitation were due on October 9, 2024. The Company is targeting blind ranking results from Enel X by October 25, 2024. Following the performance of due diligence and negotiations, the Company is targeting to have executed contracts and file them with the MPSC for approval in the second quarter of 2025.

Q. How will the Company determine which projects to award regarding IRP/VGP?

A. Projects will be ranked based on economics first. If a project meets all the requirements of a project fit for the IRP portion of the RFP, it will be given first consideration for award to IRP and if not, then to VGP. Project awards will alternate between IRP and VGP when possible, to provide an even distribution of project awards between IRP/VGP. This method also reduces the opportunity for VGP to be supplied with all the lowest priced projects.

Q. How will the Company determine which projects to award regarding PPA/Owned?

A. The Company intends to award projects to the VGP program based primarily on project economics and does not have a preference for PPA/Owned for assets within the program.

PPAs will be evaluated based on the cost of the contract plus the applicable financial compensation mechanism.

COMPETITIVE SOLICITATION PROCESS

Q. How will the Company implement its future competitive solicitation process to match customer interest?

A. The Company will continue to be flexible in its implementation of competitive solicitations for VGP. The Sunfish 2 and D.E. Karn ("Karn") solar projects are fully subscribed, and the Company continues to receive subscriptions toward the next VGP asset additions. Further, the Company could issue subsequent VGP solicitations for utility scale wind and solar projects based upon customer demand. The Company has not yet established a date for any future VGP solicitations.

Q. Will future VGP solicitations be consistent with prior RE Plan, IRP, and VGP solicitations?

A. Yes. The Company will continue to use a competitive VGP solicitation process consistent with prior solicitations for RE Plan assets, the Commission's 2008 Guidelines for Competitive Request for Proposal for Renewable and Advanced Cleaner Energy which were issued as Attachment D in the December 4, 2008 Order in Case No. U-15800, and the Commission's Competitive Procurement Guidelines for Rate-Regulated Electric Utilities (Not for PURPA Compliance) approved on September 9, 2021, in Case No. U-20852.

TRANSFER COST

Q. Has the Company included a portion of the costs incurred in implementing its RE Plan in the Company's 2025 PSCR Plan proceeding?

A. Yes. MCL 460.1047(2)(b)(iv) provides that the Renewable Energy costs included in the PSCR Plan shall be considered "a booked cost of purchased and net interchanged power transactions under section 6j of 1939 Public Act 3, MCL 460.6j." These are the costs expected to be recovered through the PSCR mechanism that is discussed in the Company's RE Plan (referred to as the "Transfer Price" or the "Transfer Cost").

Q. What is the Transfer Cost?

A. The Transfer Cost is the total cost that the Company will transfer to power supply costs in accordance with MCL 460.1047(2)(b)(iv) associated with renewable generation obtained in accordance with MCL 460.1047.

Q. How much renewable generation, for which the Transfer Price applies, is anticipated for delivery through 2045?

A. Exhibits A-24 (ZSC-1) through Exhibit A-26 (ZSC-3), "Renewable Projected Electric Production – On-Peak, Off-peak, & Total Generation," provides details of the projected annual on-peak, off-peak, and total electric production of renewable generation applicable to the Transfer Price. Column (az) represents the total energy from REPAs, EARP-AD, EARP-Solar, and the subscribed portion of Solar Gardens. Columns (bb), (bc), and (bd) show the unsubscribed portion of Solar Gardens. Columns (bh) and (bi) show the unsubscribed portions of the Cross Winds II facility and the Cross Winds III facility. The total energy from Provider-Owned Renewable Energy systems is shown in column (db)

and column (dc) shows the total of all MWhs of Transfer Price-applicable renewable generation.

Q. How is the expected energy from these facilities calculated?

A. For existing units online greater than 3 years, the estimates of future energy production are based on the 3-year historic annual average generation. This method considers the maximum number of RECs allowed under the contracts due to historic production being held to the same contractual requirement. The following units use the three-year historic average method: REPAs already in the RE Plan (excludes River Fork Solar), all EARPs, Lake Winds Energy Park, Cross Winds Energy Park, Cross Winds Energy Park II, Cross Winds Energy Park III, Gratiot County Wind Farm, Crescent Wind Farm, and Circuit West Solar. Units that do not have three years of historic generation data are forecasted based on project size and technology (and if known, capacity factors). Units that do not have three years of historic generation data include River Fork Solar, Heartland Wind Farm, Muskegon Solar, Mustang Mile Solar, Spring Creek Solar, Washtenaw Solar, all future VGP and Solar Gardens expansions, and future IRP/RE Plan projects.

Q. Please describe Exhibits A-24 (ZSC-1) through A-26 (ZSC-3).

A. Exhibit A-24 (ZSC-1) shows the individual and total on-peak generation expected from renewable energy generation in the RE Plan projected through 2045. Exhibit A-25 (ZSC-2) shows the individual and total off-peak generation expected from renewable energy generation in the RE Plan projected through 2045. Exhibit A-26 (ZSC-3) shows the total generation expected from renewable energy generation in the RE Plan projected through 2045.

Q. Please describe Exhibit A-27 (ZSC-4).

A. Exhibit A-27 (ZSC-4) shows the total amount of projected actual transfer costs expected from renewable generation delivered through 2045. The projected REPA, EARP-AD, EARP-Solar, and the subscribed portion of the Solar Gardens transfer costs are shown in columns (b) through (ay). The projected transfer costs of Company-owned facilities and the unsubscribed portion of the Solar Gardens project are shown in columns (bb) and (db), the unsubscribed portions of the Cross Winds II facility and the Cross Winds III facility are included in columns (bh) and (bi), and the grand total of all sources is shown in column (dc). Note that the proxy VGP assets have $0 in total transfer costs due to the Company's assumption that all Renewable Energy Program assets will be fully subscribed. This exhibit details the amount expected to be recovered through the PSCR mechanism.

Q. Please describe Exhibit A-28 (ZSC-5).

A. Exhibit A-28 (ZSC-5) outlines the maximum amount of Transfer Cost that can be booked for each resource. For REPAs and EARP-Solar, the Transfer Cost is limited to the total amount paid to each counterparty for the energy, capacity, and RECs anticipated to be booked. For Company-owned facilities, the maximum Transfer Cost is calculated by multiplying the applicable transfer price, assigned when the unit was first added to the program, by its total generation.

Q. How were the cost estimates for REPAs and Renewable Energy Programs derived?

A. The REC price is established in all the REPAs except for the contract with Apple Blossom. To estimate the REC costs, I created a simplified forecast of RECs which should generally align with the forecast of RECs shown in Exhibit A-35 (CCO-3), page 1, then multiplied the forecasted RECs by the contracted REC prices to arrive at the cost for RECs. The

forecasted on-peak energy costs associated with REPAs were determined by applying the on-peak contract prices to the forecast of on-peak energy production shown in Exhibit A-24 (ZSC-1). The forecasted off-peak energy costs associated with REPAs were determined by applying the contract off-peak prices to the forecast of off-peak energy production shown in Exhibit A-25 (ZSC-2). To estimate future capacity costs, the actual Zonal Resource Credits ("ZRCs") awarded to each plant in the 2024 planning year was multiplied by the contracted capacity payment rate.

The Company PPAs with Apple Blossom, EARP-Solar, and EARP-AD Agreements provide for payments based solely on energy production.

TRANSFER PRICE

Q. What is the Transfer Price?

A. The Transfer Price is the price at which the cost of renewable energy is recovered through the Company's PSCR clause pursuant to MCL 460.1047 and MCL 460.1049 and as established by the Commission. The Transfer Price was defined in the Commission's December 4, 2008 Order in Case No. U-15800, pages 25 and 26. On pages 25 and 26 of that Order, the Commission stated:

> 4. Calculation of the incremental cost of compliance via the transfer price to be recovered through the PSCR clause.
>
> A provider whose rates are regulated by the Commission shall include in its renewable energy plan an estimate over the 20-year plan-period of the revenues derived from the sale of energy and capacity generated by renewable energy systems owned by the provider. Energy and capacity produced by these systems may be sold into the wholesale market, or may be sold directly to the provider's customers.
>
> Section 47 requires the Commission to annually set the price per megawatt hour to be transferred to retail customers through the regulated provider's power supply cost recovery (PSCR) clause. Section 49 requires the transfer price to be

established in the context of an annual renewable cost reconciliation proceeding. Because the 2009 renewable energy plan proceeding will precede the first annual renewable energy reconciliation, the plan filings will need to estimate the transfer prices over the 20-year plan period. All renewable engineering, procurement, and construction contracts, or contracts for renewable energy systems that have been developed by third parties for transfer of ownership to an electric provider, that have been reviewed and approved by the Commission in a particular year will have the transfer price established as a floor for the lifecycle of the project. Provider owned projects will have transfer prices set in vintages. Doing so ensures that the economic viability of projects that have been committed to will not be jeopardized by transfer prices that change in future years.

In a renewable energy plan, PSCR transfer revenues are subtracted from the total cost of compliance, as determined by Section 47(2)(a). The transfer price is a primary determinant of the incremental cost of compliance. The PSCR transfer price:

(a) is unique to each provider;

(b) reflects the value of long-term capacity and energy;

(c) is not the current MISO market price of energy, but may use historical MISO prices as a starting point for a 20-year projection of the value of renewable energy and capacity;

(d) need not be tied to the avoided price of a new conventional coal-fired facility; and

(e) other factors determined relevant by the Commission.

The transfer price may be separately calculated for differing renewable technologies to reflect availability and the value of capacity; e.g., the capacity value of a landfill gas facility may differ from the capacity value of a wind farm.

The PSCR transfer price may be adjusted by an hourly distribution curve to yield an hourly price per megawatt hour for the 8,760 hours per year.

The forecasted Transfer Price for the period 2024 through 2045 is estimated to be $72.67/MWh.

Q. How did the Company calculate the Transfer Price?

A. To determine the Transfer Price, the Company calculated the total Transfer Costs during the period (as shown in column (dc) of Exhibit A-27 (ZSC-4)) and divided the Transfer Cost by the corresponding Transfer Price applicable renewable energy quantity (as shown in column (dc) of Exhibit A-26 (ZSC-3)) delivered during the period.

Q. Is the Company proposing any changes to the transfer price that is currently in place?

A. No. While the Company's modeling assumes that no costs from the Renewable Energy Program renewable energy resources will be transferred to the PSCR via the transfer price mechanism, the modeling does indicate that the original transfer price mechanism that was re-established in Case No. U-20483 needs to continue to remain in place to maintain a regulatory liability balance. Through the renewable energy cost reconciliation filings, the Company has previously committed to returning to limiting transfer price to the levelized cost of energy ("LCOE") for Company-owned facilities when the risk of dipping into a regulatory asset position is low. As a result of Michigan's Act 235, the Company is proposing to return to limiting transfer price to the LCOE for Company-owned facilities starting in 2034 and continuing for the remainder of the plan period. The modeling in this proceeding is based upon a return to that transfer price methodology beginning in 2034. The Company will continue to report on the status of the regulatory account balance in its annual renewable energy cost reconciliation proceedings.

Q. How do existing and new VGP assets affect the PSCR via the transfer price mechanism?

A. Subscribed portions of VGP assets have zero impact on the PSCR as no costs are transferred to the PSCR. As previously discussed, customers that participate in VGP programs pay the subscription price of the asset(s) to which they are subscribed for their energy usage for the duration of their contract. As an offset to the subscription price, VGP customers receive monthly credits for the energy and capacity value of the resource(s) to which they subscribed. To the extent that any unsubscribed portions of VGP facilities exist, they would be transferred to the PSCR at their LCOE.

NEW TRANSFER PRICE SCHEDULES

Q. What is a Transfer Price schedule?

A. According to Staff's 2024 Transfer Price Schedule Report filed April 18, 2024, "The transfer price concept was originally established through legislation in 2008 Public Act 295 (PA 295). PA 295 Section 49(3)(c) described a volumetric recovery mechanism utilizing the power supply cost recovery clause for renewable energy and capacity… transfer price schedules should be representative of what a Michigan electric provider would pay had it obtained the energy and capacity (the non-renewable market price component) through a long-term power purchase agreement for traditional fossil fuel electric generation."

Q. What is the Company proposing to change with regard to the existing Transfer Price schedules?

A. The Company is proposing a new Transfer Price schedule which would replace the existing Transfer Price schedules (Case Nos. U-15805 and U-16581) for the following assets: Beebe Renewable Energy, Fremont Community Digester, Harvest II Windfarm, Heritage

Garden Windfarm I (wind), Heritage Garden Windfarm I (solar), Heritage Garden Stoney Corners Windfarm I (Phase 2), Heritage Garden Stoney Corners Windfarm I (Phase 3), Michigan Wind 2, North American Natural Resources (Lennon), WM Renewable Energy (Northern Oaks), WM Renewable Energy (Pine Tree Acres), EARP Solar Aggregate No. 5. Additionally, the Company is proposing to assign the Lake Winds Energy Park, and Lake Winds Energy Park Repowered projects to its own unique Transfer Price schedule.

Q. Why is the Company proposing new Transfer Price schedules for certain projects which have already been assigned to a transfer price schedule?

A. The Company is proposing new, simplified, Transfer Price schedules to reduce the administrative burden, and reduce potential errors, associated with the existing Transfer Price schedules approved in Case Nos. U-15805 and U-16581. The existing schedules include a monthly on-peak rate, monthly off-peak rate, and monthly capacity rate. More recently, Staff proposed Transfer Price schedules do not include a capacity rate and include only a yearly total $/MWh rate. The Company is proposing to align the new Transfer Price schedule structure with that of Staff's schedules.

Q. How did the Company create the newly proposed schedules?

A. The Company created two new Transfer Price schedules, one for the REPAs which were formerly assigned to the Transfer Price schedules approved in Case Nos. U-15805 and U-16581, and one for Lake Winds Energy Park and Lake Winds Energy Park Repowered. Both schedules were created using the same methodology described below. The Company first modeled the total Transfer Cost of the units which would be assigned the new schedule and recorded the total forecasted Transfer Cost associated with those units using the existing Transfer Price schedules. The Company then modeled those same units using a

proxy Transfer Price schedule which was structurally different from the existing schedule (structurally similar to Staff's proposed schedules – one rate for all energy delivered in a year, no capacity rate). The new (proxy) schedule was determined by, for each year, setting the Transfer Rate ($/MWh) for a given year such that the new forecasted total Transfer Cost associated with these units would be equal to (or nearly equal to) the total forecasted Transfer Cost associated with these units under the existing schedules. The value of the new single value (as opposed to on-peak/off-peak and capacity) for Transfer Rate ($/MWh) for a given year generally falls in between the former on-peak schedule rate and off-peak schedule rate but is not simply the average due to the pooled resource generation profile not producing during exactly 50% on-peak and 50% off-peak hours and the existing schedules inclusion of capacity-based transfer costs. To state simply, the newly proposed Transfer Price schedules are based on the existing Transfer Price schedules applicable to these units and is similar to a weighted average of the on-peak/off-peak and capacity transfer rates based on the resource pool's generation profile/capacity accreditation. The new Transfer Price schedules were created using the Transfer Price Forecast model such that there would be very little impact to the total Transfer Cost associated with these 14 units as seen in column (h) of Exhibit A-31 (ZSC-8).

Q. How will this impact the Transfer Cost of these projects and thus the total Transfer Cost?

A. As previously discussed, the new Transfer Price schedules were created with the primary goal of reducing the impact to the total cost transferred to PSCR via the Transfer Price mechanism associated with these 14 units. As seen in Exhibit A-31 (ZSC-8), for the period 2025 through the end of 2045, the newly proposed schedules result in an estimated net total

decrease of $20 when comparing the forecasted total cost transferred to PSCR with the existing Transfer Price schedules. Compared to the forecasted total cost (using the newly proposed schedules) transferred to PSCR over the same period of $24.5 billion, as seen in Exhibit A-27 (ZSC-4), column (dc), row 92, less column (dc), row 70, the forecasted net total $20 decrease is insignificant.

Q. The newly proposed Transfer Price schedules were created based on forecasted Transfer Costs and the primary goal in creating the new schedule was to reduce or eliminate the impact to the forecasted total Transfer Cost. Are there variables that may change how closely the new schedules follow the existing schedules in terms of total Transfer Costs to PSCR?

A. Yes. There are a number of factors that could impact how closely the new Transfer Price schedule performs in comparison to the existing Transfer Price schedules. The largest factor is the on-peak/off-peak generation split. The new schedules were created using a three-year historical average of generation during on-peak and off-peak hours. A divergence of the total transfer cost could occur if a unit significantly strays from its historical on-peak/off-peak energy production (including outages). Similarly, a significant change to the capacity credit (ZRCs) for these units in comparison to their three-year historic average could also create a divergence of the total transfer costs.

Q. Could the Company simply assign these plants to Staff's latest transfer price schedule rather than creating a whole new transfer price schedule?

A. No. Transfer Price schedules are released by Staff annually in order to incorporate changes in cost assumptions associated with the proxy plant modeled when setting the Transfer Price schedules. Therefore, it is important to utilize Transfer Price schedules that were

created in a relatively similar timeframe that these plants were constructed or brought into the RE Plan.

VGP FORECAST

Q. Why is the Company providing a forecast of VGP subscriptions?

A. The Company is including a VGP subscription forecast (shown in Exhibit A-32 (ZSC-9) as a result of legislation in Act 235. MCL 460.1028(2)(b)(ii) describes a portion of the calculation of the renewable energy credit portfolio standard ("RPS"). The calculation indicates that "the amount of sales attributable to customers participating in an electric provider's voluntary green pricing program under section 61…" should be removed from the RPS compliance calculation.

Q. Please describe Exhibit A-32 (ZSC-9).

A. Exhibit A-32 (ZSC-9) is the Company's VGP subscription forecast. Columns (b), (c), (d), and (e) represent the Company's forecast of subscriptions for the following VGP program customers respectively: Residential & Green Giving, Commercial & Industrial, and Solar Gardens. Columns (f) and (g) represent the incremental amount of Solar and Wind (respectively) resources the Company anticipates adding to the VGP program to supply the subscriptions shown in columns (b) through (e). Note that for 2024, the resources listed under columns (f) and (g) are existing assets rather than new assets. Column (h) is the forecasted Cumulative total supply for the VGP program. Column (i) is the forecasted incremental total supply for each year (Solar plus Wind). Column (j) provides project names associated with the incremental supply columns. Column (k) provides project assumptions and notes.

Q. Please explain how the Company came up with the values under the Renewable Energy Program-Residential & Green Giving column.

A. As Residential and Green Giving are new VGP program offerings scheduled to launch January 1, 2025, the forecasted subscribed MWh values under column (b) are based on residential VGP program benchmarks and customer behavior modeling. Enrollment volume estimates were paired with anticipated program subscription levels; 50% subscription for Green Giving based on approved tariff, and 25% subscription for Residential Renewable Energy Program associated with willingness to pay analysis. Lastly, an annual attrition rate of 7.4% was applied to total subscribed energy estimates based on historical Green Generation data. The values under the Renewable Energy Program-Residential & Green Giving column (b) from 2025 through 2029 are based on the inputs noted above and the Company's program launch plans. Values from 2030 through 2035 are based on an assumed annual growth rate of 5%. Subscription volume values from 2036 through 2045 remain flat based on achieving 0.7% saturation and the assumption that as the Company reaches it's 60% RPS standard in 2035, growth in customer enrollments will diminish. In total, Residential Renewable Energy Program and Green Giving subscription volume estimates total 80,166 MWh which equates to 42 MW of new solar using a net capacity factor of 22%.

Q. Please explain how the Company came up with the subscription levels under the Renewable Energy Program Commercial & Industrial subscribed load column.

A. The subscription levels under the Renewable Energy Program Commercial & Industrial column from 2024 through 2028 represent the estimated production from projects the Company has under development less the forecasted Renewable Energy Program-

Residential/Green Giving subscriptions since both programs will be supplied by the same asset pool. This assumes each project is fully subscribed. The Company has firm subscriptions for all the assets that have been added to the VGP program and continues to subscribe new customers for future VGP assets. The subscription levels under the Renewable Energy Program Commercial & Industrial column from 2029 through 2045 are based on an assumed target of 15% of commercial & industrial load by 2035. The Company is assuming approximately 15% of commercial & industrial load will be subscribed to the Renewable Energy Program by 2035. The estimated 1,670,089 MWh shown in column (c) for 2028 represents the estimated average annual amount of production from projects the Company currently has under development less the value for Residential/Green giving in column (b). This level of production is assumed to continue for the remaining years of the forecast. 15% of commercial & industrial load (based on the Company's Annual Report of Consumers Energy Company to the Michigan Public Service Commission For the year Ended December 31, 2022) represents an estimated 3,011,939 MWh. The sizes of the additional projects needed to supply the Renewable Energy Program & Residential/Green Giving with Commercial Operation Dates estimated in 2029-2035 were backed into based on the annual production needed, or 15% commercial & industrial load value (3,011,939 MWh) plus the Residential/Green Giving saturation point (80,166 MWh) less the amount of production from projects currently under development (1,709,605 MWh – sum of 2028 columns (b) & (c)). This amount (1,382,500 MWh) represents the amount of supply the Company should procure based on the forecasted demand for the Renewable Energy Program Commercial & Industrial &

Residential/Green Giving forecast and is equivalent to an estimated 717 MW of Solar resources.

Q. Please explain how the Company came up with the values under column (d), Solar Gardens Subscribed Load, in Exhibit A-32 (ZSC-9).

A. The Company created the Solar Gardens customer demand forecast (column (d)) based on the Company's current 10 MW cap on the Solar Gardens program. Column (d) in the forecast assumes a 2.5 MW addition to the Solar Gardens supply in 2026 which is subscribed over the course of four years. The Company assumes an additional 3 MW project to come online in 2030 and be fully subscribed over the course of five years which would put the Solar Garden program at the 10 MW cap. The Solar Gardens subscription forecast is held constant beyond 2035 due to the current 10 MW cap on the program.

Q. Why are the Renewable Energy Program Proxy Units in 2029-2035 not showing any costs in the Transfer Price Exhibits?

A. All projects supplying the Renewable Energy Program, named or proxy, are assumed to be fully subscribed. Subscribing customers will be paying for the cost of the projects. In the event a portion of one or more VGP resources are unsubscribed at the end of the year, that portion will be transferred to PSCR at the LCOE of the project. Additionally, while the subscribed portion of Renewable Energy Program assets are included in the Transfer Price exhibits (Exhibits A-24 (ZSC-1) through A-29 (ZSC-6)) for informational purposes, they are not included in any of the totals on said exhibits.

CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

EXHIBITS

OF

ZACHERY S. COLE

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-24 (ZSC-1)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Projected Electric Production
On Peak Generation

	(a)	(b)	©	(d)	€	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
Line No.	Generator	Apple Blossom	Beebe Renewable Energy	Elk Rapids Hydro.	Fremont Community Digester	Harvest II Windfarm	Heritage Garden Windfarm I (Wind)	Heritage Garden Windfarm I (solar)	Heritage Stoney Corners Windfarm I (HSC Phase 2)	Heritage Stoney Corners Windfarm I (HSC Phase 3)	Michigan Wind 2	North American Natural Resources (Lennon)	Scenic View Diary (Fennville)	Scenic View Diary (Freeport)	WMRenewable Energy (Northern Oaks)
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
1	2024	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
2	2025	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
3	2026	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
4	2027	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
5	2028	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
6	2029	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,495
7	2030	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	4,411	-	-	2,223
8	2031	119,116	87,762	-	5,219	81,369	22,172	1,840	11,982	7,865	117,890	-	-	-	-
9	2032	119,116	87,762	-	5,219	81,369	22,172	1,567	11,982	7,865	117,890	-	-	-	-
10	2033	119,116	87,762	-	322	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
11	2034	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
12	2035	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
13	2036	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
14	2037	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
15	2038	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
16	2039	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
17	2040	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
18	2041	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
19	2042	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
20	2043	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
21	2044	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
22	2045	119,116	87,762	-	-	81,369	22,172	-	11,982	7,865	117,890	-	-	-	-
23	TOTAL	2,620,547	1,930,767	-	47,293	1,790,111	487,791	16,287	263,605	173,036	2,593,574	30,875	-	-	17,196

	(a)	(p)	(q)	®	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)
Line No.	Generator	WMRenewable Energy (Pine Tree Acres)	Zeeland Farm Services (Plant 2)	EARP - 1-4	EARP - 5	EARP - 6	EARP - 7	EARP - 8	EARP - 9	EARP - 10	EARP - 11	EARP- Anaerobic Digester	River Fork Solar	Solar Gardens (Subscribed)	Solar Gardens 2026 Expansion (Subscribed)	Solar Gardens 2030 Expansion (Subscribed)
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
1	2024	29,831	-	-	346	562	332	547	718	287	129	-	27,616	3,944	-	-
2	2025	29,831	-	-	346	562	332	547	718	287	129	-	83,836	3,944	-	-
3	2026	29,831	-	-	346	562	332	547	718	287	129	-	83,744	3,944	307	-
4	2027	29,831	-	-	314	505	295	492	642	261	117	-	83,323	3,944	922	-
5	2028	29,831	-	-	-	-	-	-	-	-	-	-	82,578	3,944	1,530	-
6	2029	29,831	-	-	-	-	-	-	-	-	-	-	82,159	3,944	2,142	-
7	2030	29,831	-	-	-	-	-	-	-	-	-	-	81,740	3,944	2,448	245
8	2031	29,831	-	-	-	-	-	-	-	-	-	-	81,321	3,944	2,436	734
9	2032	7,269	-	-	-	-	-	-	-	-	-	-	81,536	3,944	2,443	1,234
10	2033	-	-	-	-	-	-	-	-	-	-	-	80,482	3,944	2,411	1,714
11	2034	-	-	-	-	-	-	-	-	-	-	-	79,749	3,944	2,390	2,195
12	2035	-	-	-	-	-	-	-	-	-	-	-	79,644	3,944	2,387	2,448
13	2036	-	-	-	-	-	-	-	-	-	-	-	79,535	3,944	2,384	2,445
14	2037	-	-	-	-	-	-	-	-	-	-	-	79,115	3,944	2,372	2,433
15	2038	-	-	-	-	-	-	-	-	-	-	-	78,694	3,944	2,359	2,421
16	2039	-	-	-	-	-	-	-	-	-	-	-	77,967	3,944	2,338	2,399
17	2040	-	-	-	-	-	-	-	-	-	-	-	77,548	3,944	2,326	2,387
18	2041	-	-	-	-	-	-	-	-	-	-	-	78,036	3,944	2,341	2,402
19	2042	-	-	-	-	-	-	-	-	-	-	-	77,612	73	2,328	2,390
20	2043	-	-	-	-	-	-	-	-	-	-	-	77,487	-	2,325	2,387
21	2044	-	-	-	-	-	-	-	-	-	-	-	51,176	-	2,303	2,365
22	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	2,282	2,344
23	TOTAL	245,917	-	-	1,352	2,193	1,290	2,132	2,796	1,122	504	-	1,604,896	71,074	42,772	32,543

	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)
Line No.	Generator	REP 2028 PPA In-State Solar 150 MW	REP 2029 PPA In-State Solar 250 MW	REP 2030 PPA In-State Solar 250 MW	REP 2031 PPA In-State Solar 250 MW	REP 2032 PPA In-State Solar 250 MW	REP 2033 PPA In-State Solar 250 MW	REP 2034 PPA In-State Solar 250 MW	REP 2035 PPA In-State Solar 250 MW	REP 2036 PPA In-State Solar 250 MW	REP 2037 PPA In-State Solar 250 MW
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
24	2024	-	-	-	-	-	-	-	-	-	-
25	2025	-	-	-	-	-	-	-	-	-	-
26	2026	-	-	-	-	-	-	-	-	-	-
27	2027	-	-	-	-	-	-	-	-	-	-
28	2028	212,856	-	-	-	-	-	-	-	-	-
29	2029	211,241	353,838	-	-	-	-	-	-	-	-
30	2030	209,780	351,400	353,166	-	-	-	-	-	-	-
31	2031	208,378	349,060	350,823	352,586	-	-	-	-	-	-
32	2032	208,611	349,459	351,232	353,006	354,780	-	-	-	-	-
33	2033	207,213	347,126	348,897	350,668	352,439	354,210	-	-	-	-
34	2034	205,845	344,844	346,612	348,381	350,149	351,917	353,686	-	-	-
35	2035	204,872	343,223	344,992	346,761	348,531	350,300	352,069	353,838	-	-
36	2036	203,708	341,282	343,051	344,819	346,587	348,356	350,124	351,892	353,660	-
37	2037	203,575	341,069	342,845	344,621	346,398	348,174	349,951	351,727	353,503	355,280
38	2038	201,874	338,228	339,998	341,769	343,540	345,311	347,082	348,853	350,623	352,394
39	2039	200,837	336,500	338,271	340,042	341,813	343,584	345,355	347,126	348,897	350,668
40	2040	199,824	334,811	336,583	338,354	340,126	341,897	343,669	345,440	347,212	348,983
41	2041	200,634	336,179	337,967	339,755	341,544	343,332	345,120	346,908	348,696	350,484
42	2042	199,238	333,849	335,634	337,419	339,205	340,990	342,775	344,560	346,346	348,131
43	2043	199,662	334,569	336,368	338,166	339,965	341,764	343,563	345,361	347,160	348,959
44	2044	198,246	332,206	334,002	335,797	337,593	339,389	341,184	342,980	344,776	346,572
45	2045	196,629	329,505	331,296	333,087	334,877	336,668	338,459	340,250	342,041	343,831
46	TOTAL	3,673,026	5,797,146	5,471,736	5,145,233	4,817,546	4,485,892	4,153,036	3,818,936	3,482,914	3,145,302

	(ae)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)
Line No.	Generator	REP 2038 PPA In-State Solar 187.5 MW	REP 2039 PPA In-State Solar 125 MW	REP 2040 PPA In-State Solar 62.5 MW	2029 VGP-REP PPA In-State Solar 61.5 MW	2030 VGP-REP PPA In-State Solar 58.5 MW	2031 VGP-REP PPA In-State Solar 55.5 MW	2032 VGP-REP PPA In-State Solar 52.5 MW	2033 VGP-REP PPA In-State Solar 50 MW	2034 VGP-REP PPA In-State Solar 47.5 MW	2035 VGP-REP PPA In-State Solar 33 MW	REPA and Program Total
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
24	2024	-	-	-	-	-	-	-	-	-	-	526,433
25	2025	-	-	-	-	-	-	-	-	-	-	582,653
26	2026	-	-	-	-	-	-	-	-	-	-	582,868
27	2027	-	-	-	-	-	-	-	-	-	-	582,767
28	2028	-	-	-	-	-	-	-	-	-	-	792,861
29	2029	-	-	-	83,506	-	-	-	-	-	-	1,145,277
30	2030	-	-	-	82,930	78,403	-	-	-	-	-	1,494,403
31	2031	-	-	-	82,378	77,883	74,043	-	-	-	-	1,834,328
32	2032	-	-	-	82,472	77,974	74,131	70,246	-	-	-	2,168,456
33	2033	-	-	-	81,922	77,455	73,640	69,783	66,592	-	-	2,497,583
34	2034	-	-	-	81,383	76,948	73,160	69,330	66,160	62,956	-	2,837,868
35	2035	-	-	-	81,001	76,588	72,820	69,009	65,856	62,668	42,461	3,181,166
36	2036	-	-	-	80,543	76,157	72,412	68,624	65,491	62,322	42,227	3,519,944
37	2037	-	-	-	80,492	76,112	72,370	68,587	65,457	62,291	42,207	3,873,162
38	2038	265,624	-	-	79,822	75,480	71,772	68,021	64,918	61,781	41,862	4,110,870
39	2039	264,329	177,105	-	79,414	75,096	71,409	67,679	64,594	61,473	41,655	4,269,331
40	2040	263,066	176,263	88,574	79,015	74,721	71,054	67,345	64,277	61,173	41,453	4,339,165
41	2041	264,205	177,030	88,962	79,338	75,029	71,349	67,626	64,546	61,431	41,629	4,355,697
42	2042	262,437	175,851	88,372	78,788	74,511	70,858	67,162	64,106	61,014	41,347	4,325,365
43	2043	263,068	176,278	88,589	78,958	74,674	71,015	67,313	64,252	61,154	41,443	4,333,827
44	2044	261,275	175,081	87,990	78,401	74,148	70,517	66,843	63,805	60,731	41,158	4,281,091
45	2045	259,217	173,706	87,301	77,763	73,548	69,948	66,306	63,294	60,246	40,830	4,199,648
46	TOTAL	2,103,221	1,231,316	529,788	1,368,126	1,214,725	1,080,499	953,874	843,348	739,240	458,272	59,834,763

	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)
Line No.	Generator	Solar Gardens (Unsubscribed)	Solar Gardens 2026 Expansion (Unsubscribed)	Solar Gardens 2030 Expansion (Unsubscribed)	Hardy Hydro Upgrade	Lake Winds Energy Park	Cross Winds Energy Park	Cross Winds Energy Park (Phase II) (unsubscribed)	Cross Winds Energy Park (Phase III) (unsubscribed)	Gratiot County Wind Farm	Crescent Wind Farm	Heartland Wind Farm	Circuit West Solar
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
47	2024	277	-	-	-	113,994	151,744	-	-	175,968	165,192	227,162	371
48	2025	277	-	-	-	113,994	151,744	-	-	175,968	165,192	226,275	371
49	2026	277	2,150	-	-	113,994	151,744	-	-	175,968	165,192	227,162	371
50	2027	277	1,536	-	-	113,994	151,744	-	-	175,968	165,192	227,162	371
51	2028	277	918	-	-	113,994	151,744	-	-	175,968	165,192	226,275	371
52	2029	277	306	-	-	113,994	151,744	-	-	175,968	165,192	226,275	371
53	2030	277	-	2,203	-	113,994	151,744	-	-	175,968	165,192	226,275	371
54	2031	277	-	1,714	-	113,994	151,744	-	-	175,968	165,192	226,275	371
55	2032	277	-	1,234	-	113,994	151,744	-	-	175,968	165,192	228,049	371
56	2033	277	-	734	-	113,994	151,744	-	-	175,968	165,192	226,275	371
57	2034	277	-	244	-	113,994	151,744	-	-	175,968	165,192	225,387	371
58	2035	277	-	-	-	113,994	151,744	-	-	175,968	165,192	226,275	371
59	2036	277	-	-	-	113,994	151,744	-	-	175,968	165,192	227,162	-
60	2037	277	-	-	-	113,994	151,744	-	-	175,968	165,192	227,162	-
61	2038	277	-	-	-	113,994	151,744	-	-	175,968	165,192	227,162	-
62	2039	277	-	-	-	113,994	151,744	-	-	175,968	165,192	226,275	-
63	2040	277	-	-	-	113,994	151,744	-	-	175,968	165,192	226,275	-
64	2041	277	-	-	-	113,994	151,744	-	-	175,968	165,192	228,937	-
65	2042	4	-	-	-	113,994	151,744	-	-	175,968	165,192	228,937	-
66	2043	-	-	-	-	102,308	151,744	-	-	175,968	165,192	229,824	-
67	2044	-	-	-	-	-	151,744	-	-	175,968	165,192	228,937	-
68	2045	-	-	-	-	-	151,744	-	-	175,968	165,192	228,049	-
69	TOTAL	4,991	4,910	6,129	-	2,268,189	3,338,365	-	-	3,871,286	3,634,225	4,997,561	4,449

	(ba)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)
Line No.	Generator	Sunfish (Unsubscribed)	Karn (Unsubscribed)	VGP_REP_2027_116.92 MW (Unsubscribed)	VGP_REP_2027_220 MW (Unsubscribed)	Spring Creek	Muskegon	Mustang Mile	Washtenaw	Lake Winds Energy Park Repowered	VGP_REP_2027_116.92 MW	VGP_REP_2027_220 MW	Karn (Subscribed)[1]	Sunfish (Subscribed)[1]
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
47	2024	-	-	-	-	-	-	-	-	-	-	-	-	-
48	2025	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	-	-	-	-	77,220	260,096	-	-	-	-	-	-	207,060
50	2027	-	-	-	-	130,262	258,796	148,316	150,344	-	-	-	77,292	273,276
51	2028	-	-	-	-	129,101	256,489	146,998	149,008	-	107,333	205,281	76,605	270,840
52	2029	-	-	-	-	128,449	255,194	146,259	148,259	-	106,796	204,255	76,220	269,473
53	2030	-	-	-	-	127,797	253,898	145,521	147,510	-	106,259	203,228	75,835	268,105
54	2031	-	-	-	-	127,145	252,603	144,782	146,761	-	105,723	202,202	75,450	266,737
55	2032	-	-	-	-	127,485	253,279	145,173	147,158	-	106,011	202,753	75,654	267,450
56	2033	-	-	-	-	125,841	250,012	143,305	145,264	-	104,649	200,149	74,680	264,001
57	2034	-	-	-	-	124,698	247,741	142,007	143,948	-	103,704	198,342	74,004	261,603
58	2035	-	-	-	-	124,537	247,421	141,827	143,766	-	103,576	198,096	73,910	261,265
59	2036	-	-	-	-	124,371	247,091	141,642	143,578	-	103,443	197,843	73,813	260,917
60	2037	-	-	-	-	123,716	245,791	140,900	142,826	-	102,905	196,812	73,427	259,543
61	2038	-	-	-	-	123,061	244,490	140,159	142,075	-	102,366	195,782	73,040	258,170
62	2039	-	-	-	-	121,929	242,240	138,873	140,771	-	101,429	193,991	72,370	255,794
63	2040	-	-	-	-	121,277	240,944	138,134	140,022	-	100,893	192,964	71,985	254,426
64	2041	-	-	-	-	122,044	242,468	139,012	140,912	-	101,537	194,196	72,443	256,035
65	2042	-	-	-	-	121,384	241,158	138,264	140,154	-	100,994	193,157	72,053	254,651
66	2043	-	-	-	-	121,192	240,777	138,050	139,937	19,618	100,840	192,864	71,941	254,249
67	2044	-	-	-	-	120,065	238,536	136,770	138,639	117,710	99,908	191,080	71,274	251,883
68	2045	-	-	-	-	118,942	236,306	135,495	137,347	117,253	98,980	189,305	70,610	249,528
69	TOTAL	-	-	-	-	2,440,513	4,955,332	2,691,486	2,728,280	254,581	1,857,344	3,552,301	1,402,606	5,165,007

	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)
Line No.	Generator	IRP 2025 Owned In-State Solar 300 MW	REP 2028 Owned In-State Solar 150 MW	REP 2029 Owned In-State Solar 250 MW	REP 2030 Owned In-State Solar 250 MW	REP 2031 Owned In-State Solar 250 MW	REP 2032 Owned In-State Solar 250 MW	REP 2033 Owned In-State Solar 250 MW	REP 2034 Owned In-State Solar 250 MW	REP 2035 Owned In-State Solar 250 MW	REP 2036 Owned In-State Solar 250 MW
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
70	2024	-	-	-	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-	-
74	2028	255,151	212,856	-	-	-	-	-	-	-	-
75	2029	422,483	211,241	353,838	-	-	-	-	-	-	-
76	2030	419,561	209,780	351,400	353,166	-	-	-	-	-	-
77	2031	416,756	208,378	349,060	350,823	352,586	-	-	-	-	-
78	2032	417,222	208,611	349,459	351,232	353,006	354,780	-	-	-	-
79	2033	414,426	207,213	347,126	348,897	350,668	352,439	354,210	-	-	-
80	2034	411,690	205,845	344,844	346,612	348,381	350,149	351,917	353,686	-	-
81	2035	409,745	204,872	343,223	344,992	346,761	348,531	350,300	352,069	353,838	-
82	2036	407,417	203,708	341,282	343,051	344,819	346,587	348,356	350,124	351,892	353,660
83	2037	407,151	203,575	341,069	342,845	344,621	346,398	348,174	349,951	351,727	353,503
84	2038	403,748	201,874	338,228	339,998	341,769	343,540	345,311	347,082	348,853	350,623
85	2039	401,674	200,837	336,500	338,271	340,042	341,813	343,584	345,355	347,126	348,897
86	2040	399,648	199,824	334,811	336,583	338,354	340,126	341,897	343,669	345,440	347,212
87	2041	401,269	200,634	336,179	337,967	339,755	341,544	343,332	345,120	346,908	348,696
88	2042	398,476	199,238	333,849	335,634	337,419	339,205	340,990	342,775	344,560	346,346
89	2043	399,324	199,662	334,569	336,368	338,166	339,965	341,764	343,563	345,361	347,160
90	2044	396,492	198,246	332,206	334,002	335,797	337,593	339,389	341,184	342,980	344,776
91	2045	393,257	196,629	329,505	331,296	333,087	334,877	336,668	338,459	340,250	342,041
92	TOTAL	7,175,489	3,673,026	5,797,146	5,471,736	5,145,233	4,817,546	4,485,892	4,153,036	3,818,936	3,482,914

	(ca)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)
Line No.	Generator	REP 2037 Owned In-State Solar 250 MW	REP 2038 Owned In-State Solar 187.5 MW	REP 2039 Owned In-State Solar 125 MW	REP 2040 Owned In-State Solar 62.5 MW	REP 2028 Owned In-State Wind 100 MW	REP 2029 Owned In-State Wind 200 MW	REP 2030 Owned In-State Wind 200 MW	REP 2032 Owned In-State Wind 1500 MW	REP 2035 Owned In-State Wind 800 MW
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
70	2024	-	-	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-
74	2028	-	-	-	-	116,509	-	-	-	-
75	2029	-	-	-	-	116,481	232,962	-	-	-
76	2030	-	-	-	-	116,421	232,841	232,841	-	-
77	2031	-	-	-	-	116,312	232,624	232,624	-	-
78	2032	-	-	-	-	117,780	235,559	235,559	1,766,694	-
79	2033	-	-	-	-	116,514	233,029	233,029	1,747,716	-
80	2034	-	-	-	-	115,932	231,865	231,865	1,738,987	-
81	2035	-	-	-	-	116,481	232,962	232,962	1,747,216	931,849
82	2036	-	-	-	-	116,889	233,778	233,778	1,753,339	935,114
83	2037	355,280	-	-	-	116,765	233,530	233,530	1,751,473	934,119
84	2038	352,394	265,624	-	-	117,312	234,625	234,625	1,759,684	938,498
85	2039	350,668	264,329	177,105	-	116,514	233,029	233,029	1,747,716	932,115
86	2040	348,983	263,066	176,263	88,574	116,591	233,182	233,182	1,748,863	932,727
87	2041	350,484	264,205	177,030	88,962	117,793	235,585	235,585	1,766,889	942,341
88	2042	348,131	262,437	175,851	88,372	117,684	235,368	235,368	1,765,263	941,473
89	2043	348,959	263,068	176,278	88,589	118,137	236,274	236,274	1,772,053	945,095
90	2044	346,572	261,275	175,081	87,990	117,996	235,992	235,992	1,769,942	943,969
91	2045	343,831	259,217	173,706	87,301	117,304	234,609	234,609	1,759,567	938,435
92	TOTAL	3,145,302	2,103,221	1,231,316	529,788	2,105,417	3,977,815	3,744,852	24,595,401	10,315,736

	(ca)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)
Line No.	Generator	2029 VGP-REP CE In-State Solar 61.5 MW	2030 VGP-REP CE In-State Solar 58.5 MW	2031 VGP-REP CE In State Solar 55.5 MW	2032 VGP-REP CE In-State Solar 52.5 MW	2033 VGP-REP CE In-State Solar 50 MW	2034 VGP-REP CE In-State Solar 47.5 MW	2035 VGP-REP CE In-State Solar 33 MW	Owned Total	GRAND TOTAL
	Year								MWh	MWh
70	2024	-	-	-	-	-	-	-	834,707	1,361,140
71	2025	-	-	-	-	-	-	-	833,820	1,416,472
72	2026	-	-	-	-	-	-	-	1,174,174	1,757,041
73	2027	-	-	-	-	-	-	-	1,523,960	2,106,727
74	2028	-	-	-	-	-	-	-	2,100,850	2,893,711
75	2029	83,506	-	-	-	-	-	-	2,849,292	3,994,569
76	2030	82,930	78,403	-	-	-	-	-	3,426,758	4,921,161
77	2031	82,378	77,883	74,043	-	-	-	-	3,765,988	5,600,316
78	2032	82,472	77,974	74,131	70,246	-	-	-	5,899,824	8,068,279
79	2033	81,922	77,455	73,640	69,783	66,592	-	-	6,204,243	8,701,826
80	2034	81,383	76,948	73,160	69,330	66,160	62,956	-	6,523,344	9,361,212
81	2035	81,001	76,588	72,820	69,009	65,856	62,668	42,461	7,807,173	10,988,339
82	2036	80,543	76,157	72,412	68,624	65,491	62,322	42,227	8,154,813	11,674,757
83	2037	80,492	76,112	72,370	68,587	65,457	62,291	42,207	8,501,279	12,374,441
84	2038	79,822	75,480	71,772	68,021	64,918	61,781	41,862	8,747,909	12,858,780
85	2039	79,414	75,096	71,409	67,679	64,594	61,473	41,655	8,875,866	13,145,197
86	2040	79,015	74,721	71,054	67,345	64,277	61,173	41,453	8,942,821	13,281,986
87	2041	79,338	75,029	71,349	67,626	64,546	61,431	41,629	9,000,825	13,356,522
88	2042	78,788	74,511	70,858	67,162	64,106	61,014	41,347	8,965,237	13,290,602
89	2043	78,958	74,674	71,015	67,313	64,252	61,154	41,443	8,995,238	13,329,064
90	2044	78,401	74,148	70,517	66,843	63,805	60,731	41,158	8,951,035	13,232,126
91	2045	77,763	73,548	69,948	66,306	63,294	60,246	40,830	8,890,944	13,090,592
92	TOTAL	1,368,126	1,214,725	1,080,499	953,874	843,348	739,240	458,272	130,970,099	190.804.862

EARP - Experimental Advanced Renewable Program
1 Not included in total due to customer subscriptions

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-25 (ZSC-2)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Projected Electric Production
Off Peak Generation

	(a)	(b)	©	(d)	€	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	®	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)
Line No.	Generator	Apple Blossom	Beebe Renewable Energy	Elk Rapids Hydro.	Fremont Community Digester	Harvest II Windfarm	Heritage Garden Windfarm I (Wind)	Heritage Garden Windfarm I (solar)	Heritage Stoney Corners Windfarm I (HSC Phase 2)	Heritage Stoney Corners Windfarm I (HSC Phase 3)	Michigan Wind 2	North American Natural Resources (Lennon)	Scenic View Diary (Fennville)	Scenic View Diary (Freeport)	WMRenewable Energy (Northern Oaks)	WMRenewable Energy (Pine Tree Acres)	Zeeland Farm Services (Plant 2)	EARP - 1-4	EARP - 5	EARP - 6	EARP - 7	EARP - 8	EARP - 9	EARP - 10	EARP - 11	EARP-Anaerobic Digester	River Fork Solar	Solar Gardens (Subscribed)	Solar Gardens 2026 Expansion (Subscribed)	Solar Gardens 2030 Expansion (Subscribed)
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
1	2024	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	138	225	133	219	287	115	52	-	32,548	1,721	-	-
2	2025	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	138	225	133	219	287	115	52	-	96,164	1,721	-	-
3	2026	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	138	225	133	219	287	115	52	-	95,356	1,721	350	-
4	2027	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	126	202	118	197	257	105	47	-	94,877	1,721	1,049	-
5	2028	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	-	-	-	-	-	-	-	-	95,208	1,721	1,764	-
6	2029	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,892	34,653	-	-	-	-	-	-	-	-	-	-	94,241	1,721	2,457	-
7	2030	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	5,167	-	-	2,573	34,653	-	-	-	-	-	-	-	-	-	-	93,760	1,721	2,808	281
8	2031	131,250	97,916	-	5,832	92,681	24,858	824	15,019	9,830	142,331	-	-	-	-	34,653	-	-	-	-	-	-	-	-	-	-	93,279	1,721	2,794	842
9	2032	131,250	97,916	-	5,832	92,681	24,858	688	15,019	9,830	142,331	-	-	-	-	8,112	-	-	-	-	-	-	-	-	-	-	92,640	1,721	2,775	1,402
10	2033	131,250	97,916	-	415	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92,318	1,721	2,766	1,966
11	2034	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92,151	1,721	2,761	2,536
12	2035	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91,356	1,721	2,738	2,808
13	2036	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91,031	1,721	2,728	2,799
14	2037	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90,085	1,721	2,700	2,770
15	2038	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89,606	1,721	2,686	2,756
16	2039	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89,433	1,721	2,682	2,752
17	2040	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89,408	1,721	2,681	2,752
18	2041	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87,564	1,721	2,626	2,696
19	2042	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87,088	50	2,612	2,682
20	2043	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86,313	-	2,590	2,659
21	2044	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57,722	-	2,598	2,668
22	2045	131,250	97,916	-	-	92,681	24,858	-	15,019	9,830	142,331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,580	2,649
23	TOTAL	2,887,495	2,154,142	-	52,907	2,038,974	546,882	7,277	330,424	216,259	3,131,286	36,166	-	-	19,925	285,339	-	-	541	877	516	853	1,118	449	202	-	1,832,149	31,029	48,747	37,017

	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)
Line No.	Generator	REP 2028 PPA In-State Solar 150 MW	REP 2029 PPA In-State Solar 250 MW	REP 2030 PPA In-State Solar 250 MW	REP 2031 PPA In-State Solar 250 MW	REP 2032 PPA In-State Solar 250 MW	REP 2033 PPA In-State Solar 250 MW	REP 2034 PPA In-State Solar 250 MW	REP 2035 PPA In-State Solar 250 MW	REP 2036 PPA In-State Solar 250 MW	REP 2037 PPA In-State Solar 250 MW	REP 2038 PPA In-State Solar 187.5 MW	REP 2039 PPA In-State Solar 125 MW	REP 2040 PPA In-State Solar 62.5 MW	2029 VGP-REP PPA In-State Solar 61.5 MW	2030 VGP-REP PPA In-State Solar 58.5 MW	2031 VGP-REP PPA In-State Solar 55.5 MW	2032 VGP-REP PPA In-State Solar 52.5 MW	2033 VGP-REP PPA In-State Solar 50 MW	2034 VGP-REP PPA In-State Solar 47.5 MW	2035 VGP-REP PPA In-State Solar 33 MW	REPA and Program Total
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
24	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	598,690
25	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	662,306
26	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	661,848
27	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	661,951
28	2028	92,476	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	754,422
29	2029	91,773	153,723	-	-	-	-	-	-	-	-	-	-	-	36,279	-	-	-	-	-	-	907,168
30	2030	91,413	153,124	153,894	-	-	-	-	-	-	-	-	-	-	36,137	34,164	-	-	-	-	-	1,059,935
31	2031	91,047	152,516	153,286	154,057	-	-	-	-	-	-	-	-	-	35,994	34,030	32,352	-	-	-	-	1,204,737
32	2032	90,737	152,000	152,772	153,544	154,315	-	-	-	-	-	-	-	-	35,872	33,915	32,244	30,554	-	-	-	1,330,423
33	2033	89,924	150,641	151,410	152,179	152,947	153,716	-	-	-	-	-	-	-	35,551	33,613	31,957	30,284	28,899	-	-	1,463,886
34	2034	89,545	150,010	150,779	151,549	152,318	153,087	153,857	-	-	-	-	-	-	35,402	33,473	31,825	30,159	28,780	27,386	-	1,614,198
35	2035	89,006	149,111	149,880	150,649	151,417	152,186	152,954	153,723	-	-	-	-	-	35,190	33,273	31,636	29,981	28,611	27,226	18,447	1,761,434
36	2036	88,893	148,926	149,698	150,469	151,241	152,013	152,784	153,556	154,327	-	-	-	-	35,147	33,233	31,599	29,946	28,578	27,196	18,427	1,914,070
37	2037	87,786	147,075	147,841	148,608	149,374	150,140	150,906	151,672	152,438	153,204	-	-	-	34,710	32,821	31,208	29,576	28,226	26,861	18,201	2,050,204
38	2038	87,638	146,831	147,600	148,369	149,138	149,906	150,675	151,444	152,213	152,981	115,313	-	-	34,652	32,767	31,157	29,529	28,182	26,820	18,173	2,162,761
39	2039	87,157	146,030	146,798	147,567	148,336	149,104	149,873	150,641	151,410	152,179	114,710	76,858	-	34,463	32,589	30,989	29,370	28,032	26,677	18,077	2,231,135
40	2040	86,992	145,758	146,529	147,300	148,072	148,843	149,614	150,385	151,156	151,928	114,524	76,735	38,560	34,399	32,529	30,933	29,318	27,982	26,631	18,046	2,266,845
41	2041	85,427	143,139	143,901	144,662	145,423	146,185	146,946	147,708	148,469	149,230	112,494	75,377	37,879	33,781	31,946	30,379	28,794	27,483	26,156	17,725	2,235,330
42	2042	85,061	142,530	143,292	144,054	144,817	145,579	146,341	147,103	147,865	148,628	112,042	75,076	37,729	33,637	31,811	30,251	28,674	27,369	26,049	17,652	2,226,434
43	2043	84,130	140,975	141,732	142,490	143,248	144,006	144,764	145,522	146,280	147,038	110,847	74,277	37,328	33,270	31,465	29,923	28,363	27,073	25,768	17,463	2,208,084
44	2044	84,244	141,170	141,933	142,696	143,459	144,222	144,985	145,748	146,511	147,274	111,028	74,400	37,391	33,316	31,509	29,966	28,405	27,114	25,807	17,490	2,181,933
45	2045	83,579	140,059	140,821	141,582	142,343	143,104	143,865	144,627	145,388	146,149	110,183	73,836	37,108	33,054	31,262	29,732	28,184	26,904	25,608	17,355	2,111,756
46	TOTAL	1,586,826	2,503,620	2,362,167	2,219,773	2,076,447	1,932,090	1,787,564	1,642,128	1,496,057	1,348,610	901,141	526,558	225,994	590,854	524,401	466,152	411,136	363,233	318,186	197,055	34,269,550

	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)
Line No.	Generator	Solar Gardens (Unsubscribed)	Solar Gardens 2026 Expansion (Unsubscribed)	Solar Gardens 2030 Expansion (Unsubscribed)	Hardy Hydro Upgrade	Lake Winds Energy Park	Cross Winds Energy Park	Cross Winds Energy Park (Phase II) (unsubscribed)	Cross Winds Energy Park (Phase III) (unsubscribed)	Gratiot County Wind Farm	Crescent Wind Farm	Heartland Wind Farm	Circuit West Solar	Sunfish (Unsubscribed)	Karn (Unsubscribed)	VGP_REP_2027_116.92 MW (Unsubscribed)	VGP_REP_2027_220 MW (Unsubscribed)	Spring Creek	Muskegon	Mustang Mile	Washtenaw	Lake Winds Energy Park Repowered	VGP_REP_2027_116.92 MW	VGP_REP_2027_220 MW	Karn (Subscribed)[1]	Sunfish (Subscribed)[1]
	Year	MWh			MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
47	2024	122	-	-	-	135,797	173,148	-	-	196,471	189,396	259,994	160	-	-	-	-	-	-	-	-	-	-	-	-	-
48	2025	122	-	-	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	122	2,449	-	-	135,797	173,148	-	-	196,471	189,396	258,663	160	-	-	-	-	86,937	296,164	-	-	-	-	-	-	235,490
50	2027	122	1,749	-	-	135,797	173,148	-	-	196,471	189,396	258,663	160	-	-	-	-	148,325	294,683	168,883	171,192	-	-	-	88,010	311,172
51	2028	122	1,058	-	-	135,797	173,148	-	-	196,471	189,396	260,881	160	-	-	-	-	148,846	295,717	169,480	171,797	-	123,748	236,677	88,321	312,263
52	2029	122	351	-	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	147,338	292,722	167,768	170,062	-	122,501	234,292	87,428	309,101
53	2030	122	-	2,527	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	146,591	291,236	166,921	169,203	-	121,886	233,115	86,987	307,532
54	2031	122	-	1,966	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	145,843	289,751	166,074	168,344	-	121,270	231,937	86,545	305,963
55	2032	122	-	1,402	-	135,797	173,148	-	-	196,471	189,396	259,107	160	-	-	-	-	144,847	287,772	164,944	167,199	-	120,448	230,366	85,957	303,873
56	2033	122	-	842	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	144,347	286,779	164,379	166,626	-	120,039	229,583	85,662	302,825
57	2034	122	-	282	-	135,797	173,148	-	-	196,471	189,396	260,438	160	-	-	-	-	144,090	286,268	164,091	166,334	-	119,832	229,186	85,512	302,286
58	2035	122	-	-	-	135,797	173,148	-	-	196,471	189,396	259,550	160	-	-	-	-	142,851	283,807	162,684	164,908	-	118,808	227,228	84,779	299,687
59	2036	122	-	-	-	135,797	173,148	-	-	196,471	189,396	259,994	-	-	-	-	-	142,346	282,804	162,114	164,330	-	118,394	226,437	84,482	298,627
60	2037	122	-	-	-	135,797	173,148	-	-	196,471	189,396	258,663	-	-	-	-	-	140,872	279,875	160,439	162,633	-	117,175	224,105	83,609	295,535
61	2038	122	-	-	-	135,797	173,148	-	-	196,471	189,396	258,663	-	-	-	-	-	140,127	278,394	159,595	161,777	-	116,561	222,931	83,169	293,971
62	2039	122	-	-	-	135,797	173,148	-	-	196,471	189,396	259,550	-	-	-	-	-	139,859	277,863	159,295	161,473	-	116,345	222,519	83,013	293,411
63	2040	122	-	-	-	135,797	173,148	-	-	196,471	189,396	260,881	-	-	-	-	-	139,825	277,795	159,260	161,437	-	116,323	222,476	82,995	293,338
64	2041	122	-	-	-	135,797	173,148	-	-	196,471	189,396	256,888	-	-	-	-	-	136,944	272,072	155,984	158,116	-	113,934	217,906	81,287	287,295
65	2042	2	-	-	-	135,797	173,148	-	-	196,471	189,396	256,888	-	-	-	-	-	136,204	270,601	155,145	157,266	-	113,324	216,741	80,850	285,742
66	2043	-	-	-	-	121,886	173,148	-	-	196,471	189,396	256,001	-	-	-	-	-	134,996	268,201	153,774	155,876	22,128	112,326	214,831	80,136	283,208
67	2044	-	-	-	-	-	173,148	-	-	196,471	189,396	258,219	-	-	-	-	-	135,422	269,047	154,263	156,372	132,766	112,687	215,521	80,391	284,101
68	2045	-	-	-	-	-	173,148	-	-	196,471	189,396	257,775	-	-	-	-	-	134,446	267,109	153,157	155,250	132,537	111,882	213,981	79,814	282,054
69	TOTAL	2,197	5,607	7,019	-	2,702,030	3,809,250	-	-	4,322,351	4,166,715	5,698,568	1,921	-	-	-	-	2,781,055	5,648,660	3,068,250	3,110,194	287,431	2,117,481	4,049,832	1,598,947	5,887,473

	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)
Line No.	Generator	IRP 2025 Owned In-State Solar 300 MW	REP 2028 Owned In-State Solar 150 MW	REP 2029 Owned In-State Solar 250 MW	REP 2030 Owned In-State Solar 250 MW	REP 2031 Owned In-State Solar 250 MW	REP 2032 Owned In-State Solar 250 MW	REP 2033 Owned In-State Solar 250 MW	REP 2034 Owned In-State Solar 250 MW	REP 2035 Owned In-State Solar 250 MW	REP 2036 Owned In-State Solar 250 MW	REP 2037 Owned In-State Solar 250 MW	REP 2038 Owned In-State Solar 187.5 MW	REP 2039 Owned In-State Solar 125 MW	REP 2040 Owned In-State Solar 62.5 MW	REP 2028 Owned In-State Wind 100 MW	REP 2029 Owned In-State Wind 200 MW	REP 2030 Owned In-State Wind 200 MW	REP 2032 Owned In-State Wind 1500 MW	REP 2035 Owned In-State Wind 800 MW	2029 VGP-REP CE In-State Solar 61.5 MW	2030 VGP-REP CE In-State Solar 58.5 MW	2031 VGP-REP CE In-State Solar 55.5 MW	2032 VGP-REP CE In-State Solar 52.5 MW	2033 VGP-REP CE In-State Solar 50 MW	2034 VGP-REP CE In-State Solar 47.5 MW	2035 VGP-REP CE In-State Solar 33 MW	Owned Total	GRAND TOTAL
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh								MWh	MWh
70	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	955,087	1,553,777
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	954,644	1,616,950
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,339,306	2,001,154
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,738,589	2,400,540
74	2028	105,938	92,476	-	-	-	-	-	-	-	-	-	-	-	-	138,499	-	-	-	-	-	-	-	-	-	-	-	2,079,787	2,834,209
75	2029	183,545	91,773	153,723	-	-	-	-	-	-	-	-	-	-	-	137,832	275,664	-	-	-	36,279	-	-	-	-	-	-	2,575,422	3,482,590
76	2030	182,826	91,413	153,124	153,894	-	-	-	-	-	-	-	-	-	-	137,959	275,918	275,918	-	-	36,137	34,164	-	-	-	-	-	3,002,173	4,062,108
77	2031	182,095	91,047	152,516	153,286	154,057	-	-	-	-	-	-	-	-	-	138,057	276,114	276,114	-	-	35,994	34,030	32,352	-	-	-	-	3,149,907	4,354,644
78	2032	181,475	90,737	152,000	152,772	153,544	154,315	-	-	-	-	-	-	-	-	137,374	274,748	274,748	2,060,614	-	35,872	33,915	32,244	30,554	-	-	-	5,352,690	6,683,114
79	2033	179,847	89,924	150,641	151,410	152,179	152,947	153,716	-	-	-	-	-	-	-	137,600	275,200	275,200	2,064,003	-	35,551	33,613	31,957	30,284	28,899	-	-	5,500,284	6,964,170
80	2034	179,089	89,545	150,010	150,779	151,549	152,318	153,087	153,857	-	-	-	-	-	-	138,185	276,370	276,370	2,072,778	-	35,402	33,473	31,825	30,159	28,780	27,386	-	5,660,532	7,274,731
81	2035	178,011	89,006	149,111	149,880	150,649	151,417	152,186	152,954	153,723	-	-	-	-	-	137,832	275,664	275,664	2,067,479	1,102,656	35,190	33,273	31,636	29,981	28,611	27,226	18,447	6,895,126	8,656,560
82	2036	177,785	88,893	148,926	149,698	150,469	151,241	152,013	152,784	153,556	154,327	-	-	-	-	138,371	276,743	276,743	2,075,571	1,106,971	35,147	33,233	31,599	29,946	28,578	27,196	18,427	7,060,610	8,974,680
83	2037	175,571	87,786	147,075	147,841	148,608	149,374	150,140	150,906	151,672	152,438	153,204	-	-	-	137,534	275,069	275,069	2,063,016	1,100,275	34,710	32,821	31,208	29,576	28,226	26,861	18,201	7,162,990	9,213,194
84	2038	175,275	87,638	146,831	147,600	148,369	149,138	149,906	150,675	151,444	152,213	152,981	115,313	-	-	136,830	273,661	273,661	2,052,456	1,094,643	34,652	32,767	31,157	29,529	28,182	26,820	18,173	7,252,120	9,414,882
85	2039	174,314	87,157	146,030	146,798	147,567	148,336	149,104	149,873	150,641	151,410	152,179	114,710	76,858	-	137,600	275,200	275,200	2,064,003	1,100,802	34,463	32,589	30,989	29,370	28,032	26,677	18,077	7,340,756	9,571,890
86	2040	173,984	86,992	145,758	146,529	147,300	148,072	148,843	149,614	150,385	151,156	151,928	114,524	76,735	38,560	138,545	277,090	277,090	2,078,175	1,108,360	34,399	32,529	30,933	29,318	27,982	26,631	18,046	7,403,774	9,670,619
87	2041	170,853	85,427	143,139	143,901	144,662	145,423	146,185	146,946	147,708	148,469	149,230	112,494	75,377	37,879	136,462	272,924	272,924	2,046,930	1,091,696	33,781	31,946	30,379	28,794	27,483	26,156	17,725	7,293,566	9,528,896
88	2042	170,121	85,061	142,530	143,292	144,054	144,817	145,579	146,341	147,103	147,865	148,628	112,042	75,076	37,729	136,560	273,120	273,120	2,048,404	1,092,482	33,637	31,811	30,251	28,674	27,369	26,049	17,652	7,284,844	9,511,278
89	2043	168,260	84,130	140,975	141,732	142,490	143,248	144,006	144,764	145,522	146,280	147,038	110,847	74,277	37,328	136,037	272,075	272,075	2,040,562	1,088,300	33,270	31,465	29,923	28,363	27,073	25,768	17,463	7,251,823	9,459,907
90	2044	168,488	84,244	141,170	141,933	142,696	143,459	144,222	144,985	145,748	146,511	147,274	111,028	74,400	37,391	136,816	273,633	273,633	2,052,246	1,094,531	33,316	31,509	29,966	28,405	27,114	25,807	17,490	7,269,511	9,451,443
91	2045	167,158	83,579	140,059	140,821	141,582	142,343	143,104	143,865	144,627	145,388	146,149	110,183	73,836	37,108	136,688	273,377	273,377	2,050,324	1,093,506	33,054	31,262	29,732	28,184	26,904	25,608	17,355	7,246,362	9,358,118
92	TOTAL	3,094,636	1,586,826	2,503,620	2,362,167	2,219,773	2,076,447	1,932,090	1,787,564	1,642,128	1,496,057	1,348,610	901,141	526,558	225,994	2,474,785	4,672,571	4,396,907	28,836,560	12,074,222	590,854	524,401	466,152	411,136	363,233	318,186	197,055	########	146,039,454

EARP - Experimental Advanced Renewable Program
1 Not included in total due to customer subscriptions

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-26 (ZSC-3)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Projected Electric Production
Total Generation

Line No.	(a) Generator	(b) Apple Blossom	(c) Beebe Renewable Energy	(d) Elk Rapids Hydro.	(e) Fremont Community Digester	(f) Harvest II Windfarm	(g) Heritage Garden Windfarm I (Wind)	(h) Heritage Garden Windfarm I (solar)	(i) Heritage Stoney Corners Windfarm I (HSC Phase 2)	(j) Heritage Stoney Corners Windfarm I (HSC Phase 3)	(k) Michigan Wind 2	(l) North American Natural Resources (Lennon)	(m) Scenic View Diary (Fennville)	(n) Scenic View Diary (Freeport)	(o) WMRenewable Energy (Northern Oaks)	(p) WMRenewable Energy (Pine Tree Acres)
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
1	2024	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
2	2025	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
3	2026	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
4	2027	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
5	2028	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
6	2029	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	5,387	64,484
7	2030	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	9,577	-	-	4,796	64,484
8	2031	250,366	185,678	-	11,051	174,049	47,031	2,664	27,001	17,695	260,221	-	-	-	-	64,484
9	2032	250,366	185,678	-	11,051	174,049	47,031	2,255	27,001	17,695	260,221	-	-	-	-	15,380
10	2033	250,366	185,678	-	737	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
11	2034	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
12	2035	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
13	2036	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
14	2037	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
15	2038	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
16	2039	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
17	2040	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
18	2041	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
19	2042	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
20	2043	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
21	2044	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
22	2045	250,366	185,678	-	-	174,049	47,031	-	27,001	17,695	260,221	-	-	-	-	-
23	TOTAL	5,508,042	4,084,909	-	100,200	3,829,085	1,034,674	23,564	594,029	389,295	5,724,860	67,042	-	-	37,121	531,256

Line No.	(a) Generator	(q) Zeeland Farm Services (Plant 2)	(r) EARP - 1-4	(s) EARP - 5	(t) EARP - 6	(u) EARP - 7	(v) EARP - 8	(w) EARP - 9	(x) EARP - 10	(y) EARP - 11	(z) EARP-Anaerobic Digester	(aa) River Fork Solar	(ab) Solar Gardens (Subscribed)	(ac) Solar Gardens 2026 Expansion (Subscribed)	(ad) Solar Gardens 2030 Expansion (Subscribed)
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
1	2024	-	-	484	787	464	765	1,005	401	181	-	60,164	5,666	-	-
2	2025	-	-	484	787	464	765	1,005	401	181	-	180,000	5,666	-	-
3	2026	-	-	484	787	464	765	1,005	401	181	-	179,100	5,666	657	-
4	2027	-	-	440	707	413	689	898	366	163	-	178,200	5,666	1,971	-
5	2028	-	-	-	-	-	-	-	-	-	-	177,786	5,666	3,294	-
6	2029	-	-	-	-	-	-	-	-	-	-	176,400	5,666	4,599	-
7	2030	-	-	-	-	-	-	-	-	-	-	175,500	5,666	5,256	526
8	2031	-	-	-	-	-	-	-	-	-	-	174,600	5,666	5,230	1,577
9	2032	-	-	-	-	-	-	-	-	-	-	174,176	5,666	5,218	2,635
10	2033	-	-	-	-	-	-	-	-	-	-	172,800	5,666	5,177	3,679
11	2034	-	-	-	-	-	-	-	-	-	-	171,900	5,666	5,151	4,730
12	2035	-	-	-	-	-	-	-	-	-	-	171,000	5,666	5,125	5,256
13	2036	-	-	-	-	-	-	-	-	-	-	170,566	5,666	5,112	5,244
14	2037	-	-	-	-	-	-	-	-	-	-	169,200	5,666	5,072	5,203
15	2038	-	-	-	-	-	-	-	-	-	-	168,300	5,666	5,046	5,177
16	2039	-	-	-	-	-	-	-	-	-	-	167,400	5,666	5,019	5,151
17	2040	-	-	-	-	-	-	-	-	-	-	166,956	5,666	5,007	5,139
18	2041	-	-	-	-	-	-	-	-	-	-	165,600	5,666	4,967	5,098
19	2042	-	-	-	-	-	-	-	-	-	-	164,700	123	4,941	5,072
20	2043	-	-	-	-	-	-	-	-	-	-	163,800	-	4,914	5,046
21	2044	-	-	-	-	-	-	-	-	-	-	108,898	-	4,901	5,033
22	2045	-	-	-	-	-	-	-	-	-	-	-	-	4,862	4,993
23	TOTAL	-	-	1,892	3,070	1,806	2,985	3,914	1,570	705	-	3,437,046	102,103	91,519	69,560

Line No.	(ae) Generator	(af) REP 2028 PPA In-State Solar 150 MW	(ag) REP 2029 PPA In-State Solar 250 MW	(ah) REP 2030 PPA In-State Solar 250 MW	(ai) REP 2031 PPA In-State Solar 250 MW	(aj) REP 2032 PPA In-State Solar 250 MW	(ak) REP 2033 PPA In-State Solar 250 MW	(al) REP 2034 PPA In-State Solar 250 MW	(am) REP 2035 PPA In-State Solar 250 MW	(an) REP 2036 PPA In-State Solar 250 MW	(ao) REP 2037 PPA In-State Solar 250 MW	(ap) REP 2038 PPA In-State Solar 187.5 MW	(aq) REP 2039 PPA In-State Solar 125 MW	(ar) REP 2040 PPA In-State Solar 62.5 MW	(as) 2029 VGP-REP PPA In-State Solar 61.5 MW	(at) 2030 VGP-REP PPA In-State Solar 58.5 MW	(au) 2031 VGP-REP PPA In-State Solar 55.5 MW	(av) 2032 VGP-REP PPA In-State Solar 52.5 MW	(aw) 2033 VGP-REP PPA In-State Solar 50 MW	(ax) 2034 VGP-REP PPA In-State Solar 47.5 MW	(ay) 2035 VGP-REP PPA In-State Solar 33 MW	(az) REPA and Program Total
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
24	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,125,123
25	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,244,959
26	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,244,716
27	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,244,718
28	2028	305,333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,547,283
29	2029	303,014	507,561	-	-	-	-	-	-	-	-	-	-	-	119,784	-	-	-	-	-	-	2,052,445
30	2030	301,193	504,524	507,059	-	-	-	-	-	-	-	-	-	-	119,068	112,567	-	-	-	-	-	2,554,338
31	2031	299,426	501,576	504,109	506,642	-	-	-	-	-	-	-	-	-	118,372	111,912	106,395	-	-	-	-	3,039,065
32	2032	299,348	501,459	504,004	506,550	509,095	-	-	-	-	-	-	-	-	118,344	111,889	106,375	100,801	-	-	-	3,498,879
33	2033	297,137	497,767	500,307	502,847	505,386	507,926	-	-	-	-	-	-	-	117,473	111,068	105,598	100,066	95,490	-	-	3,961,469
34	2034	295,390	494,854	497,392	499,929	502,467	505,005	507,542	-	-	-	-	-	-	116,786	110,421	104,985	99,488	94,941	90,343	-	4,452,066
35	2035	293,878	492,334	494,872	497,410	499,948	502,486	505,023	507,561	-	-	-	-	-	116,191	109,862	104,456	98,990	94,467	89,894	60,907	4,942,600
36	2036	292,601	490,208	492,748	495,288	497,828	500,368	502,908	505,448	507,988	-	-	-	-	115,689	109,390	104,011	98,570	94,069	89,518	60,654	5,434,014
37	2037	291,361	488,144	490,686	493,229	495,771	498,314	500,856	503,399	505,941	508,483	-	-	-	115,202	108,932	103,578	98,163	93,683	89,152	60,408	5,923,366
38	2038	289,512	485,059	487,598	490,138	492,678	495,217	497,757	500,296	502,836	505,375	380,936	-	-	114,474	108,247	102,929	97,550	93,101	88,601	60,036	6,273,632
39	2039	287,994	482,530	485,069	487,609	490,148	492,688	495,228	497,767	500,307	502,847	379,040	253,963	-	113,877	107,685	102,398	97,049	92,625	88,151	59,732	6,500,466
40	2040	286,816	480,569	483,112	485,655	488,198	490,740	493,283	495,826	498,368	500,911	377,590	252,998	127,135	113,414	107,251	101,988	96,663	92,259	87,804	59,499	6,606,009
41	2041	286,061	479,318	481,868	484,417	486,967	489,517	492,066	494,616	497,165	499,715	376,698	252,407	126,841	113,119	106,975	101,728	96,419	92,029	87,588	59,354	6,591,027
42	2042	284,299	476,379	478,926	481,474	484,021	486,569	489,116	491,664	494,211	496,758	374,479	250,927	126,100	112,425	106,322	101,109	95,836	91,475	87,063	59,000	6,551,799
43	2043	283,792	475,543	478,100	480,657	483,213	485,770	488,327	490,883	493,440	495,997	373,915	250,555	125,917	112,228	106,138	100,938	95,676	91,325	86,922	58,906	6,541,911
44	2044	282,490	473,375	475,934	478,493	481,052	483,611	486,169	488,728	491,287	493,846	372,303	249,482	125,381	111,717	105,657	100,484	95,248	90,919	86,538	58,647	6,463,024
45	2045	280,207	469,564	472,116	474,668	477,220	479,772	482,324	484,876	487,428	489,980	369,399	247,542	124,409	110,817	104,810	99,680	94,490	90,197	85,854	58,185	6,311,404
46	TOTAL	5,259,851	8,300,766	7,833,903	7,365,006	6,893,993	6,417,982	5,940,600	5,461,064	4,978,972	4,493,913	3,004,362	1,757,874	755,782	1,958,981	1,739,126	1,546,651	1,365,011	1,206,581	1,057,427	655,328	94,104,312

Line No.	(ba) Generator	(bb) Solar Gardens (Unsubscribed)	(bc) Solar Gardens 2026 Expansion (Unsubscribed)	(bd) Solar Gardens 2030 Expansion (Unsubscribed)	(be) Hardy Hydro Upgrade	(bf) Lake Winds Energy Park	(bg) Cross Winds Energy Park	(bh) Cross Winds Energy Park (Phase II) (unsubscribed)	(bi) Cross Winds Energy Park (Phase III) (unsubscribed)	(bj) Gratiot County Wind Farm	(bk) Crescent Wind Farm	(bl) Heartland Wind Farm	(bm) Circuit West Solar
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
47	2024	399	-	-	-	249,791	324,892	-	-	372,438	354,588	487,156	531
48	2025	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	531
49	2026	399	4,599	-	-	249,791	324,892	-	-	372,438	354,588	485,825	531
50	2027	399	3,285	-	-	249,791	324,892	-	-	372,438	354,588	485,825	531
51	2028	399	1,976	-	-	249,791	324,892	-	-	372,438	354,588	487,156	531
52	2029	399	657	-	-	249,791	324,892	-	-	372,438	354,588	485,825	531
53	2030	399	-	4,730	-	249,791	324,892	-	-	372,438	354,588	485,825	531
54	2031	399	-	3,679	-	249,791	324,892	-	-	372,438	354,588	485,825	531
55	2032	399	-	2,635	-	249,791	324,892	-	-	372,438	354,588	487,156	531
56	2033	399	-	1,577	-	249,791	324,892	-	-	372,438	354,588	485,825	531
57	2034	399	-	526	-	249,791	324,892	-	-	372,438	354,588	485,825	531
58	2035	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	531
59	2036	399	-	-	-	249,791	324,892	-	-	372,438	354,588	487,156	-
60	2037	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	-
61	2038	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	-
62	2039	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	-
63	2040	399	-	-	-	249,791	324,892	-	-	372,438	354,588	487,156	-
64	2041	399	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	-
65	2042	6	-	-	-	249,791	324,892	-	-	372,438	354,588	485,825	-
66	2043	-	-	-	-	224,194	324,892	-	-	372,438	354,588	485,825	-
67	2044	-	-	-	-	-	324,892	-	-	372,438	354,588	487,156	-
68	2045	-	-	-	-	-	324,892	-	-	372,438	354,588	485,825	-
69	TOTAL	7,188	10,517	13,147	-	4,970,219	7,147,615	-	-	8,193,637	7,800,941	10,696,129	6,370

Line No.	(ba) Generator	(bn) Sunfish (Unsubscribed)	(bo) Karn (Unsubscribed)	(bp) VGP_REP_2027_116.92 MW (Unsubscribed)	(bq) VGP_REP_2027_220 MW (Unsubscribed)	(br) Spring Creek	(bs) Muskegon	(bt) Mustang Mile	(bu) Washtenaw	(bv) Lake Winds Energy Park Repowered	(bw) VGP_REP_2027_116.92 MW	(bx) VGP_REP_2027_220 MW	(by) Karn (Subscribed)[1]	(bz) Sunfish (Subscribed)[1]
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
47	2024	-	-	-	-	-	-	-	-	-	-	-	-	-
48	2025	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	-	-	-	-	164,157	556,260	-	-	-	-	-	-	442,550
50	2027	-	-	-	-	278,587	553,479	317,200	321,536	-	-	-	165,301	584,447
51	2028	-	-	-	-	277,947	552,206	316,478	320,805	-	231,081	441,958	164,925	583,104
52	2029	-	-	-	-	275,787	547,916	314,028	318,320	-	229,297	438,547	163,648	578,574
53	2030	-	-	-	-	274,387	545,135	312,442	316,713	-	228,145	436,343	162,822	575,637
54	2031	-	-	-	-	272,987	542,354	310,856	315,105	-	226,993	434,139	161,995	572,700
55	2032	-	-	-	-	272,332	541,050	310,117	314,356	-	226,459	433,119	161,610	571,324
56	2033	-	-	-	-	270,188	536,791	307,684	311,890	-	224,688	429,732	160,342	566,826
57	2034	-	-	-	-	268,788	534,010	306,098	310,282	-	223,536	427,528	159,516	563,889
58	2035	-	-	-	-	267,388	531,228	304,512	308,674	-	222,384	425,324	158,689	560,952
59	2036	-	-	-	-	266,716	529,895	303,756	307,908	-	221,837	424,280	158,295	559,544
60	2037	-	-	-	-	264,588	525,666	301,340	305,459	-	220,079	420,917	157,036	555,078
61	2038	-	-	-	-	263,188	522,884	299,754	303,851	-	218,927	418,713	156,210	552,141
62	2039	-	-	-	-	261,788	520,103	298,168	302,244	-	217,775	416,509	155,383	549,204
63	2040	-	-	-	-	261,101	518,739	297,394	301,460	-	217,216	415,441	154,980	547,764
64	2041	-	-	-	-	258,988	514,541	294,996	299,028	-	215,470	412,102	153,730	543,330
65	2042	-	-	-	-	257,588	511,759	293,410	297,421	-	214,318	409,898	152,904	540,394
66	2043	-	-	-	-	256,188	508,978	291,824	295,813	41,746	213,166	407,694	152,077	537,457
67	2044	-	-	-	-	255,486	507,583	291,033	295,011	250,475	212,594	406,602	151,665	535,984
68	2045	-	-	-	-	253,388	503,415	288,652	292,598	249,791	210,861	403,287	150,424	531,583
69	TOTAL	-	-	-	-	5,221,568	10,603,992	5,759,736	5,838,473	542,012	3,974,825	7,602,133	3,001,553	11,052,480

Line No.	(ca) Generator	(cb) IRP 2025 Owned In-State Solar 300 MW	(cc) REP 2028 Owned In-State Solar 150 MW	(cd) REP 2029 Owned In-State Solar 250 MW	(ce) REP 2030 Owned In-State Solar 250 MW	(cf) REP 2031 Owned In-State Solar 250 MW	(cg) REP 2032 Owned In-State Solar 250 MW	(ch) REP 2033 Owned In-State Solar 250 MW	(ci) REP 2034 Owned In-State Solar 250 MW	(cj) REP 2035 Owned In-State Solar 250 MW	(ck) REP 2036 Owned In-State Solar 250 MW	(cl) REP 2037 Owned In-State Solar 250 MW	(cm) REP 2038 Owned In-State Solar 187.5 MW	(cn) REP 2039 Owned In-State Solar 125 MW	(co) REP 2040 Owned In-State Solar 62.5 MW
	Year	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
70	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	2028	361,089	305,333	-	-	-	-	-	-	-	-	-	-	-	-
75	2029	606,028	303,014	507,561	-	-	-	-	-	-	-	-	-	-	-
76	2030	602,387	301,193	504,524	507,059	-	-	-	-	-	-	-	-	-	-
77	2031	598,851	299,426	501,576	504,109	506,642	-	-	-	-	-	-	-	-	-
78	2032	598,696	299,348	501,459	504,004	506,550	509,095	-	-	-	-	-	-	-	-
79	2033	594,273	297,137	497,767	500,307	502,847	505,386	507,926	-	-	-	-	-	-	-
80	2034	590,779	295,390	494,854	497,392	499,929	502,467	505,005	507,542	-	-	-	-	-	-
81	2035	587,756	293,878	492,334	494,872	497,410	499,948	502,486	505,023	507,561	-	-	-	-	-
82	2036	585,202	292,601	490,208	492,748	495,288	497,828	500,368	502,908	505,448	507,988	-	-	-	-
83	2037	582,722	291,361	488,144	490,686	493,229	495,771	498,314	500,856	503,399	505,941	508,483	-	-	-
84	2038	579,023	289,512	485,059	487,598	490,138	492,678	495,217	497,757	500,296	502,836	505,375	380,936	-	-
85	2039	575,988	287,994	482,530	485,069	487,609	490,148	492,688	495,228	497,767	500,307	502,847	379,040	253,963	-
86	2040	573,632	286,816	480,569	483,112	485,655	488,198	490,740	493,283	495,826	498,368	500,911	377,590	252,998	127,135
87	2041	572,122	286,061	479,318	481,868	484,417	486,967	489,517	492,066	494,616	497,165	499,715	376,698	252,407	126,841
88	2042	568,597	284,299	476,379	478,926	481,474	484,021	486,569	489,116	491,664	494,211	496,758	374,479	250,927	126,100
89	2043	567,584	283,792	475,543	478,100	480,657	483,213	485,770	488,327	490,883	493,440	495,997	373,915	250,555	125,917
90	2044	564,980	282,490	473,375	475,934	478,493	481,052	483,611	486,169	488,728	491,287	493,846	372,303	249,482	125,381
91	2045	560,415	280,207	469,564	472,116	474,668	477,220	479,772	482,324	484,876	487,428	489,980	369,399	247,542	124,409
92	TOTAL	10,270,126	5,259,851	8,300,766	7,833,903	7,365,006	6,893,993	6,417,982	5,940,600	5,461,064	4,978,972	4,493,913	3,004,362	1,757,874	755,782

Line No.	(ca) Generator	(cp) REP 2028 Owned In-State Wind 100 MW	(cq) REP 2029 Owned In-State Wind 200 MW	(cr) REP 2030 Owned In-State Wind 200 MW	(cs) REP 2032 Owned In-State Wind 1500 MW	(ct) REP 2035 Owned In-State Wind 800 MW	(cu) 2029 VGP-REP CE In-State Solar 61.5 MW	(cv) 2030 VGP-REP CE In-State Solar 58.5 MW	(cw) 2031 VGP-REP CE In-State Solar 55.5 MW	(cx) 2032 VGP-REP CE In-State Solar 52.5 MW	(cy) 2033 VGP-REP CE In-State Solar 50 MW	(cz) 2034 VGP-REP CE In-State Solar 47.5 MW	(da) 2035 VGP-REP CE In-State Solar 33 MW	(db) Owned Total	(dc) GRAND TOTAL
	Year	MWh	MWh	MWh	MWh	MWh								MWh	MWh
70	2024	-	-	-	-	-	-	-	-	-	-	-	-	1,789,794	**2,914,918**
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	1,788,463	**3,033,422**
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	2,513,479	**3,758,195**
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	3,262,549	**4,507,268**
74	2028	255,009	-	-	-	-	-	-	-	-	-	-	-	4,180,637	**5,727,920**
75	2029	254,313	508,626	-	-	-	119,784	-	-	-	-	-	-	5,424,714	**7,477,159**
76	2030	254,379	508,759	508,759	-	-	119,068	112,567	-	-	-	-	-	6,428,931	**8,983,269**
77	2031	254,369	508,739	508,739	-	-	118,372	111,912	106,395	-	-	-	-	6,915,895	**9,954,960**
78	2032	255,154	510,308	510,308	3,827,307	-	118,344	111,889	106,375	100,801	-	-	-	11,252,514	**14,751,393**
79	2033	254,115	508,229	508,229	3,811,719	-	117,473	111,068	105,598	100,066	95,490	-	-	11,704,527	**15,665,996**
80	2034	254,118	508,235	508,235	3,811,764	-	116,786	110,421	104,985	99,488	94,941	90,343	-	12,183,876	**16,635,943**
81	2035	254,313	508,626	508,626	3,814,696	2,034,504	116,191	109,862	104,456	98,990	94,467	89,894	60,907	14,702,299	**19,644,899**
82	2036	255,261	510,521	510,521	3,828,909	2,042,085	115,689	109,390	104,011	98,570	94,069	89,518	60,654	15,215,423	**20,649,437**
83	2037	254,299	508,599	508,599	3,814,489	2,034,394	115,202	108,932	103,578	98,163	93,683	89,152	60,408	15,664,270	**21,587,635**
84	2038	254,143	508,285	508,285	3,812,140	2,033,141	114,474	108,247	102,929	97,550	93,101	88,601	60,036	16,000,030	**22,273,661**
85	2039	254,115	508,229	508,229	3,811,719	2,032,917	113,877	107,685	102,398	97,049	92,625	88,151	59,732	16,216,621	**22,717,087**
86	2040	255,136	510,272	510,272	3,827,038	2,041,087	113,414	107,251	101,988	96,663	92,259	87,804	59,499	16,346,596	**22,952,605**
87	2041	254,255	508,509	508,509	3,813,818	2,034,037	113,119	106,975	101,728	96,419	92,029	87,588	59,354	16,294,391	**22,885,419**
88	2042	254,244	508,489	508,489	3,813,666	2,033,955	112,425	106,322	101,109	95,836	91,475	87,063	59,000	16,250,081	**22,801,880**
89	2043	254,174	508,349	508,349	3,812,615	2,033,395	112,228	106,138	100,938	95,676	91,325	86,922	58,906	16,247,060	**22,788,971**
90	2044	254,813	509,625	509,625	3,822,188	2,038,500	111,717	105,657	100,484	95,248	90,919	86,538	58,647	16,220,545	**22,683,570**
91	2045	253,983	507,985	507,985	3,809,891	2,031,942	110,817	104,810	99,680	94,490	90,197	85,854	58,185	16,137,306	**22,448,710**
92	TOTAL	4,580,202	8,650,385	8,141,759	53,431,961	22,389,957	1,958,981	1,739,126	1,546,651	1,365,011	1,206,581	1,057,427	655,328	242,740,003	336,844,316

EARP - Experimental Advanced Renewable Program
1 Not included in total due to customer subscriptions

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-27 (ZSC-4)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Energy Plan Projected Capped Transfer Costs

Line No.	(a) Generator	(b) Apple Blossom	© Beebe Renewable Energy	(d) Elk Rapids Hydro.	€ Fremont Community Digester	(f) Harvest II Windfarm	(g) Heritage Garden Windfarm I (Wind)	(h) Heritage Garden Windfarm I (solar)	(i) Heritage Stoney Corners Windfarm I (HSC Phase 2)	(j) Heritage Stoney Corners Windfarm I (HSC Phase 3)	(k) Michigan Wind 2
	Year	$	$	$	$	$	$	$	$	$	$
1	2024	10,765,718	19,334,624	-	1,650,209	18,121,821	5,482,805	309,384	3,172,108	2,272,691	27,155,858
2	2025	10,765,718	20,240,723	-	1,204,720	18,973,114	5,126,808	290,356	2,943,416	1,928,954	28,366,682
3	2026	10,765,718	21,013,142	-	1,250,695	19,697,159	5,322,456	301,436	3,055,741	2,002,566	29,449,201
4	2027	10,765,718	21,826,410	-	1,299,100	20,459,495	5,528,450	313,103	3,174,007	2,080,071	30,588,969
5	2028	10,765,718	23,187,428	-	1,380,107	21,735,277	5,873,184	332,627	3,371,927	2,209,777	32,496,388
6	2029	10,765,718	24,123,243	-	1,435,807	22,612,485	6,110,219	346,051	3,508,014	2,298,961	33,807,902
7	2030	10,765,718	24,626,430	-	1,465,756	23,084,159	6,237,672	353,270	3,581,187	2,346,915	34,513,100
8	2031	10,765,718	25,146,327	-	1,496,700	23,571,497	6,369,357	360,728	3,656,791	2,396,462	35,241,719
9	2032	10,765,718	25,296,726	-	1,505,652	23,712,477	6,407,452	307,268	3,678,662	2,410,795	35,452,498
10	2033	10,765,718	25,539,964	-	36,490	23,940,481	6,469,062	-	3,714,034	2,433,975	35,793,387
11	2034	10,765,718	25,887,181	-	-	24,265,953	6,557,009	-	3,764,526	2,467,066	36,280,000
12	2035	10,765,718	26,444,214	-	-	24,788,101	6,698,101	-	3,845,530	2,520,151	37,060,663
13	2036	10,765,718	27,014,245	-	-	25,322,433	6,842,485	-	3,928,425	2,574,475	37,859,541
14	2037	10,765,718	27,597,272	-	-	25,868,948	6,990,161	-	4,013,209	2,630,038	38,676,635
15	2038	10,765,718	28,191,441	-	-	26,425,905	7,140,659	-	4,099,613	2,686,663	39,509,342
16	2039	10,765,718	28,800,464	-	-	26,996,787	7,294,920	-	4,188,177	2,744,703	40,362,866
17	2040	10,765,718	29,420,627	-	-	27,578,112	7,452,002	-	4,278,362	2,803,805	41,232,004
18	2041	10,765,718	30,053,788	-	-	28,171,620	7,612,377	-	4,370,436	2,864,146	42,119,358
19	2042	10,765,718	30,701,803	-	-	28,779,052	7,776,514	-	4,464,671	2,925,902	43,027,529
20	2043	10,765,718	31,364,672	-	-	29,400,408	7,944,413	-	4,561,066	2,989,074	43,956,517
21	2044	10,765,718	32,040,539	-	-	30,033,947	8,115,604	-	4,659,351	3,053,485	44,903,721
22	2045	10,765,718	32,729,403	-	-	30,679,670	8,290,088	-	4,759,526	3,119,134	45,869,141
23	TOTAL	236,845,792	580,580,668	-	12,725,237	544,218,900	147,641,799	2,914,222	84,788,781	55,759,811	813,723,023

Line No.	(a) Generator	(l) North American Natural Resources (Lennon)	(m) Scenic View Diary (Fennville)	(n) Scenic View Diary (Freeport)	(o) WMRenewable Energy (Northern Oaks)	(p) WMRenewable Energy (Pine Tree Acres)	(q) Zeeland Farm Services (Plant 2)	® EARP- 1-4	(s) EARP-5	(t) EARP-6	(u) EARP-7	(v) EARP-8	(w) EARP-9	(x) EARP-10	(y) EARP-11	(z) EARP-Anaerobic Digester	(aa) River Fork Solar	(ab) Solar Gardens (Subscribed)	(ac) Solar Gardens 2026 Expansion (Subscribed)	(ad) Solar Gardens 2030 Expansion (Subscribed)
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
1	2024	832,908	-	-	469,169	7,918,576	-	-	35,743	63,440	35,085	57,837	81,338	32,484	14,620	-	2,365,664	202,888	-	-
2	2025	936,913	-	-	525,000	7,029,453	-	-	52,786	64,818	35,651	58,771	83,238	33,242	14,962	-	7,160,400	274,702	-	-
3	2026	938,398	-	-	523,785	7,297,709	-	-	54,801	65,905	36,226	59,719	85,781	34,258	15,419	-	7,267,878	266,799	29,785	-
4	2027	927,625	-	-	518,127	7,580,151	-	-	51,678	59,794	32,810	54,712	78,147	31,828	14,207	-	7,375,698	259,826	90,501	-
5	2028	907,709	-	-	505,865	8,052,822	-	-	-	-	-	-	-	-	-	-	7,504,337	248,800	144,283	-
6	2029	822,990	-	-	454,608	8,377,824	-	-	-	-	-	-	-	-	-	-	7,595,784	211,669	159,938	-
7	2030	830,805	-	-	405,494	8,552,577	-	-	-	-	-	-	-	-	-	-	7,707,960	216,551	187,465	17,793
8	2031	-	-	-	-	8,733,133	-	-	-	-	-	-	-	-	-	-	7,822,080	220,232	189,908	57,828
9	2032	-	-	-	-	2,095,417	-	-	-	-	-	-	-	-	-	-	7,958,096	225,335	193,582	98,710
10	2033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,054,208	233,204	198,910	142,666
11	2034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,172,126	238,200	202,059	187,233
12	2035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,291,790	242,297	206,387	213,514
13	2036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,436,196	246,523	211,440	218,760
14	2037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,536,140	254,104	215,671	223,165
15	2038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,660,718	261,753	220,031	227,704
16	2039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,786,826	271,109	227,103	235,029
17	2040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,938,833	282,490	235,327	243,538
18	2041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,043,416	288,140	238,325	246,687
19	2042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,173,790	6,773	241,791	250,318
20	2043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,199,008	-	245,576	254,279
21	2044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,006,788	-	249,623	258,512
22	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	252,585	261,631
23	TOTAL	6,197,347	-	-	3,402,049	65,637,661	-	-	195,008	253,957	139,772	231,039	328,503	131,812	59,208	-	164,057,735	4,451,395	3,940,291	3,137,366

Line No.	(ae) Generator	(af) REP 2028 PPA In-State Solar 150 MW	(ag) REP 2029 PPA In-State Solar 250 MW	(ah) REP 2030 PPA In-State Solar 250 MW	(ai) REP 2031 PPA In-State Solar 250 MW	(aj) REP 2032 PPA In-State Solar 250 MW	(ak) REP 2033 PPA In-State Solar 250 MW	(al) REP 2034 PPA In-State Solar 250 MW	(am) REP 2035 PPA In-State Solar 250 MW
	Year	$	$	$	$	$	$	$	$
24	2024	-	-	-	-	-	-	-	-
25	2025	-	-	-	-	-	-	-	-
26	2026	-	-	-	-	-	-	-	-
27	2027	-	-	-	-	-	-	-	-
28	2028	19,750,335	-	-	-	-	-	-	-
29	2029	19,600,348	33,539,096	-	-	-	-	-	-
30	2030	19,482,571	33,338,403	34,228,163	-	-	-	-	-
31	2031	19,368,227	33,143,584	34,029,004	34,937,196	-	-	-	-
32	2032	19,363,214	33,135,859	34,021,941	34,930,827	35,863,087	-	-	-
33	2033	19,220,166	32,891,921	33,772,351	34,675,453	35,601,797	36,551,965	-	-
34	2034	19,107,168	32,699,404	33,575,554	34,474,283	35,396,155	36,341,753	37,311,669	-
35	2035	19,009,383	32,532,923	33,405,491	34,300,560	35,218,694	36,160,473	37,126,489	38,117,349
36	2036	18,926,782	32,392,428	33,262,111	34,154,237	35,069,368	36,008,081	36,970,969	37,958,637
37	2037	18,846,569	32,256,022	33,122,932	34,012,229	34,924,473	35,860,242	36,820,125	37,804,727
38	2038	18,726,944	32,052,160	32,914,485	33,799,092	34,706,542	35,637,408	36,592,279	37,571,757
39	2039	18,628,777	31,885,026	32,743,751	33,624,682	34,528,376	35,455,406	36,406,358	37,381,832
40	2040	18,552,585	31,755,504	32,611,645	33,489,939	34,390,945	35,315,234	36,263,389	37,236,012
41	2041	18,503,758	31,672,827	32,527,649	33,404,606	34,304,257	35,227,171	36,173,934	37,145,144
42	2042	18,389,751	31,478,581	32,329,075	33,201,609	34,096,736	35,015,027	35,957,064	36,923,443
43	2043	18,356,975	31,423,386	32,273,312	33,145,278	34,039,840	34,957,567	35,899,042	36,864,862
44	2044	18,272,757	31,280,135	32,127,115	32,996,075	33,887,569	34,802,164	35,740,444	36,703,003
45	2045	18,125,109	31,028,302	31,869,394	32,732,329	33,617,659	34,525,947	35,457,772	36,413,727
46	TOTAL	340,231,419	548,505,561	528,813,973	507,878,393	485,645,498	461,858,438	436,719,533	410,120,494

Line No.	(ae) Generator	(an) REP 2036 PPA In-State Solar 250 MW	(ao) REP 2037 PPA In-State Solar 250 MW	(ap) REP 2038 PPA In-State Solar 187.5 MW	(aq) REP 2039 PPA In-State Solar 125 MW	(ar) REP 2040 PPA In-State Solar 62.5 MW	(as) 2029 VGP-REP PPA In-State Solar 61.5 MW	(at) 2030 VGP-REP PPA In-State Solar 58.5 MW	(au) 2031 VGP-REP PPA In-State Solar 55.5 MW	(av) 2032 VGP-REP PPA In-State Solar 52.5 MW	(aw) 2033 VGP-REP PPA In-State Solar 50 MW	(ax) 2034 VGP-REP PPA In-State Solar 47.5 MW	(ay) 2035 VGP-REP PPA In-State Solar 33 MW	(az) REPA and Program Total
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$
24	2024	-	-	-	-	-	-	-	-	-	-	-	-	100,374,968
25	2025	-	-	-	-	-	-	-	-	-	-	-	-	106,110,429
26	2026	-	-	-	-	-	-	-	-	-	-	-	-	109,534,578
27	2027	-	-	-	-	-	-	-	-	-	-	-	-	113,110,427
28	2028	-	-	-	-	-	-	-	-	-	-	-	-	138,466,583
29	2029	-	-	-	-	-	-	-	-	-	-	-	-	175,770,656
30	2030	-	-	-	-	-	-	-	-	-	-	-	-	211,941,988
31	2031	-	-	-	-	-	-	-	-	-	-	-	-	247,506,490
32	2032	-	-	-	-	-	-	-	-	-	-	-	-	277,423,317
33	2033	-	-	-	-	-	-	-	-	-	-	-	-	310,035,752
34	2034	-	-	-	-	-	-	-	-	-	-	-	-	347,693,060
35	2035	-	-	-	-	-	-	-	-	-	-	-	-	386,947,829
36	2036	38,971,706	-	-	-	-	-	-	-	-	-	-	-	427,134,558
37	2037	38,814,669	39,850,585	-	-	-	-	-	-	-	-	-	-	468,083,635
38	2038	38,576,459	39,607,017	30,498,060	-	-	-	-	-	-	-	-	-	498,871,750
39	2039	38,382,444	39,408,825	30,346,215	20,770,745	-	-	-	-	-	-	-	-	520,236,139
40	2040	38,233,716	39,257,131	30,230,176	20,691,844	10,622,042	-	-	-	-	-	-	-	531,880,982
41	2041	38,141,417	39,163,380	30,158,760	20,643,488	10,597,486	-	-	-	-	-	-	-	533,437,887
42	2042	37,914,777	38,931,692	29,981,122	20,522,425	10,535,606	-	-	-	-	-	-	-	533,390,768
43	2043	37,855,639	38,872,000	29,935,942	20,492,032	10,520,274	-	-	-	-	-	-	-	535,316,880
44	2044	37,690,452	38,703,418	29,806,906	20,404,239	10,475,476	-	-	-	-	-	-	-	532,977,041
45	2045	37,394,418	38,400,470	29,574,388	20,245,608	10,394,308	-	-	-	-	-	-	-	526,506,326
46	TOTAL	381,975,698	352,194,518	240,531,568	143,770,380	63,145,193	-	-	-	-	-	-	-	7,632,752,043

Line No.	(ba) Generator	(bb) Solar Gardens (Unsubscribed)	(bc) Solar Gardens 2026 Expansion (Unsubscribed)	(bd) Solar Gardens 2030 Expansion (Unsubscribed)	(be) Hardy Hydro Upgrade	(bf) Lake Winds Energy Park	(bg) Cross Winds Energy Park	(bh) Cross Winds Energy Park (Phase II) (unsubscribed)	(bi) Cross Winds Energy Park (Phase III) (unsubscribed)	(bj) Gratiot County Wind Farm	(bk) Crescent Wind Farm	(bl) Heartland Wind Farm
	Year	$	$	$	$	$	$	$	$	$	$	$
47	2024	32,283	-	-	-	29,590,978	26,173,266	-	-	31,739,170	27,065,718	31,002,590
48	2025	33,037	-	-	-	29,874,982	26,741,826	-	-	32,409,559	27,657,880	31,923,541
49	2026	34,047	300,959	-	-	31,001,538	27,190,176	-	-	32,945,870	28,062,111	32,846,608
50	2027	34,705	223,774	-	-	32,302,948	27,472,832	-	-	33,787,580	28,611,722	33,978,579
51	2028	35,387	137,716	-	-	34,161,392	27,960,169	-	-	34,551,078	29,260,619	35,367,505
52	2029	36,074	46,535	-	-	35,550,229	28,479,996	-	-	35,336,922	29,959,158	36,655,473
53	2030	36,840	-	342,150	-	36,304,597	29,084,294	-	-	36,085,523	30,593,870	37,432,793
54	2031	37,626	-	271,819	-	37,081,447	29,708,086	-	-	36,860,194	31,249,859	38,234,403
55	2032	38,440	-	198,879	-	37,883,275	30,348,123	-	-	37,653,487	31,923,576	39,167,320
56	2033	39,270	-	121,571	-	38,700,091	31,004,404	-	-	38,465,402	32,611,477	39,905,640
57	2034	40,116	-	82,793	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
58	2035	40,981	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
59	2036	41,863	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,814,382
60	2037	42,765	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
61	2038	43,687	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
62	2039	44,628	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
63	2040	45,590	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,814,382
64	2041	46,575	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
65	2042	726	-	-	-	27,476,990	19,168,603	-	-	19,366,779	17,020,234	25,743,851
66	2043	-	-	-	-	24,661,292	19,168,603	-	-	19,366,779	17,020,234	25,743,851
67	2044	-	-	-	-	-	19,168,603	-	-	19,366,779	17,020,234	25,814,382
68	2045	-	-	-	-	-	19,168,603	-	-	19,366,779	17,020,234	25,743,851
69	TOTAL	704,638	708,984	1,017,211	-	614,405,676	514,186,412	-	-	582,236,125	501,238,797	665,652,252

Line No.	(ba) Generator	(bm) Circuit West Solar	(bn) Sunfish (Unsubscribed)	(bo) Karn (Unsubscribed)	(bp) VGP_REP_2027_116.92 MW (Unsubscribed)	(bq) VGP_REP_2027_220 MW (Unsubscribed)	(br) Spring Creek	(bs) Muskegon	(bt) Mustang Mile	(bu) Washtenaw	(bv) Lake Winds Energy Park Repowered	(bw) VGP_REP_2027_116.92 MW	(bx) VGP_REP_2027_220 MW	(by) Karn (Subscribed)1	(bz) Sunfish (Subscribed)1
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$
47	2024	45,240	-	-	-	-	-	-	-	-	-	-	-	-	-
48	2025	46,195	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	46,959	-	-	-	-	10,742,423	36,401,654	-	-	-	-	-	-	-
50	2027	48,159	-	-	-	-	18,977,359	37,702,969	21,607,637	21,903,019	-	-	-	-	-
51	2028	49,247	-	-	-	-	19,367,324	38,477,725	22,052,208	22,353,667	-	-	-	-	-
52	2029	50,368	-	-	-	-	19,534,015	38,808,897	22,242,575	22,546,637	-	-	-	-	-
53	2030	51,435	-	-	-	-	19,846,439	39,429,600	22,598,901	22,907,834	-	-	-	-	-
54	2031	52,539	-	-	-	-	20,168,312	40,069,077	22,966,012	23,279,964	-	-	-	-	-
55	2032	53,670	-	-	-	-	20,552,864	40,833,080	23,404,524	23,724,470	-	-	-	-	-
56	2033	54,827	-	-	-	-	20,831,462	41,386,578	23,722,406	24,046,698	-	-	-	-	-
57	2034	56,011	-	-	-	-	15,199,941	27,506,834	21,965,565	17,658,151	-	-	-	-	-
58	2035	57,216	-	-	-	-	15,120,774	27,363,570	21,851,754	17,566,658	-	-	-	-	-
59	2036	-	-	-	-	-	15,082,818	27,294,881	21,797,498	17,523,042	-	-	-	-	-
60	2037	-	-	-	-	-	14,962,442	27,077,040	21,624,131	17,383,672	-	-	-	-	-
61	2038	-	-	-	-	-	14,883,275	26,933,775	21,510,320	17,292,179	-	-	-	-	-
62	2039	-	-	-	-	-	14,804,109	26,790,511	21,396,509	17,200,686	-	-	-	-	-
63	2040	-	-	-	-	-	14,765,285	26,720,252	21,341,006	17,156,068	-	-	-	-	-
64	2041	-	-	-	-	-	14,645,776	26,503,981	21,168,886	17,017,700	-	-	-	-	-
65	2042	-	-	-	-	-	14,566,610	26,360,716	21,055,075	16,926,207	-	-	-	-	-
66	2043	-	-	-	-	-	14,487,444	26,217,452	20,941,264	16,834,714	3,187,075	-	-	-	-
67	2044	-	-	-	-	-	14,447,752	26,145,623	20,884,514	16,789,093	19,122,451	-	-	-	-
68	2045	-	-	-	-	-	14,329,111	25,930,922	20,713,641	16,651,728	19,070,204	-	-	-	-
69	TOTAL	611,864	-	-	-	-	327,315,535	633,955,139	414,844,427	366,762,189	41,379,731	-	-	-	-

Line No.	(ca) Generator	(cb) IRP 2025 Owned In-State Solar 300 MW	(cc) REP 2028 Owned In-State Solar 150 MW	(cd) REP 2029 Owned In-State Solar 250 MW	(ce) REP 2030 Owned In-State Solar 250 MW	(cf) REP 2031 Owned In-State Solar 250 MW	(cg) REP 2032 Owned In-State Solar 250 MW	(ch) REP 2033 Owned In-State Solar 250 MW	(ci) REP 2034 Owned In-State Solar 250 MW	(cj) REP 2035 Owned In-State Solar 250 MW	(ck) REP 2036 Owned In-State Solar 250 MW	(cl) REP 2037 Owned In-State Solar 250 MW	(cm) REP 2038 Owned In-State Solar 187.5 MW
	Year	$	$	$	$	$	$	$	$	$	$	$	$
70	2024	-	-	-	-	-	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-	-	-	-
74	2028	25,160,667	21,275,592	-	-	-	-	-	-	-	-	-	-
75	2029	42,924,977	21,462,488	35,950,567	-	-	-	-	-	-	-	-	-
76	2030	43,570,623	21,785,311	36,492,230	36,675,608	-	-	-	-	-	-	-	-
77	2031	44,243,124	22,121,562	37,056,424	37,243,577	37,430,731	-	-	-	-	-	-	-
78	2032	45,183,600	22,591,800	37,845,107	38,037,214	38,229,321	38,421,428	-	-	-	-	-	-
79	2033	45,818,468	22,909,234	38,377,862	38,573,667	38,769,473	38,965,278	39,161,083	-	-	-	-	-
80	2034	41,538,983	20,769,492	35,544,253	36,496,628	37,473,545	38,475,621	39,503,485	39,974,044	-	-	-	-
81	2035	41,326,399	20,663,199	35,363,287	36,311,768	37,284,708	38,282,721	39,306,434	40,356,494	40,838,382	-	-	-
82	2036	41,146,824	20,573,412	35,210,569	36,155,915	37,125,655	38,120,403	39,140,784	40,187,443	41,261,038	41,756,603	-	-
83	2037	40,972,442	20,486,221	35,062,296	36,004,627	36,971,292	37,962,902	38,980,083	40,023,476	41,093,739	42,191,545	42,697,346	-
84	2038	40,712,375	20,356,188	34,840,698	35,778,045	36,739,613	37,726,011	38,737,863	39,775,808	40,840,500	41,932,611	43,052,828	32,676,715
85	2039	40,498,960	20,249,480	34,659,023	35,592,457	36,550,029	37,532,345	38,540,026	39,573,711	40,634,052	41,721,717	42,837,393	32,986,335
86	2040	40,333,319	20,166,660	34,518,233	35,448,858	36,403,564	37,382,957	38,387,659	39,418,304	40,475,545	41,560,050	42,672,502	32,860,201
87	2041	40,227,170	20,113,585	34,428,363	35,357,554	36,310,807	37,288,727	38,291,935	39,321,066	40,376,772	41,459,720	42,570,594	32,782,572
88	2042	39,979,318	19,989,659	34,217,218	35,141,705	36,090,149	37,063,152	38,061,335	39,085,328	40,135,783	41,213,362	42,318,749	32,589,480
89	2043	39,908,065	19,954,032	34,157,221	35,081,090	36,028,917	37,001,306	37,998,875	39,022,258	40,072,105	41,149,079	42,253,864	32,540,369
90	2044	39,724,973	19,862,487	34,001,507	34,922,174	35,866,733	36,835,787	37,829,953	38,849,862	39,896,164	40,969,522	42,070,615	32,400,107
91	2045	39,403,988	19,701,994	33,727,764	34,642,031	35,580,042	36,542,395	37,529,704	38,542,598	39,581,721	40,647,733	41,741,310	32,147,360
92	TOTAL	732,674,274	375,032,396	601,452,621	577,462,919	552,854,580	527,601,033	501,469,219	474,130,393	445,205,800	414,601,942	382,215,201	260,983,139

Line No.	(ca) Generator	(cn) REP 2039 Owned In-State Solar 125 MW	(co) REP 2040 Owned In-State Solar 62.5 MW	(cp) REP 2028 Owned In-State Wind 100 MW	(cq) REP 2029 Owned In-State Wind 200 MW	(cr) REP 2030 Owned In-State Wind 200 MW	(cs) REP 2032 Owned In-State Wind 1500 MW	(ct) REP 2035 Owned In-State Wind 800 MW	(cu) 2029 VGP-REP CE In-State Solar 61.5 MW	(cv) 2030 VGP-REP CE In-State Solar 58.5 MW	(cw) 2031 VGP-REP CE In State Solar 55.5 MW	(cx) 2032 VGP-REP CE In-State Solar 52.5 MW	(cy) 2033 VGP-REP CE In-State Solar 50	(cz) 2034 VGP-REP CE In-State Solar 47.5 MW	(da) 2035 VGP-REP CE In-State Solar 33 MW	(db) Owned Total	(dc) GRAND TOTAL
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
70	2024	-	-	-	-	-	-	-	-	0	-	-	-	-	-	145,649,245	246,024,213
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148,687,020	254,797,448
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	199,572,345	309,106,923
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	256,651,284	369,761,711
74	2028	-	-	17,769,020	-	-	-	-	-	-	-	-	-	-	-	327,979,316	466,445,899
75	2029	-	-	18,012,992	36,025,985	-	-	-	-	-	-	-	-	-	-	423,623,888	599,394,544
76	2030	-	-	18,399,268	36,798,536	36,798,536	-	-	-	-	-	-	-	-	-	505,234,387	717,176,375
77	2031	-	-	18,792,807	37,585,614	37,585,614	-	-	-	-	-	-	-	-	-	552,038,790	799,545,280
78	2032	-	-	19,256,458	38,512,916	38,512,916	288,846,872	-	-	-	-	-	-	-	-	891,219,341	1,168,642,658
79	2033	-	-	19,592,238	39,184,476	39,184,476	293,883,568	-	-	-	-	-	-	-	-	945,309,649	1,255,345,401
80	2034	-	-	14,089,167	28,785,727	29,406,212	230,156,969	-	-	-	-	-	-	-	-	783,499,991	1,131,193,050
81	2035	-	-	14,100,001	28,807,862	29,428,825	230,333,955	130,961,115	-	-	-	-	-	-	-	954,142,559	1,341,090,388
82	2036	-	-	14,152,538	28,915,202	29,538,478	231,192,191	131,449,083	-	-	-	-	-	-	-	996,513,230	1,423,647,788
83	2037	-	-	14,099,237	28,806,302	29,427,231	230,321,481	130,954,022	-	-	-	-	-	-	-	1,035,920,748	1,504,004,383
84	2038	-	-	14,090,555	28,788,563	29,409,110	230,179,648	130,873,381	-	-	-	-	-	-	-	1,065,950,203	1,564,821,953
85	2039	22,254,771	-	14,089,001	28,785,387	29,405,866	230,154,256	130,858,943	-	-	-	-	-	-	-	1,085,936,652	1,606,172,790
86	2040	22,492,034	11,379,834	14,145,622	28,901,070	29,524,042	231,079,204	131,384,842	-	-	-	-	-	-	-	1,097,409,689	1,629,290,672
87	2041	22,439,471	11,519,467	14,096,759	28,801,239	29,422,059	230,280,999	130,931,006	-	-	-	-	-	-	-	1,094,179,240	1,627,617,127
88	2042	22,307,876	11,452,204	14,096,197	28,800,090	29,420,885	230,271,815	130,925,784	-	-	-	-	-	-	-	1,090,845,878	1,624,236,647
89	2043	22,274,838	11,435,538	14,092,312	28,792,152	29,412,776	230,208,344	130,889,696	-	-	-	-	-	-	-	1,089,901,546	1,625,218,426
90	2044	22,179,408	11,386,842	14,127,696	28,864,446	29,486,628	230,786,369	131,218,344	-	-	-	-	-	-	-	1,080,039,048	1,613,016,088
91	2045	22,006,976	11,298,613	14,082,241	28,771,577	29,391,757	230,043,832	130,796,160	-	-	-	-	-	-	-	1,074,174,868	1,600,681,195
92	TOTAL	155,955,375	68,472,499	281,084,110	533,927,143	505,355,411	3,347,739,505	1,441,242,375	-	-	-	-	-	-	-	16,844,478,916	24,477,230,958

EARP - Experimental Advanced Renewable Program

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-28 (ZSC-5)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Energy Plan Transfer Price Limits

	(a)	(b)	©	(d)	€	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
Line No.	Generator	Apple Blossom	Beebe Renewable Energy	Elk Rapids Hydro.	Fremont Community Digester	Harvest II Windfarm	Heritage Garden Windfarm I (Wind)	Heritage Garden Windfarm I (solar)	Heritage Stoney Corners Windfarm I (HSC Phase 2)	Heritage Stoney Corners Windfarm I (HSC Phase 3)	Michigan Wind 2	North American Natural Resources (Lennon)	Scenic View Diary (Fennville)	Scenic View Diary (Freeport)
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$
1	2024	10.765.718	19.334.624	-	2.079.018	18.121.821	6.143.885	531.391	3.350.437	2.308.937	27.155.858	832.908	-	-
2	2025	10.765.718	20.240.723	-	2.077.981	18.973.114	6.375.942	512.363	3.489.383	2.398.939	28.366.682	936.913	-	-
3	2026	10.765.718	21.013.142	-	2.108.520	19.697.159	6.571.589	523.444	3.601.708	2.472.551	29.449.201	938.398	-	-
4	2027	10.765.718	21.826.410	-	2.139.669	20.459.495	6.777.583	535.110	3.719.974	2.550.056	30.588.969	927.625	-	-
5	2028	10.765.718	23.187.428	-	2.171.441	21.735.277	7.122.318	554.634	3.917.894	2.679.762	32.496.388	907.709	-	-
6	2029	10.765.718	24.123.243	-	2.203.849	22.612.485	7.359.352	568.059	4.053.981	2.768.946	33.807.902	822.990	-	-
7	2030	10.765.718	24.626.430	-	2.236.905	23.084.159	7.486.805	575.277	4.127.154	2.816.900	34.513.100	830.805	-	-
8	2031	10.765.718	25.146.327	-	2.270.621	23.571.497	7.618.491	582.735	4.202.758	2.866.446	35.241.719	-	-	-
9	2032	10.765.718	25.296.726	-	2.305.013	23.712.477	7.656.585	495.299	3.678.662	2.880.779	35.452.498	-	-	-
10	2033	10.765.718	25.539.964	-	36.490	23.940.481	7.718.196	-	3.714.034	2.433.975	35.793.387	-	-	-
11	2034	10.765.718	25.887.181	-	-	24.265.953	6.557.009	-	3.764.526	2.467.066	36.280.000	-	-	-
12	2035	10.765.718	26.444.214	-	-	24.788.101	6.698.101	-	3.845.530	2.520.151	37.060.663	-	-	-
13	2036	10.765.718	27.014.245	-	-	25.322.433	6.842.485	-	3.928.425	2.574.475	37.859.541	-	-	-
14	2037	10.765.718	27.597.272	-	-	25.868.948	6.990.161	-	4.013.209	2.630.038	38.676.635	-	-	-
15	2038	10.765.718	28.191.441	-	-	26.425.905	7.140.659	-	4.099.613	2.686.663	39.509.342	-	-	-
16	2039	10.765.718	28.800.464	-	-	26.996.787	7.294.920	-	4.188.177	2.744.703	40.362.866	-	-	-
17	2040	10.765.718	29.420.627	-	-	27.578.112	7.452.002	-	4.278.362	2.803.805	41.232.004	-	-	-
18	2041	10.765.718	30.053.788	-	-	28.171.620	7.612.377	-	4.370.436	2.864.146	42.119.358	-	-	-
19	2042	10.765.718	30.701.803	-	-	28.779.052	7.776.514	-	4.464.671	2.925.902	43.027.529	-	-	-
20	2043	10.765.718	31.364.672	-	-	29.400.408	7.944.413	-	4.561.066	2.989.074	43.956.517	-	-	-
21	2044	10.765.718	32.040.539	-	-	30.033.947	8.115.604	-	4.659.351	3.053.485	44.903.721	-	-	-
22	2045	10.765.718	32.729.403	-	-	30.679.670	8.290.088	-	4.759.526	3.119.134	45.869.141	-	-	-
23	TOTAL	236.845.792	580.580.668	-	19.629.506	544.218.900	159.545.079	4.878.313	88.788.878	59.555.934	813.723.023	6.197.347	-	-

	(a)	(o)	(p)	(q)	®	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)
Line No.	Generator	WMRenewable Energy (Northern Oaks)	WMRenewable Energy (Pine Tree Acres)	Zeeland Farm Services (Plant 2)	EARP- 1-4	EARP-5	EARP-6	EARP-7	EARP-8	EARP-9	EARP-10	EARP-11	EARP-Anaerobic Digester	River Fork Solar	Solar Gardens (Subscribed)	Solar Gardens 2026 Expansion (Subscribed)
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
1	2024	469.169	7.918.576	-	-	94.590	125.485	80.291	108.866	167.758	57.157	26.451	-	#######	202.888	-
2	2025	525.000	8.142.162	-	-	94.590	125.485	80.291	108.866	167.758	57.157	26.451	-	#######	274.702	-
3	2026	523.785	8.410.417	-	-	94.590	125.485	80.291	108.866	167.758	57.157	26.451	-	#######	266.799	29.785
4	2027	518.127	8.692.859	-	-	85.877	112.677	71.492	98.055	149.930	52.094	23.909	-	#######	259.826	90.501
5	2028	505.865	9.165.530	-	-	-	-	-	-	-	-	-	-	#######	248.800	144.283
6	2029	454.608	9.490.532	-	-	-	-	-	-	-	-	-	-	#######	211.669	159.938
7	2030	405.494	9.665.285	-	-	-	-	-	-	-	-	-	-	#######	216.551	187.465
8	2031	-	9.845.842	-	-	-	-	-	-	-	-	-	-	#######	220.232	189.908
9	2032	-	2.339.426	-	-	-	-	-	-	-	-	-	-	#######	225.335	193.582
10	2033	-	-	-	-	-	-	-	-	-	-	-	-	#######	233.204	198.910
11	2034	-	-	-	-	-	-	-	-	-	-	-	-	#######	238.200	202.059
12	2035	-	-	-	-	-	-	-	-	-	-	-	-	#######	242.297	206.387
13	2036	-	-	-	-	-	-	-	-	-	-	-	-	#######	246.523	211.440
14	2037	-	-	-	-	-	-	-	-	-	-	-	-	#######	254.104	215.671
15	2038	-	-	-	-	-	-	-	-	-	-	-	-	#######	261.753	220.031
16	2039	-	-	-	-	-	-	-	-	-	-	-	-	#######	271.109	227.103
17	2040	-	-	-	-	-	-	-	-	-	-	-	-	#######	282.490	235.327
18	2041	-	-	-	-	-	-	-	-	-	-	-	-	#######	288.140	238.325
19	2042	-	-	-	-	-	-	-	-	-	-	-	-	#######	6.773	241.791
20	2043	-	-	-	-	-	-	-	-	-	-	-	-	#######	-	245.576
21	2044	-	-	-	-	-	-	-	-	-	-	-	-	#######	-	249.623
22	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	252.585
23	TOTAL	3.402.049	73.670.628	-	-	369.647	489.132	312.366	424.652	653.205	223.565	103.261	-	#######	4.451.395	3.940.291

	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)
Line No.	Generator	REP 2028 PPA In-State Solar 150 MW	REP 2029 PPA In-State Solar 250 MW	REP 2030 PPA In-State Solar 250 MW	REP 2031 PPA In-State Solar 250 MW	REP 2032 PPA In-State Solar 250 MW	REP 2033 PPA In-State Solar 250 MW	REP 2034 PPA In-State Solar 250 MW	REP 2035 PPA In-State Solar 25 MW	REP 2036 PPA In-State Solar 250 MW
	Year	$	$	$	$	$	$	$	$	$
24	2024	-	-	-	-	-	-	-	-	-
25	2025	-	-	-	-	-	-	-	-	-
26	2026	-	-	-	-	-	-	-	-	-
27	2027	-	-	-	-	-	-	-	-	-
28	2028	19.750.335	-	-	-	-	-	-	-	-
29	2029	19.600.348	33.539.096	-	-	-	-	-	-	-
30	2030	19.482.571	33.338.403	34.228.163	-	-	-	-	-	-
31	2031	19.368.227	33.143.584	34.029.004	34.937.196	-	-	-	-	-
32	2032	19.363.214	33.135.859	34.021.941	34.930.827	35.863.087	-	-	-	-
33	2033	19.220.166	32.891.921	33.772.351	34.675.453	35.601.797	36.551.965	-	-	-
34	2034	19.107.168	32.699.404	33.575.554	34.474.283	35.396.155	36.341.753	37.311.669	-	-
35	2035	19.009.383	32.532.923	33.405.491	34.300.560	35.218.694	36.160.473	37.126.489	38.117.349	-
36	2036	18.926.782	32.392.428	33.262.111	34.154.237	35.069.368	36.008.081	36.970.969	37.958.637	38.971.706
37	2037	18.846.569	32.256.022	33.122.932	34.012.229	34.924.473	35.860.242	36.820.125	37.804.727	38.814.669
38	2038	18.726.944	32.052.160	32.914.485	33.799.092	34.706.542	35.637.408	36.592.279	37.571.757	38.576.459
39	2039	18.628.777	31.885.026	32.743.751	33.624.682	34.528.376	35.455.406	36.406.358	37.381.832	38.382.444
40	2040	18.552.585	31.755.504	32.611.645	33.489.939	34.390.945	35.315.234	36.263.389	37.236.012	38.233.716
41	2041	18.503.758	31.672.827	32.527.649	33.404.606	34.304.257	35.227.171	36.173.934	37.145.144	38.141.417
42	2042	18.389.751	31.478.581	32.329.075	33.201.609	34.096.736	35.015.027	35.957.064	36.923.443	37.914.777
43	2043	18.356.975	31.423.386	32.273.312	33.145.278	34.039.840	34.957.567	35.899.042	36.864.862	37.855.639
44	2044	18.272.757	31.280.135	32.127.115	32.996.075	33.887.569	34.802.164	35.740.444	36.703.003	37.690.452
45	2045	18.125.109	31.028.302	31.869.394	32.732.329	33.617.659	34.525.947	35.457.772	36.413.727	37.394.418
46	TOTAL	340.231.419	548.505.561	528.813.973	507.878.393	485.645.498	461.858.438	436.719.533	410.120.494	381.975.698

	(ae)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)
Line No.	Generator	REP 2037 PPA In-State Solar 250 MW	REP 2038 PPA In-State Solar 187.5 MW	REP 2039 PPA In-State Solar 125 MW	REP 2040 PPA In-State Solar 62.5 MW	2029 VGP-REP PPA In-State Solar 61.5 MW	2030 VGP-REP PPA In-State Solar 58.5 MW	2031 VGP-REP PPA In-State Solar 55.5 MW	2032 VGP-REP PPA In-State Solar 52.5 MW	2033 VGP-REP PPA In-State Solar 50 MW	2034 VGP-REP PPA In-State Solar 47.5 MW	2035 VGP-REP PPA In-State Solar 33 MW	REPA and Program Total
	Year	$	$	$	$	$	$	$	$	$	$	$	$
24	2024	-	-	-	-	-	-	-	-	-	-	-	102.241.490
25	2025	-	-	-	-	-	-	-	-	-	-	-	110.900.621
26	2026	-	-	-	-	-	-	-	-	-	-	-	114.300.693
27	2027	-	-	-	-	-	-	-	-	-	-	-	117.821.655
28	2028	-	-	-	-	-	-	-	-	-	-	-	142.857.718
29	2029	-	-	-	-	7.915.227	-	-	-	-	-	-	180.138.499
30	2030	-	-	-	-	7.867.863	7.598.652	-	-	-	-	-	216.312.937
31	2031	-	-	-	-	7.821.886	7.554.439	7.336.811	-	-	-	-	251.880.212
32	2032	-	-	-	-	7.820.063	7.552.871	7.335.474	7.100.891	-	-	-	280.373.835
33	2033	-	-	-	-	7.762.493	7.497.462	7.281.845	7.049.156	6.871.769	-	-	311.284.885
34	2034	-	-	-	-	7.717.059	7.453.773	7.239.599	7.008.439	6.832.250	6.641.477	-	347.693.060
35	2035	-	-	-	-	7.677.770	7.416.019	7.203.118	6.973.301	6.798.169	6.608.515	4.574.082	386.947.829
36	2036	-	-	-	-	7.644.613	7.384.189	7.172.390	6.943.735	6.769.519	6.580.832	4.555.036	427.134.558
37	2037	39.850.585	-	-	-	7.612.421	7.353.291	7.142.568	6.915.046	6.741.725	6.553.982	4.536.567	468.083.635
38	2038	39.607.017	30.498.060	-	-	7.564.310	7.307.016	7.097.809	6.871.895	6.699.833	6.513.426	4.508.611	498.871.750
39	2039	39.408.825	30.346.215	20.770.745	-	7.524.866	7.269.113	7.061.183	6.836.618	6.665.616	6.480.332	4.485.820	520.236.139
40	2040	39.257.131	30.230.176	20.691.844	10.622.042	7.494.299	7.239.785	7.032.887	6.809.407	6.639.264	6.454.883	4.468.321	531.880.982
41	2041	39.163.380	30.158.760	20.643.488	10.597.486	7.474.787	7.221.138	7.014.967	6.792.243	6.622.708	6.438.960	4.457.417	533.437.887
42	2042	38.931.692	29.981.122	20.522.425	10.535.606	7.428.945	7.177.055	6.972.338	6.751.154	6.582.825	6.400.357	4.430.813	533.390.768
43	2043	38.872.000	29.935.942	20.492.032	10.520.274	7.415.919	7.164.675	6.960.508	6.739.888	6.572.023	6.390.029	4.423.783	535.316.880
44	2044	38.703.418	29.806.906	20.404.239	10.475.476	7.382.112	7.132.219	6.929.176	6.709.739	6.542.807	6.361.799	4.404.360	532.977.041
45	2045	38.400.470	29.574.388	20.245.608	10.394.308	7.322.679	7.075.005	6.873.789	6.656.296	6.490.878	6.311.483	4.369.647	526.506.326
46	TOTAL	352.194.518	240.531.568	143.770.380	63.145.193	129.447.312	117.396.702	106.654.463	96.157.809	86.829.386	77.736.077	49.214.459	7.670.589.399

	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)
Line No.	Generator	Solar Gardens (Unsubscribed)	Solar Gardens 2026 Expansion (Unsubscribed)	Solar Gardens 2030 Expansion (Unsubscribed)	Hardy Hydro Upgrade	Lake Winds Energy Park	Cross Winds Energy Park	Cross Winds Energy Park (Phase II) (unsubscribed)	Cross Winds Energy Park (Phase III) (unsubscribed)	Gratiot County Wind Farm	Crescent Wind Farm	Heartland Wind Farm	Circuit West Solar
	Year	$	$	$	$	$	$	$	$	$	$	$	$
47	2024	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.814.382	257.996
48	2025	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
49	2026	65.835	450.610	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
50	2027	65.835	321.864	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
51	2028	65.835	193.648	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.814.382	257.996
52	2029	65.835	64.373	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
53	2030	65.835	-	463.485	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
54	2031	65.835	-	360.488	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
55	2032	65.835	-	258.197	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.814.382	257.996
56	2033	65.835	-	154.495	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
57	2034	65.835	-	51.498	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
58	2035	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	257.996
59	2036	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.814.382	-
60	2037	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
61	2038	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
62	2039	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
63	2040	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.814.382	-
64	2041	65.835	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
65	2042	1.004	-	-	-	27.476.990	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
66	2043	-	-	-	-	24.661.292	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
67	2044	-	-	-	-	-	19.168.603	-	-	19.366.779	17.020.234	25.814.382	-
68	2045	-	-	-	-	-	19.168.603	-	-	19.366.779	17.020.234	25.743.851	-
69	TOTAL	1.186.036	1.030.495	1.288.163	-	546.724.096	421.709.273	-	-	426.069.127	374.445.146	566.787.899	3.095.950

	(ba)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)
Line No.	Generator	Sunfish (Unsubscribed)	Karn (Unsubscribed)	VGP_REP_2027_116.92 MW (Unsubscribed)	VGP_REP_2027_220 MW (Unsubscribed)	Spring Creek	Muskegon	Mustang Mile	Washtenaw	Lake Winds Energy Park Repowered	VGP_REP_2027_116.92 MW	VGP_REP_2027_220 MW	Karn (Subscribed)1	Sunfish (Subscribed)1
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$
47	2024	-	-	-	-	-	-	-	-	-	-	-	-	-
48	2025	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	-	-	-	-	9.283.069	28.652.953	-	-	-	-	-	-	22.662.975
50	2027	-	-	-	-	15.754.105	28.509.688	22.762.243	18.298.602	-	-	-	#######	29.929.549
51	2028	-	-	-	-	15.717.884	28.444.139	22.710.483	18.256.992	-	13.961.895	25.920.847	#######	29.860.736
52	2029	-	-	-	-	15.595.773	28.223.158	22.534.621	18.115.616	-	13.854.129	25.720.775	#######	29.628.750
53	2030	-	-	-	-	15.516.606	28.079.894	22.420.810	18.024.123	-	13.784.510	25.591.525	#######	29.478.350
54	2031	-	-	-	-	15.437.440	27.936.629	22.306.998	17.932.630	-	13.714.892	25.462.275	#######	29.327.950
55	2032	-	-	-	-	15.400.351	27.869.510	22.253.990	17.890.017	-	13.682.657	25.402.430	#######	29.257.489
56	2033	-	-	-	-	15.279.107	27.650.099	22.079.376	17.749.644	-	13.575.654	25.203.774	#######	29.027.151
57	2034	-	-	-	-	15.199.941	27.506.834	21.965.565	17.658.151	-	13.506.035	25.074.524	#######	28.876.751
58	2035	-	-	-	-	15.120.774	27.363.570	21.851.754	17.566.658	-	13.436.417	24.945.274	#######	28.726.351
59	2036	-	-	-	-	15.082.818	27.294.881	21.797.498	17.523.042	-	13.403.419	24.884.013	#######	28.654.242
60	2037	-	-	-	-	14.962.442	27.077.040	21.624.131	17.383.672	-	13.297.179	24.686.774	#######	28.425.552
61	2038	-	-	-	-	14.883.275	26.933.775	21.510.320	17.292.179	-	13.227.561	24.557.524	#######	28.275.152
62	2039	-	-	-	-	14.804.109	26.790.511	21.396.509	17.200.686	-	13.157.942	24.428.274	#######	28.124.752
63	2040	-	-	-	-	14.765.285	26.720.252	21.341.006	17.156.068	-	13.124.181	24.365.596	#######	28.050.995
64	2041	-	-	-	-	14.645.776	26.503.981	21.168.886	17.017.700	-	13.018.704	24.169.773	#######	27.823.953
65	2042	-	-	-	-	14.566.610	26.360.716	21.055.075	16.926.207	-	12.949.086	24.040.523	#######	27.673.553
66	2043	-	-	-	-	14.487.444	26.217.452	20.941.264	16.834.714	3.187.075	12.879.467	23.911.273	#######	27.523.153
67	2044	-	-	-	-	14.447.752	26.145.623	20.884.514	16.789.093	19.122.451	12.844.944	23.847.179	#######	27.447.747
68	2045	-	-	-	-	14.329.111	25.930.922	20.713.641	16.651.728	19.070.204	12.740.229	23.652.773	#######	27.222.354
69	TOTAL	-	-	-	-	295.279.671	546.211.628	413.318.685	332.267.526	41.379.731	240.158.902	445.865.127	#######	565.997.506

	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)
Line No.	Generator	IRP 2025 Owned In-State Solar 300 MW	REP 2028 Owned In-State Solar 150 MW	REP 2029 Owned In-State Solar 250 MW	REP 2030 Owned In-State Solar 250 MW	REP 2031 Owned In-State Solar 250 MW	REP 2032 Owned In-State Solar 250 MW	REP 2033 Owned In-State Solar 250 MW	REP 2034 Owned In-State Solar 250 MW	REP 2035 Owned In-State Solar 250 MW	REP 2036 Owned In-State Solar 250 MW	REP 2037 Owned In-State Solar 250 MW	REP 2038 Owned In-State Solar 187.5 MW	REP 2039 Owned In-State Solar 125 MW
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$
70	2024	-	-	-	-	-	-	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-
74	2028	25.388.936	21.468.614	-	-	-	-	-	-	-	-	-	-	-
75	2029	42.611.157	21.305.579	36.456.997	-	-	-	-	-	-	-	-	-	-
76	2030	42.355.109	21.177.554	36.238.844	37.206.014	-	-	-	-	-	-	-	-	-
77	2031	42.106.525	21.053.262	36.027.075	36.989.528	37.976.732	-	-	-	-	-	-	-	-
78	2032	42.095.627	21.047.813	36.018.679	36.981.850	37.969.809	38.983.176	-	-	-	-	-	-	-
79	2033	41.784.642	20.892.321	35.753.519	36.710.545	37.692.217	38.699.153	39.731.986	-	-	-	-	-	-
80	2034	41.538.983	20.769.492	35.544.253	36.496.628	37.473.545	38.475.621	39.503.485	40.557.784	-	-	-	-	-
81	2035	41.326.399	20.663.199	35.363.287	36.311.768	37.284.708	38.282.721	39.306.434	40.356.494	41.433.559	-	-	-	-
82	2036	41.146.824	20.573.412	35.210.569	36.155.915	37.125.655	38.120.403	39.140.784	40.187.443	41.261.038	42.362.245	-	-	-
83	2037	40.972.442	20.486.221	35.062.296	36.004.627	36.971.292	37.962.902	38.980.083	40.023.476	41.093.739	42.191.545	43.317.585	-	-
84	2038	40.712.375	20.356.188	34.840.698	35.778.045	36.739.613	37.726.011	38.737.863	39.775.808	40.840.500	41.932.611	43.052.828	33.151.391	-
85	2039	40.498.960	20.249.480	34.659.023	35.592.457	36.550.029	37.532.345	38.540.026	39.573.711	40.634.052	41.721.717	42.837.393	32.986.335	22.577.800
86	2040	40.333.319	20.166.660	34.518.233	35.448.858	36.403.564	37.382.957	38.387.659	39.418.304	40.475.545	41.560.050	42.672.502	32.860.201	22.492.034
87	2041	40.227.170	20.113.585	34.428.363	35.357.554	36.310.807	37.288.727	38.291.935	39.321.066	40.376.772	41.459.720	42.570.594	32.782.572	22.439.471
88	2042	39.979.318	19.989.659	34.217.218	35.141.705	36.090.149	37.063.152	38.061.335	39.085.328	40.135.783	41.213.362	42.318.749	32.589.480	22.307.876
89	2043	39.908.065	19.954.032	34.157.221	35.081.090	36.028.917	37.001.306	37.998.875	39.022.258	40.072.105	41.149.079	42.253.864	32.540.369	22.274.838
90	2044	39.724.973	19.862.487	34.001.507	34.922.174	35.865.733	36.835.787	37.829.953	38.849.862	39.896.164	40.969.522	42.070.615	32.400.107	22.179.408
91	2045	39.403.988	19.701.994	33.727.764	34.642.031	35.580.042	36.542.395	37.529.704	38.542.598	39.581.721	40.647.733	41.741.310	32.147.360	22.006.976
92	TOTAL	722.114.812	369.831.552	596.225.545	574.820.788	552.063.813	527.896.656	502.040.122	474.714.133	445.800.977	415.207.584	382.835.441	261.457.815	156.278.403

	(ca)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)
Line No.	Generator	REP 2040 Owned In-State Solar 62.5 MW	REP 2028 Owned In-State Wind 100 MW	REP 2029 Owned In-State Wind 200 MW	REP 2030 Owned In-State Wind 200 MW	REP 2032 Owned In-State Wind 1500 MW	REP 2035 Owned In-State Wind 800 MW	2029 VGP-REP CE In-State Solar 61.5 MW	2030 VGP-REP CE In-State Solar 58.5 MW	2031 VGP-REP CE In-State Solar 55.5 MW	2032 VGP-REP CE In-State Solar 52.5 MW	2033 VGP REP CE In-State Solar 50 MW	2034 VGP-REP CE In-State Solar 47.5 MW	2035 VGP REP CE In-State Solar 33 MW	Owned Total	GRAND TOTAL
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
70	2024	-	-	-	-	-	-	-	0	-	-	-	-	-	109.170.818	211.412.308.1
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	109.100.287	220.000.907
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	147.486.918	261.787.611
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	194.746.790	312.568.445
74	2028	-	14.138.582	-	-	-	-	-	-	-	-	-	-	-	255.490.096	398.347.814
75	2029	-	14.100.001	28.807.862	-	-	-	8.968.421	-	-	-	-	-	-	336.915.424	517.053.923
76	2030	-	14.103.685	28.815.389	29.436.514	-	-	8.914.756	8.706.207	-	-	-	-	-	402.938.312	619.251.249
77	2031	-	14.103.123	28.814.240	29.435.340	-	-	8.862.661	8.655.549	8.430.835	-	-	-	-	439.580.298	691.460.510
78	2032	-	14.146.617	28.903.103	29.526.119	231.095.455	-	8.860.595	8.653.753	8.429.298	8.186.467	-	-	-	709.611.130	989.984.965
79	2033	-	14.089.001	28.785.387	29.405.866	230.154.256	-	8.795.366	8.590.268	8.367.672	8.126.822	#######	-	-	745.711.901	1.056.996.786
80	2034	-	14.089.167	28.785.727	29.406.212	230.156.969	-	8.743.886	8.540.211	8.319.127	8.079.880	#######	7.705.979	-	784.280.142	1.131.973.201
81	2035	-	14.100.001	28.807.862	29.428.825	230.333.955	130.961.115	8.699.369	8.496.954	8.277.205	8.039.371	#######	7.667.734	#######	954.963.369	1.341.911.199
82	2036	-	14.152.538	28.915.202	29.538.478	231.192.191	131.449.083	8.661.800	8.460.484	8.241.895	8.005.285	#######	7.635.614	#######	997.142.843	1.424.277.401
83	2037	-	14.099.237	28.806.302	29.427.231	230.321.481	130.954.022	8.625.325	8.425.083	8.207.627	7.972.209	#######	7.604.460	#######	1.036.564.058	1.504.647.692
84	2038	-	14.090.555	28.788.563	29.409.110	230.179.648	130.873.381	8.570.812	8.372.062	8.156.194	7.922.462	#######	7.557.403	#######	1.066.447.027	1.565.318.777
85	2039	-	14.089.001	28.785.387	29.405.866	230.154.256	130.858.943	8.526.120	8.328.635	8.114.106	7.881.792	#######	7.519.005	#######	1.086.280.887	1.606.517.026
86	2040	11.546.160	14.145.622	28.901.070	29.524.042	231.079.204	131.384.842	8.491.485	8.295.033	8.081.591	7.850.421	#######	7.489.478	#######	1.097.596.260	1.629.477.243
87	2041	11.519.467	14.096.759	28.801.239	29.422.059	230.280.999	130.931.006	8.469.377	8.273.668	8.060.999	7.830.633	#######	7.471.003	#######	1.094.198.500	1.627.636.387
88	2042	11.452.204	14.096.197	28.800.090	29.420.885	230.271.815	130.925.784	8.417.436	8.223.159	8.012.013	7.783.262	#######	7.426.212	#######	1.090.846.157	1.624.236.925
89	2043	11.435.538	14.092.312	28.792.152	29.412.776	230.208.344	130.889.696	8.402.676	8.208.975	7.998.420	7.770.274	#######	7.414.229	#######	1.089.901.546	1.625.218.426
90	2044	11.386.842	14.127.696	28.864.446	29.486.628	230.786.369	131.218.344	8.364.371	8.171.789	7.962.415	7.735.515	#######	7.381.474	#######	1.080.039.048	1.613.016.088
91	2045	11.298.613	14.082.241	28.771.577	29.391.757	230.043.832	130.796.160	8.297.030	8.106.235	7.898.769	7.673.903	#######	7.323.094	#######	1.074.174.868	1.600.681.195
92	TOTAL	68.638.825	253.942.335	489.945.598	471.077.708	3.226.258.775	1.441.242.375	146.671.484	134.508.064	122.558.166	110.858.298	#######	90.195.685	#######	###########	23.573.776.079

EARP - Experimental Advanced Renewable Program

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

CASE NO.: U-21816
EXHIBIT: A-29 (ZSC-6)
PAGE: 1 of 1
WITNESS: ZSCole
DATE: November 2024

Renewable Energy Plan Projected FCM

	(a)	(b)	©	(d)	€	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	®	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)
Line No.	Generator	Apple Blossom	Beebe Renewable Energy	Elk Rapids Hydro.	Fremont Community Digester	Harvest II Windfarm	Heritage Garden Windfarm I (Wind)	Heritage Garden Windfarm I (solar)	Heritage Stoney Corners Windfarm I (HSC Phase 2)	Heritage Stoney Corners Windfarm I (HSC Phase 3)	Michigan Wind 2	North American Natural Resources (Lennon)	Scenic View Diary (Fennville)	Scenic View Diary (Freeport)	WMRenewable Energy (Northern Oaks)	WMRenewable Energy (Pine Tree Acres)	Zeeland Farm Services (Plant 2)	EARP- 1-4	EARP-5	EARP-6	EARP-7	EARP-8	EARP-9	EARP-10	EARP-11	EARP- Anaerobic Digester	River Fork Solar	Solar Gardens (Subscribed)	Solar Gardens 2026 Expansion (Subscribed)	Solar Gardens 2030 Expansion (Subscribed)
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
1	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	2028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	2029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	2030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	2031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	2032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	2033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	2034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	2035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	2036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	2037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	2038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	2039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	2040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	2041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	2042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	2043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	2044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)
Line No.	Generator	REP 2028 PPA In-State Solar 150 MW	REP 2029 PPA In-State Solar 250 MW	REP 2030 PPA In-State Solar 250 MW	REP 2031 PPA In-State Solar 250 MW	REP 2032 PPA In-State Solar 250 MW	REP 2033 PPA In-State Solar 250 MW	REP 2034 PPA In-State Solar 250 MW	REP 2035 PPA In-State Solar 250 MW	REP 2036 PPA In-State Solar 250 MW	REP 2037 PPA In-State Solar 250 MW	REP 2038 PPA In-State Solar 187.5 MW	REP 2039 PPA In-State Solar 125 MW	REP 2040 PPA In-State Solar 62.5 MW	2029 VGP-REP PPA In-State Solar 61.5 MW	2030 VGP-REP PPA In-State Solar 58.5 MW	2031 VGP-REP PPA In-State Solar 55.5 MW	2032 VGP-REP PPA In-State Solar 52.5 MW	2033 VGP-REP PPA In-State Solar 50 MW	2034 VGP-REP PPA In-State Solar 47.5 MW	2035 VGP-REP PPA In-State Solar 33 MW	REPA and Program Total
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
24	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	2028	1,718,279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,718,279
29	2029	1,705,230	2,917,901	-	-	-	-	-	-	-	-	-	-	-	688,625	-	-	-	-	-	-	4,623,132
30	2030	1,694,984	2,900,441	2,977,850	-	-	-	-	-	-	-	-	-	-	684,504	661,083	-	-	-	-	-	7,573,275
31	2031	1,685,036	2,883,492	2,960,523	3,039,536	-	-	-	-	-	-	-	-	-	680,504	657,236	638,303	-	-	-	-	10,568,587
32	2032	1,684,600	2,882,820	2,959,909	3,038,982	3,120,089	-	-	-	-	-	-	-	-	680,345	657,100	638,186	617,778	-	-	-	13,686,399
33	2033	1,672,154	2,861,597	2,938,194	3,016,764	3,097,356	3,180,021	-	-	-	-	-	-	-	675,337	652,279	633,521	613,277	597,844	-	-	16,766,088
34	2034	1,662,324	2,844,848	2,921,073	2,999,263	3,079,466	3,161,732	3,246,115	-	-	-	-	-	-	671,384	648,478	629,845	609,734	594,406	577,809	-	19,914,821
35	2035	1,653,816	2,830,364	2,906,278	2,984,149	3,064,026	3,145,961	3,230,005	3,316,209	-	-	-	-	-	667,966	645,194	626,671	606,677	591,441	574,941	397,945	23,130,808
36	2036	1,646,630	2,818,141	2,893,804	2,971,419	3,051,035	3,132,703	3,216,474	3,302,401	3,390,538	-	-	-	-	665,081	642,424	623,998	604,105	588,948	572,532	396,288	26,423,146
37	2037	1,639,652	2,806,274	2,881,695	2,959,064	3,038,429	3,119,841	3,203,351	3,289,011	3,376,876	3,467,001	-	-	-	662,281	639,736	621,403	601,609	586,530	570,196	394,681	29,781,194
38	2038	1,629,244	2,788,538	2,863,560	2,940,521	3,019,469	3,100,455	3,183,528	3,268,743	3,356,152	3,445,811	2,653,331	-	-	658,095	635,710	617,509	597,855	582,885	566,668	392,249	32,249,352
39	2039	1,620,704	2,773,997	2,848,706	2,925,347	3,003,969	3,084,620	3,167,353	3,252,219	3,339,273	3,428,568	2,640,121	1,807,055	-	654,663	632,413	614,323	594,786	579,909	563,789	390,266	33,891,932
40	2040	1,614,075	2,762,729	2,837,213	2,913,625	2,992,012	3,072,425	3,154,915	3,239,533	3,326,333	3,415,370	2,630,025	1,800,190	924,118	652,004	629,861	611,861	592,418	577,616	561,575	388,744	34,682,564
41	2041	1,609,827	2,755,536	2,829,905	2,906,201	2,984,470	3,064,764	3,147,132	3,231,628	3,318,303	3,407,214	2,623,812	1,795,983	921,981	650,306	628,239	610,302	590,925	576,176	560,190	387,795	34,596,757
42	2042	1,599,908	2,738,637	2,812,630	2,888,540	2,966,416	3,046,307	3,128,265	3,212,340	3,298,586	3,387,057	2,608,358	1,785,451	916,598	646,318	624,404	606,593	587,350	572,706	556,831	385,481	34,389,091
43	2043	1,597,057	2,733,835	2,807,778	2,883,639	2,961,466	3,041,308	3,123,217	3,207,243	3,293,441	3,381,864	2,604,427	1,782,807	915,264	645,185	623,327	605,564	586,370	571,766	555,933	384,869	34,333,345
44	2044	1,589,730	2,721,372	2,795,059	2,870,658	2,948,218	3,027,788	3,109,419	3,193,161	3,279,069	3,367,197	2,593,201	1,775,169	911,366	642,244	620,503	602,838	583,747	569,224	553,477	383,179	34,181,408
45	2045	1,576,885	2,699,462	2,772,637	2,847,713	2,924,736	3,003,757	3,084,826	3,167,994	3,253,314	3,340,841	2,572,972	1,761,368	904,305	637,073	615,525	598,020	579,098	564,706	549,099	380,159	33,910,810
46	TOTAL	**29,600,133**	**47,719,984**	**46,006,816**	**44,185,420**	**42,251,158**	**40,181,684**	**37,994,599**	**35,680,483**	**33,231,886**	**30,640,923**	**20,926,246**	**12,508,023**	**5,493,632**	**11,261,916**	**10,213,513**	**9,278,938**	**8,365,729**	**7,554,157**	**6,763,039**	**4,281,658**	**426,420,988**

	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)
Line No.	Generator	Solar Gardens (Unsubscribed)	Solar Gardens 2026 Expansion (Unsubscribed)	Solar Gardens 2030 Expansion (Unsubscribed)	Hardy Hydro Upgrade	Lake Winds Energy Park	Cross Winds Energy Park	Cross Winds Energy Park (Phase II) (unsubscribed)	Cross Winds Energy Park (Phase III) (unsubscribed)	Gratiot County Wind Farm	Crescent Wind Farm	Heartland Wind Farm	Circuit West Solar	Sunfish (Unsubscribed)	Karn (Unsubscribed)	VGP_REP_2027_116.92 MW (Unsubscribed)	VGP_REP_2027_220 MW (Unsubscribed)	Spring Creek	Muskegon	Mustang Mile	Washtenaw	Lake Winds Energy Park Repowered	VGP_REP_2027_116.92 MW	VGP_REP_2027_220 MW	Karn (Subscribed)1	Sunfish (Subscribed)1
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
47	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
48	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	2028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	2029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	2030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	2031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	2032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	2033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	2034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	2035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	2036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	2037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	2038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	2039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	2040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	2041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	2042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	2043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	2044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)
Line No.	Generator	IRP 2025 Owned In-State Solar 300 MW	REP 2028 Owned In-State Solar 150 MW	REP 2029 Owned In-State Solar 250 MW	REP 2030 Owned In-State Solar 250 MW	REP 2031 Owned In-State Solar 250 MW	REP 2032 Owned In-State Solar 250 MW	REP 2033 Owned In-State Solar 250 MW	REP 2034 Owned In-State Solar 250 MW	REP 2035 Owned In-State Solar 250 MW	REP 2036 Owned In-State Solar 250 MW	REP 2037 Owned In-State Solar 250 MW	REP 2038 Owned In-State Solar 187.5 MW	REP 2039 Owned In-State Solar 125 MW	REP 2040 Owned In-State Solar 62.5 MW	REP 2028 Owned In-State Wind 100 MW	REP 2029 Owned In-State Wind 200 MW	REP 2030 Owned In-State Wind 200 MW	REP 2032 Owned In-State Wind 1500 MW	REP 2035 Owned In-State Wind 800 MW	2029 VGP-REP CE In-State Solar 61.5 MW	2030 VGP-REP CE In-State Solar 58.5 MW	2031 VGP-REP CE In State Solar 55.5 MW	2032 VGP-REP CE In-State Solar 52.5 MW	2033 VGP-REP CE In-State Solar 50	2034 VGP-REP CE In-State Solar 47.5 MW	2035 VGP-REP CE In-State Solar 33	Owned Total	GRAND TOTAL
	Year	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
70	2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-
71	2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	2027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	2028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,718,279
75	2029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,623,132
76	2030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,573,275
77	2031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,568,587
78	2032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,686,399
79	2033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,766,088
80	2034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,914,821
81	2035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23,130,808
82	2036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,423,146
83	2037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29,781,194
84	2038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32,249,352
85	2039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33,891,932
86	2040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,682,564
87	2041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,596,757
88	2042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,389,091
89	2043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,333,345
90	2044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,181,408
91	2045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33,910,810
92	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**426,420,988**

EARP - Experimental Advanced Renewable Program

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

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Line No.	(a) Year	(b) LWEP Transfer Price Schedule $/MWh	(c) REPAs Formerly Assigned to 15805/16581 Transfer Price Schedule $/MWh
1	2025	$ 119.60	$ 109.01
2	2026	$ 124.11	$ 113.17
3	2027	$ 129.32	$ 117.55
4	2028	$ 136.76	$ 124.88
5	2029	$ 142.32	$ 129.92
6	2030	$ 145.34	$ 132.63
7	2031	$ 148.45	$ 135.43
8	2032	$ 151.66	$ 136.24
9	2033	$ 154.93	$ 137.55
10	2034	$ 158.26	$ 139.42
11	2035	$ 161.68	$ 142.42
12	2036	$ 165.16	$ 145.49
13	2037	$ 168.72	$ 148.63
14	2038	$ 172.36	$ 151.83
15	2039	$ 176.07	$ 155.11
16	2040	$ 179.87	$ 158.45
17	2041	$ 183.75	$ 161.86
18	2042	$ 187.71	$ 165.35
19	2043	$ 188.21	$ 168.92
20	2044	$ 178.46	$ 172.56
21	2045	$ 182.26	$ 176.27

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

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Formula				(c) - (b)			(f) - (e)	(d) + (g)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Line No.	Year	LWEP & LWEP Repowered Transfer Cost - Existing TP Schedule	LWEP & LWEP Repowered Transfer Cost - Newly Proposed Schedule	Change in Cost Transferred to PSCR from LWEP & LWEP Repowered	REPAs Formerly Assigned to 15805/16581 Transfer Cost - Existing TP Schedule	REPAs Formerly Assigned to 15805/16581 Transfer Cost - Newly Proposed Schedule	Change in Cost Transferred to PSCR from REPAs under 15805/16581 TP Schedule	Net Total Change in Cost Transferred to PSCR
		$	$	$	$	$	$	$
1	2025	$ 29,875,207	$ 29,874,982	$ (226)	$ 87,617,622	$ 87,618,927	$ 1,305	**$ 1,080**
2	2026	$ 31,001,655	$ 31,001,538	$ (117)	$ 90,907,743	$ 90,907,089	$ (653)	**$ (770)**
3	2027	$ 32,303,989	$ 32,302,948	$ (1,041)	$ 94,346,280	$ 94,347,187	$ 907	**$ (134)**
4	2028	$ 34,160,451	$ 34,161,392	$ 941	$ 100,052,092	$ 100,053,111	$ 1,019	**$ 1,959**
5	2029	$ 35,550,009	$ 35,550,229	$ 220	$ 103,899,003	$ 103,898,103	$ (900)	**$ (680)**
6	2030	$ 36,303,495	$ 36,304,597	$ 1,103	$ 105,999,324	$ 105,997,363	$ (1,961)	**$ (858)**
7	2031	$ 37,081,314	$ 37,081,447	$ 133	$ 106,973,958	$ 106,972,714	$ (1,244)	**$ (1,111)**
8	2032	$ 37,882,650	$ 37,883,275	$ 625	$ 100,864,497	$ 100,866,947	$ 2,450	**$ 3,076**
9	2033	$ 38,699,618	$ 38,700,091	$ 473	$ 97,927,552	$ 97,927,394	$ (159)	**$ 315**
10	2034	$ 39,532,914	$ 39,531,894	$ (1,019)	$ 99,219,194	$ 99,221,736	$ 2,542	**$ 1,523**
11	2035	$ 40,385,375	$ 40,386,179	$ 804	$ 101,358,625	$ 101,356,761	$ (1,864)	**$ (1,060)**
12	2036	$ 41,255,971	$ 41,255,451	$ (520)	$ 103,543,512	$ 103,541,604	$ (1,909)	**$ (2,428)**
13	2037	$ 42,145,322	$ 42,144,706	$ (616)	$ 105,775,583	$ 105,776,264	$ 681	**$ 65**
14	2038	$ 43,053,867	$ 43,053,945	$ 78	$ 108,055,638	$ 108,053,624	$ (2,015)	**$ (1,936)**
15	2039	$ 43,981,790	$ 43,980,669	$ (1,121)	$ 110,384,520	$ 110,387,918	$ 3,398	**$ 2,277**
16	2040	$ 44,929,856	$ 44,929,874	$ 18	$ 112,763,999	$ 112,764,913	$ 914	**$ 931**
17	2041	$ 45,898,471	$ 45,899,062	$ 591	$ 115,194,930	$ 115,191,725	$ (3,205)	**$ (2,614)**
18	2042	$ 46,887,572	$ 46,888,234	$ 662	$ 117,677,306	$ 117,675,471	$ (1,836)	**$ (1,174)**
19	2043	$ 50,052,037	$ 50,052,459	$ 422	$ 120,213,750	$ 120,216,150	$ 2,401	**$ 2,823**
20	2044	$ 44,698,805	$ 44,699,800	$ 995	$ 122,804,374	$ 122,806,648	$ 2,274	**$ 3,269**
21	2045	$ 45,528,024	$ 45,526,874	$ (1,150)	$ 125,450,383	$ 125,446,962	$ (3,421)	**$ (4,571)**
22	**TOTAL**	**$ 841,208,390**	**$ 841,209,646**	**$ 1,255**	**$ 2,231,029,886**	**$ 2,231,028,611**	**$ (1,276)**	**$ (20)**

MICHIGAN PUBLIC SERVICE COMMISSION
Consumers Energy Company

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	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		Forecasted VGP Program Subscribed Consumption (MWh) By Year			(b) + (c) + (d)			(h-1) + (i)	(f) + (g)		
1	**Year**	**Renewable Energy Program-Residential & Green Giving Subscribed Load (MWh)**	**Renewable Energy Program Commercial & Industrial Subscribed Load (MWh)**	**Solar Gardens Subscribed Load (MWh)**	**Cumulative Total VGP Subscribed Load (MWh)**	**Incremental Solar Supply (MW)[1]**	**Incremental Wind Supply (MW)[1]**	**Cumulative Total Supply (MW)**	**New Supply (MW)**	**Incremental Resource Notes[1]**	**Customer Demand Notes:**
2	2024	0	386,688	6,150	392,838	4.5	120	125	0	REP: Cross Winds II & III Solar Gardens: WMU, GVSU, Cadillac	REP C&I - Firm forecast: Based on executed contracts and supply online (CWEP II & III) Solar Gardens - 4.5 MW of existing capacity @ 15.6% NCF
3	2025	3,856	382,832	6,150	392,838	0	0	125	0		REP C&I - Firm forecast: Based on executed contracts and supply online (CWEP II & III) Solar Gardens - 4.5 MW of existing capacity @ 15.6% NCF
4	2026	13,770	912,684	7,464	933,918	312	0	436	312	REP: Sunfish 2 Solar Gardens: 2.5 MW 2026 SG Project	REP C&I - Firm forecast: Based on executed contracts and planned available supply online (CWEP II, III, Sunfish II) Solar Gardens - Add'l 2.5 MW for 2026 SG Project @ 24% NCF
5	2027	25,624	1,053,328	8,778	1,087,730	85	0	521	85	REP: Karn	REP C&I - Firm forecast: Based on executed contracts and planned available supply online (CWEP II, III, Sunfish II, Karn)
6	2028	39,516	1,670,089	10,092	1,719,697	337	0	858	337	REP: VGP_REP_2027_116.92 MW, VGP_REP_2027_220 MW	REP C&I - Based on assumption we will fully subscribe all planned assets. (CWEP II, III, Sunfish II, Karn, VGP_REP_2027_116.92 MW, VGP_REP_2027_220 MW)
7	2029	59,821	1,886,567	11,406	1,957,794	123	0	981	123	REP: 123 MW TBD	REP C&I - 236,783 MWh of new contracts (123 MW) added in 2029 (includes Resi/GG), with a ~5% decline in sales each year thereafter as it will become increasingly more difficult to sell due to market penetration and competing solutions.
8	2030	62,812	2,108,520	11,143	2,182,475	120	0	1,101	120	REP: 117 MW TBD Solar Gardens: 3 MW TBD	50% RPS Compliance Solar Gardens - Add'l 3 MW for TBD project @ 20% NCF
9	2031	65,953	2,319,076	12,194	2,397,223	111	0	1,211	111	REP: 111 MW TBD	
10	2032	69,250	2,518,790	13,246	2,601,286	105	0	1,317	105	REP: 105 MW TBD	
11	2033	72,713	2,708,189	14,297	2,795,198	100	0	1,417	100	REP: 100 MW TBD	
12	2034	76,348	2,887,771	15,348	2,979,468	95	0	1,512	95	REP: 95 MW TBD	REP Resi & Green Giving - Subscription volume to remain flat in 2035 and thereafter based on achieving 0.7% saturation = ~40 MW of solar capacity.
13	2035	80,166	3,011,939	15,348	3,107,453	66	0	1,578	66	REP: 66 MW TBD	60% RPS Compliance
14	2036	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		**REP C&I - Subscription volume to remain flat in 2035 and thereafter based on achieving 15% saturation**
15	2037	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
16	2038	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
17	2039	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
18	2040	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
19	2041	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
20	2042	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
21	2043	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
22	2044	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		
23	2045	80,166	3,011,939	15,348	3,107,453	0	0	1,578	0		

Footnotes
1. 2024 represents existing supply

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

DIRECT TESTIMONY

OF

CHIBUZO C. OBIKWELU

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

Q. Please state your name and business address.

A. My name is Chibuzo C. Obikwelu, and my business address is 1945 W Parnall Rd, Jackson, Michigan 49201.

Q. By whom are you employed?

A. I am employed by Consumers Energy Company ("Consumers Energy" or the "Company").

Q. In what capacity are you employed?

A. I am an Engineer Technical Analyst in the Electric Supply Regulatory Strategies Section of the Electric Supply Department.

QUALIFICATIONS

Q. Please describe your educational background.

A. I received a Bachelor of Science degree in Chemical Engineering from Nnamdi Azikiwe University, Awka, Nigeria in July 2007. I earned a Master of Science degree in Project Management from Robert Gordon University, Aberdeen, Scotland in November 2010. Finally, I received a Master of Science degree in Industrial Engineering from Wayne State University, Detroit, Michigan in December 2018.

Q. Please describe your business experience.

A. I joined Consumers Energy in the Electric Supply Contract Department as a Renewable Energy Analyst in November 2021, with responsibilities related to renewable energy credit ("REC") forecasting, inventory management, and administration. In November 2023, I accepted the position of Engineer Technical Analyst within Electric Supply Regulatory Strategies and continued to perform REC forecasting, inventory management, and administration. In addition, I provide support for the development and implementation of REC strategies to support the Company's compliance with Public Act 295 of 2008, as

amended ("Act 295"). I was promoted to a Senior Engineer Technical Analyst in September 2024.

Q. Have you previously provided testimony before the Michigan Public Service Commission ("MPSC" or the "Commission")?

A. Yes. I provided direct testimony in:

- Case No. U-21197 (direct), Consumers Energy's 2021 Renewable Energy Cost Reconciliation;
- Case No. U-21352 (direct), Consumers Energy's 2022 Renewable Energy Cost Reconciliation;
- Case No. U-21374 (direct), Consumers Energy's 2023 Renewable Energy Amendment; and
- Case No. U-21549 (direct), Consumers Energy's 2023 Renewable Energy Cost Reconciliation.

PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A, My direct testimony will address the amount of RECs forecasted through 2045 to comply with Act 295, as amended by various Act, including 2016 PA 342 ("Act 342") and 2023 PA 235 ("Act 235").

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the following exhibits:

Exhibit A-33 (CCO-1)	Calculation of Renewable Energy Credit Portfolio Targets 2023 – 2045;
Exhibit A-34 (CCO-2)	Renewable Energy Credit Forecast;
Exhibit A-35 (CCO-3)	New Renewable Energy Historical and Projected Renewable Energy Credit Production;
Exhibit A-36 (CCO-4)	Renewable Energy Credit Portfolio for Sales to Jurisdictional and Non-Jurisdictional Customers;

Exhibit A-37 (CCO-5)	Renewable Energy Credit Portfolio for Jurisdictional Compliance; and
Exhibit A-38 (CCO-6)	Renewable Energy Plan Renewable Energy Credit Inventory Costs.

Q. Were these exhibits prepared by you or at your direction?

A. Yes.

REC PORTFOLIO TARGETS FOR 2023 – 2045

Q. In Case No. U-21374, the Company presented its forecast of jurisdictional REC portfolio targets for the years 2023 and beyond. Does the Company propose any change to the targets?

A. Yes. The Company's forecast of REC compliance obligations and targets for electric sales to jurisdictional customers for the years 2024 through 2045 has been calculated based upon the Company's actual 2021 through 2023 retail sales and the Company's forecasted sales for years 2024 through 2045. This forecast is shown in Exhibit A-33 (CCO-1). The actual REC compliance target is 15% of retail sales for calendar years 2023 through 2029. The forecast target of REC compliance is 50% of retail sales for calendar years 2030 through 2034; and 60% of retail sales for years 2035 through 2045.

Consumers Energy has elected to calculate its REC portfolio obligation based on the average number of retail sales for the previous three years in accordance with MCL 460.1028(2)(b)(ii). Consumers Energy calculates its REC portfolio obligation based on subtracting Voluntary Green Pricing ("VGP") sales and Distributed Generation ("DG") outflows from the average number of retail sales for the previous three years. To meet the REC Portfolio Standard, the Company retired 4,847,339 RECs for 2023; and forecasts retiring 4,837,074 RECs in 2024. I have also calculated the number of RECs to be retired

to maintain the 15% level from 2025 through 2029; 50% level from 2030 through 2034; and 60% level from 2035 through 2045.

Q. What is the Company's REC portfolio forecast for 2023 through 2045?

A. The Company elected to utilize the average amount of electricity sold to retail customers by the electric provider annually during the previous three years as the basis for determining the amount of electricity used in the calculation of the REC obligation. Exhibit A-33 (CCO-1) illustrates the calculation of the Company's REC compliance targets.

REC FORECAST

Q. How did the Company forecast the number of RECs that are required?

A. The Company developed the estimate of the RECs expected to be received based on the amount of renewable energy forecasted to be either generated or acquired. Exhibit A-34 (CCO-2) shows the REC Forecast using Exhibit B from the Commission's Case No. U-21568 Order issued on May 23, 2024. Exhibit A-34 (CCO-2) illustrates the Company's asset technology mix and program type with their respective REC amounts and proportions. Exhibit A-35 (CCO-3), page 2, shows the estimated RECs expected to be generated from Renewable Energy Purchase Agreement ("REPA") resources through 2045. Exhibit A-35 (CCO-3), page 1, shows the estimated RECs expected to be generated from Company-owned renewable energy systems through 2045.

Q. Has the Company generated or acquired RECs from new renewable energy systems since the RE Plan amendment in Case No. U-21374?

A. Yes. The Company has executed several REPAs since the approval of its amended RE Plan, in Case No. U-21374. The 200 MW (140 MW REPA) Calhoun Solar Energy project began partial commercial operation on December 29, 2022 and began its commercial

operation on the full 140 MW contract capacity on April 28, 2023. The 100 MW Cereal City Solar project was completed on December 31, 2023. The 100 MW River Fork Solar project was completed on October 2, 2024. The 150 MW Heartwood Solar project is expected to be completed by December 31, 2024. The 125 MW Jackson County Solar project is expected to be completed by May 31, 2025. These contracts are included on Exhibit A-35 (CCO-3), page 2.

The 201 MW Heartland Wind project commenced commercial operation in December 2023. The 150 MW Mustang Mile Solar project is expected to begin commercial operation on December 31, 2026. The 150 MW Washtenaw Solar project is expected to begin commercial operation on December 7, 2026. These new Company-owned projects are included on Exhibit A-35 (CCO-3), page 1.

The Company plans to add several new solar projects (both REPA and Company-owned) to the Renewable Energy Program in addition to the already stated assets from the RE Plan amendment filing in Case No. U-21374: 309 MW Sunfish 2 Solar (owned asset to be acquired through a build transfer agreement ("BTA")) and the up to 85 MW Karn Solar (Company-owned asset) to accommodate the increasing number of customers subscribing to the Renewable Energy Program.

Q. Does the Company anticipate any RECs expiring from the REC bank inventory for years 2023 through 2045?

A. No.

REC PRODUCTION AND INVENTORY

Q. Please explain Exhibit A-36 (CCO-4), page 1.

A. The Company plans to meet the renewable energy targets through a combination of (i) RECs produced by resources existing prior to enactment of Act 295 ("Existing"); (ii) RECs provided by new renewable capacity built, owned, and operated by the Company ("Owned"); (iii) RECs provided pursuant to REPAs, Experimental Advanced Renewable Program ("EARP") -Solar ("EARP-Solar"), and EARP-Anaerobic Digestion ("EARP-AD"), as approved or proposed in prior cases; (iv) RECs resulting from the conversion of surplus energy waste reduction ("EWR") credits as approved by the Commission from the years 2023 through 2045; and (v) RECs provided from market purchases according to Act 235, Section 28(5)(c) permitting procurement of not more than 5% of RECs to comply with the renewable energy standard. This 5% RECs provision cannot be used to comply with the renewable energy standard after 2035.

For REC forecasting and inventory purposes, the surplus EWR credits are included in the Existing Renewables category and the EARP-Solar and EARP-AD RECs are grouped in the REPA category.

The purpose of Exhibit A-36 (CCO-4), page 1, is to provide a summary of the types of RECs over the RE Plan forecast period. The REC portfolio summary presented in Exhibit A-36 (CCO-4) has been updated to incorporate actuals through 2023, as well as a revised forecast for Existing, Owned, and REPA resources based on the various changes that have been made to each of the categories, as described throughout my testimony and in the testimony of Company witnesses Kenneth D. Johnston and Zachery S. Cole. Columns (b), (f), and (l) show the annual RECs generated in each year from Existing,

Build, and REPA renewable facilities, respectively. Columns (c), (d), (g), (h), (i), (j), (m), (n) and (o) show the annual Michigan incentive RECs resulting from the Existing, Build, and REPA renewable facilities. Columns (r) and (s) show the surplus EWR credits and the market purchases according to PA 235, Section 28(5)(c), respectively. The total of all generated RECs, Michigan incentive RECs, surplus EWR credits, and the market purchases in each year is shown in column (t).

Q. Please explain Exhibit A-36 (CCO-4), page 2.

A. The total number of RECs resulting from Existing (except surplus EWR credits), Owned, and REPA resources are split on a pro rata basis between jurisdictional and non-jurisdictional customers based on the Company's estimated sales made to jurisdictional and non-jurisdictional customers. Surplus EWR credits are entirely jurisdictional and not subject to the pro rata split between jurisdictional and non-jurisdictional customers. The purpose of Exhibit A-36 (CCO-4), page 2, is to summarize how those total RECs are split on a year-by-year basis. The annual RECs in column (d) correspond to the totals previously shown in column (t) on page 1 of this exhibit. Column (e) shows the sum of surplus EWR credits and market purchases listed on columns (r) and (s), respectively, of page 1 of this exhibit. Column (f) represents the total RECs subject to the pro rata split between jurisdictional and non-jurisdictional sales. Only the jurisdictional RECs from column (g) can be used to satisfy the annual compliance targets identified in Exhibit A-37 (CCO-5).

Q Please explain Exhibit A-37 (CCO-5).

A. Exhibit A-37 (CCO-5) details the REC Portfolio Standard for each year in column (b); the REC compliance target associated with the standard in column (c); the number of RECs

generated or purchased in each compliance year in column (d); the number of RECs used to meet the compliance target from the current year in column (e); the number of RECs expected to be withdrawn from the REC bank inventory used to meet the compliance target in each year in column (f); the anticipated total RECs used to meet the compliance target in each year in column (g); the number of RECs either sold or purchased in column (h); and the anticipated cumulative REC bank inventory at the end of each compliance year in column (i).

REC COSTS

Q. Are there costs associated with the REC inventory?

A. Yes. Exhibit A-38 (CCO-6) details the anticipated costs associated with RECs for the plan period through 2045. Column (b) represents the number of RECs in each year from column (g) of Exhibit A-36 (CCO-4), page 2. Column (c) shows the cost of RECs acquired in the current year. Columns (d) and (e) illustrate the number of RECs purchased or sold in each calendar year and the costs associated with that purchase or sale, respectively. Column (f) represents the weighted average REC cost. Column (g) represents the cumulative REC bank inventory that is carried forward to the next calendar year. Column (h) illustrates the cost associated with the cumulative REC bank inventory at year end. Column (i) illustrates the two-year average of the cost associated with the cumulative REC bank inventory. Column (j) represents the total RECs used for compliance in each calendar year. Column (k) indicates the cost associated with the RECs used for compliance. Column (l) indicates the annual change in the cost of the REC inventory.

Q. In what way are the costs associated with generating or purchasing non-jurisdictional RECs determined?

A. The inventory cost of RECs and the Incremental Cost of Compliance will be prorated in proportion to the allocation of RECs. The value of energy and capacity generated or purchased from renewable energy systems is allocated between jurisdictional sales and non-jurisdictional sales as part of the Power Supply Cost Recovery ("PSCR") process. The non-PSCR costs associated with deliveries from provider-owned renewable energy systems in commercial operation prior to the effective date of Act 295 are allocated between jurisdictional sales and non--jurisdictional sales as part of the normal ratemaking process.

CUSTOMER PROGRAM RECS

Q. Please describe how RECs associated with the Renewable Energy Program and Solar Gardens program will be administered.

A. The RECs that are produced and associated with the subscribed portion of the Solar Gardens Program and Renewable Energy Program are either retired on behalf of the customers or liquidated and credited to customers. The RECs that are produced and associated with the unsubscribed portion of the programs are available for use in meeting the jurisdictional retail sales compliance obligations.

Q. Does this complete your direct testimony?

A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

EXHIBITS

OF

CHIBUZO C. OBIKWELU

ON BEHALF OF

CONSUMERS ENERGY COMPANY

November 2024

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-33 (CCO-1)
Page: 1 of 1
Witness: CCObikwelu
Date: November 2024

Calculation of Renewable Energy Credit Portfolio Targets 2023-2045
Compliance for Jurisdictional Customers

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	Year	**CECo Calendar Year Retail Sales**	**Average of Previous Three Years Sales**	**VGP Sales & DG Output**	**Difference between (c) and (d)**	**Compliance Level**	**Total Compliance Target**
		MWh	**MWh**	**MWh**	**MWh**	**MWh**	**%**
1	2023 *	32,449,010	32,315,594	402,692	32,315,594	4,847,339	15%
2	2024	32,608,729	32,649,851	444,433	32,247,159	4,837,074	15%
3	2025	33,619,270	32,768,960	454,256	32,324,527	4,848,679	15%
4	2026	34,845,036	32,892,336	1,005,159	32,438,080	4,865,712	15%
5	2027	36,365,868	33,691,012	1,168,794	32,685,853	4,902,878	15%
6	2028	36,873,154	34,943,391	1,810,584	33,774,597	5,066,190	15%
7	2029	38,711,293	36,028,019	2,058,504	34,217,435	5,132,615	15%
8	2030	41,128,801	37,316,772	2,293,008	35,258,267	17,629,134	50%
9	2031	42,731,748	38,904,416	2,517,579	36,611,408	18,305,704	50%
10	2032	43,835,465	40,857,281	2,731,465	38,339,701	19,169,851	50%
11	2033	44,545,304	42,565,338	2,935,200	39,833,873	19,916,936	50%
12	2034	45,537,465	43,704,172	3,129,293	40,768,972	20,384,486	50%
13	2035	46,233,500	44,639,411	3,267,101	41,510,118	24,906,071	60%
14	2036	46,873,032	45,438,756	3,276,924	42,171,655	25,302,993	60%
15	2037	47,288,148	46,214,666	3,286,747	42,937,742	25,762,645	60%
16	2038	47,601,628	46,798,227	3,296,570	43,511,480	26,106,888	60%
17	2039	47,759,103	47,254,269	3,306,393	43,957,699	26,374,620	60%
18	2040	47,845,375	47,549,626	3,316,216	44,243,233	26,545,940	60%
19	2041	47,661,386	47,735,369	3,326,039	44,419,153	26,651,492	60%
20	2042	47,438,330	47,755,288	3,335,862	44,429,249	26,657,549	60%
21	2043	47,204,870	47,648,364	3,345,685	44,312,502	26,587,501	60%
22	2044	46,989,597	47,434,862	3,355,508	44,089,177	26,453,506	60%
23	2045	46,722,213	47,210,932	3,365,331	43,855,424	26,313,255	60%

* Row 1 contains actual values, after 2023 the values are estimates.

Col (b): 2023 through 2045 workpaper titled "Obikwelu_WP_ElectricDeliveriesFcst_2024ERC"
Col (c): Previous 3-year rolling average of Col (b)
Col (d): Workpaper: Obikwelu_WP_ VGP Load & DG Outflow Forecast_2023-2045 Col (g)
Col (e) Subtract prior year Col (d) from current year Col (c) in accordance with PA 235 Section 28
Col (f) Col (e) multiply by Col (g)
Col (g): 2023 - 2045 Compliance target stated in PA 235 Section 28

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-34 (CCO-2)
Page: 1 of 1
Witness: CCObikwelu
Date: November 2024

Renewable Energy Credit Forecast

	2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034	
	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent
Technology Mix																						
Wind	2,803,031	63%	2,801,557	60%	2,749,574	46%	2,749,574	37%	3,033,200	31%	3,594,148	31%	4,157,564	31%	4,130,291	29%	7,908,584	41%	7,831,867	39%	7,831,926	37%
Solar	676,179	15%	1,022,774	22%	2,345,822	40%	3,752,907	51%	6,055,439	61%	7,411,156	63%	8,554,578	64%	9,556,452	67%	10,703,349	56%	11,782,436	58%	12,878,208	61%
****Biomass Prior to 2/27/2024**	234,488	5%	129,150	3%	129,150	2%	129,150	2%	75,337	1%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Biomass After to 2/27/2024	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Geothermal	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Landfill Gas	134,859	3%	134,859	3%	126,376	2%	124,679	2%	124,679	1%	117,890	1%	105,883	1%	75,814	1%	19,639	0%	2,044	0%	2,044	0%
Hydro (exclude new dams after 10/6/2008)	445,544	10%	445,544	10%	445,544	8%	445,202	6%	444,957	5%	444,957	4%	444,957	3%	444,957	3%	444,957	2%	444,957	2%	444,957	2%
Methane Digester	12,643	0%	12,643	0%	12,643	0%	12,643	0%	12,643	0%	12,643	0%	12,643	0%	12,643	0%	12,643	0%	843	0%	-	0%
Other (Storage)	124,501	3%	124,501	3%	124,501	2%	124,501	2%	124,501	1%	124,501	1%	124,501	1%	124,501	1%	124,501	1%	124,501	1%	124,501	1%
Totals	4,431,245	100%	4,671,027	100%	5,933,609	100%	7,338,655	100%	9,870,756	100%	11,705,295	100%	13,400,126	100%	14,344,658	100%	19,213,674	100%	20,186,648	100%	21,281,637	100%
Program Type																						
PURPA	283,095	96%	177,756	93%	169,273	93%	167,234	94%	113,177	100%	31,051	100%	19,720	100%	6,095	100%	6,095	100%	6,095	100%	6,095	100%
New Metering/DG	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Feed-in Tariffs	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Community Solar	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Other (EARP)	12,854	4%	12,854	7%	12,854	7%	11,560	6%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Total	295,949	100%	190,610	100%	182,127	100%	178,794	100%	113,177	100%	31,051	100%	19,720	100%	6,095	100%	6,095	100%	6,095	100%	6,095	100%

	2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045	
	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent	RECs	Percent
Technology Mix																						
Wind	9,870,339	40%	9,898,202	39%	9,869,953	37%	9,865,569	36%	9,864,784	35%	9,894,709	35%	9,868,702	35%	9,868,418	36%	9,882,604	36%	9,886,341	36%	9,861,370	37%
Solar	13,974,714	57%	15,081,078	59%	16,171,806	61%	16,924,526	62%	17,372,414	62%	17,526,050	63%	17,393,424	62%	17,244,259	62%	17,176,773	62%	16,788,972	62%	16,535,169	61%
Biomass Prior to 2/27/2024	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Biomass After to 2/27/2024	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Geothermal	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Landfill Gas	2,044	0%	2,044	0%	2,044	0%	2,044	0%	852	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Hydro (exclude new dams after 10/6/2008)	444,957	2%	444,957	2%	444,957	2%	444,957	2%	443,986	2%	443,293	2%	443,293	2%	443,293	2%	443,293	2%	443,293	2%	443,293	2%
Methane Digester	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Other (Storage)	124,501	1%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%	124,501	0%
Totals	24,416,555	100%	25,550,783	100%	26,613,261	100%	27,361,597	100%	27,806,537	100%	27,988,553	100%	27,829,919	100%	27,680,471	100%	27,627,171	100%	27,243,107	100%	26,964,333	100%
Program Type																						
PURPA	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
New Metering/DG	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Feed-in Tariffs	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Community Solar	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%	-	0%
Other (EARP)	6,095	100%	6,095	100%	6,095	100%	6,095	100%	3,932	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%
Total	6,095	100%	6,095	100%	6,095	100%	6,095	100%	3,932	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%	2,386	100%

*RECs generated and obtained during the year less RECs sold or expired

** In accordance to the 2023 Energy Law, PA 235 Section 11 (j)(*v*), a facility that cofires biomass with tires or tire-derived fuels is no longer a renewable energy system starting from Feb. 27, 2024.

Consequently, Genesee, Grayling, Filer City, Viking McBain and Viking Lincoln cease from generating RECs starting from Feb 27, 2024. It is only Cadillac Renewable Energy that will be continued as a biomass (wood) resource mix.

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-35 (CCO-3)
Page: 1 of 2
Witness: CCObikwelu
Date: November 2024

New Renewable Energy Historical and Projected Renewable Energy Credit Production

Summary of RECs From Build Resources

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)
	Generator	Hardy Unit 3 Upgrade	Lake Winds Energy Park	Lake Winds Energy Park Repowered	Cross Winds Energy Park	Cross Winds Energy Park (Phase II)	Cross Winds Energy Park (Phase III)	Karn-2026_85 MW	Sunfish 2_2025_309 MW	VGP_REP_2025_ 116.92 MW	VGP_REP_2027_ 220 MW	Spring Creek_2026_140 MW	Crescent Wind	Gratiot Wind	Heartland Wind	Solar Gardens	Solar Gardens 2026 Expansion	Solar Gardens 2030 Expansion	Circuit West Solar	Mustang Mile Solar 2027	Washtenaw_2027_150MW	Muskegon Solar_2026_250MW	Build Solar Proxy Projects	Build Wind Proxy Projects	Build Solar VGP Proxy Projects	TOTAL
	Year	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC
1	2023	4,228	238,814	0	314,557	0	0	0	0	0	0	0	409,819	380,273	16,747	0	0	0	522	0	0	0	0	0	0	1,364,960
2	2024	4,444	249,791	-	324,892	0	0	0	0	0	0	0	354,588	372,438	539,281	456	0	0	607	0	0	0	0	0	0	1,846,498
3	2025	4,444	249,791	-	324,892	0	0	0	0	0	0	0	354,588	372,438	537,808	456	0	0	607	0	0	0	0	0	0	1,845,024
4	2026	4,444	249,791	0	324,892	0	0	0	0	0	0	207,002	354,588	372,438	485,825	456	5,799	0	607	0	0	701,444	0	0	0	2,707,286
5	2027	4,444	249,791	0	324,892	0	0	0	0	0	0	351,298	354,588	372,438	485,825	456	4,142	0	607	399,989	405,457	697,937	0	0	0	3,651,864
6	2028	4,444	249,791	0	324,892	0	0	0	0	291,393	557,309	350,491	354,588	372,438	487,156	456	2,492	0	607	399,079	404,535	696,332	841,024	282,295	0	5,619,322
7	2029	4,444	249,791	0	324,892	0	0	0	0	289,144	553,008	315,501	354,588	372,438	485,825	456	752	0	607	395,989	364,159	626,816	1,787,754	844,574	0	6,970,735
8	2030	4,444	249,791	0	324,892	0	0	0	0	287,691	550,229	313,899	354,588	372,438	485,825	456	0	5,965	607	357,433	362,319	623,634	2,416,936	1,407,990	0	8,119,138
9	2031	4,444	249,791	0	324,892	0	0	0	0	259,680	496,655	312,298	354,588	372,438	485,825	456	0	4,639	607	355,619	360,480	620,452	2,936,186	1,380,717	0	8,519,767
10	2032	4,444	249,791	0	324,892	0	0	0	0	259,069	495,488	311,547	354,588	372,438	487,156	456	0	3,323	607	354,774	359,624	618,962	3,518,830	5,157,879	0	12,873,668
11	2033	4,444	249,791	0	324,892	0	0	0	0	257,043	491,613	309,095	354,588	372,438	485,825	456	0	1,804	607	351,990	356,802	614,089	4,074,962	5,082,293	0	13,332,721
12	2034	4,444	249,791	0	324,892	0	0	0	0	255,725	489,092	307,493	354,588	372,438	485,825	456	0	601	607	350,176	354,963	610,907	4,632,773	5,082,352	0	13,877,124
13	2035	4,444	249,791	0	324,892	0	0	0	0	254,407	486,571	305,892	354,588	372,438	485,825	456	0	0	607	348,361	353,123	607,725	5,190,950	7,120,765	0	16,460,836
14	2036	4,444	249,791	0	324,892	0	0	0	0	253,782	486,376	305,124	354,588	372,438	487,156	456	0	0	0	347,496	352,247	606,200	5,750,881	7,147,297	0	17,042,168
15	2037	4,444	249,791	0	324,892	0	0	0	0	251,770	481,529	302,688	354,588	372,438	485,825	456	0	0	0	344,733	349,445	601,362	6,309,691	7,120,379	0	17,554,092
16	2038	4,444	249,791	0	324,892	0	0	0	0	250,452	479,008	301,087	354,588	372,438	485,825	456	0	0	0	342,918	347,606	598,180	6,692,070	7,115,995	0	17,919,750
17	2039	4,444	249,791	0	324,892	0	0	0	0	249,134	476,487	299,485	354,588	372,438	485,825	456	0	0	0	341,104	345,767	594,998	6,919,297	7,115,210	0	18,133,915
18	2040	4,444	249,791	0	324,892	0	0	0	0	248,495	475,264	298,700	354,588	372,438	487,156	456	0	0	0	340,219	344,870	593,438	6,993,261	7,143,804	0	18,231,816
19	2041	4,444	249,791	0	324,892	0	0	0	0	246,498	471,445	296,282	354,588	372,438	485,825	456	0	0	0	337,475	342,088	588,634	6,931,378	7,119,128	0	18,125,362
20	2042	4,444	249,791	0	324,892	0	0	0	0	245,180	468,923	294,681	354,588	372,438	485,825	7	0	0	0	335,661	340,249	585,453	6,860,026	7,118,844	0	18,041,001
21	2043	4,444	224,194	41,746	324,892	0	0	0	0	243,861	466,402	293,079	354,588	372,438	485,825	0	0	0	0	333,846	338,410	582,271	6,833,906	7,116,882	0	18,016,784
22	2044	4,444	0	250,475	324,892	0	0	0	0	243,208	465,152	292,276	354,588	372,438	487,156	0	0	0	0	332,942	337,493	580,675	6,803,518	7,134,751	0	17,984,009
23	2045	4,444	0	249,791	324,892	0	0	0	0	241,225	461,360	289,876	354,588	372,438	485,825	0	0	0	0	330,217	334,732	575,907	6,749,513	7,111,796	0	17,886,604
	TOTAL	101,997	5,209,033	542,012	7,462,172	0	0	0	0	4,627,756	8,850,912	6,057,795	8,210,760	8,573,910	10,816,985	8,223	13,186	16,333	7,810	6,700,020	6,754,367	12,325,414	92,242,957	97,602,751	0	276,124,393

Col (w), (x) & (v) Workpaper: OBIKWELU_WP_2024 REP_Proxy Assets
Col (z): Actual 2023 RECs and Incentive RECs
Col (z): Forecast 2024 thru 2045 base RECs and Incentive RECs

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-35 (CCO-3)
Page: 2 of 2
Witness: CCOkekwelu
Date: November 2024

New Renewable Energy Historical and Projected Renewable Energy Credit Production

Summary of RECs From REPA Resources

	(a)	(b)	(c)	(d)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)
	Generator	Apple Blossom	Beebe Renewable Energy	Calhoun Solar Energy	Fremont Community Digester	Harvest II Windfarm	DTE Garden Windfarm I (Wind)	DTE Garden Windfarm I (Solar)	DTE Stoney Corners Windfarm I (MSC Phase 2)	DTE Stoney Corners Windfarm I (MSC Phase 3)	Michigan Wind 2	North American Natural Resources (Lapeer)	River Fork Solar	REPA Solar Proxy Projects	REPA Wind Proxy Projects	REPA Solar VGP Proxy Projects	WMRenewable Energy (Northern Oaks)	WMRenewable Energy (Pine Tree Acres)	EARP - Solar (1-4)	EARP - Expansion Solar (5)	EARP - Solar Expansion (6,8)	EARP - Solar Expansion (9-11)	Cereal City Solar	Jackson City Solar	Heartwood Solar	Freshwater Solar	TOTAL
	Year	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC
1	2023	229,374	182,885	260,834	11,622	174,043	47,443	3,527	23,054	14,950	260,221	9,837		0	0	0	8,601	82,799	0	1,462	6,080	4,731	2,429	0	0	0	1,323,892
2	2024	250,366	185,678	330,849	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	72,877	0	0	0	6,163	73,770	0	1,522	6,341	4,991	260,161	0	0	0	1,740,689
3	2025	250,366	185,678	329,186	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	218,034	0	0	0	6,163	73,770	0	1,522	6,341	4,991	248,904	204,358	0	0	2,087,284
4	2026	250,366	185,678	327,524	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	216,944	0	0	0	6,163	73,770	0	1,522	6,341	4,991	233,946	305,004	325,868	0	2,496,086
5	2027	250,366	185,678	325,861	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	203,861	0	0	0	6,163	73,770	0	1,382	5,689	4,489	232,758	303,471	389,086	418,049	2,958,594
6	2028	250,366	185,678	324,199	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	203,387	370,063	0	0	6,163	73,770	0	0	0	0	231,570	273,924	387,131	713,072	3,877,294
7	2029	250,366	185,678	322,536	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	201,802	982,417	0	0	6,163	73,770	0	0	0	0	230,383	272,533	349,438	709,489	4,142,545
8	2030	250,366	185,678	320,873	12,643	174,049	47,031	8,374	27,001	17,695	260,221	10,957	200,772	1,591,086	0	0	5,487	73,770	0	0	0	0	229,195	271,143	347,664	666,300	4,700,305
9	2031	250,366	185,678	319,211	12,643	174,049	47,031	8,374	27,001	17,695	260,221	0	199,742	2,175,483	0	0	0	73,770	0	0	0	0	228,008	269,752	345,890	662,918	5,257,833
10	2032	250,366	185,678	317,548	12,643	174,049	47,031	7,091	27,001	17,695	260,221	0	199,257	2,757,939	0	0	0	17,595	0	0	0	0	226,820	268,362	344,116	659,536	5,772,948
11	2033	250,366	185,678	315,886	843	174,049	47,031	0	27,001	17,695	260,221	0	197,683	3,319,306	0	0	0	0	0	0	0	0	225,633	266,971	342,342	656,154	6,286,858
12	2034	250,366	185,678	314,223	0	174,049	47,031	0	27,001	17,695	260,221	0	196,654	3,881,171	0	0	0	0	0	0	0	0	224,445	265,581	340,569	652,772	6,837,455
13	2035	250,366	185,678	312,561	0	174,049	47,031	0	27,001	17,695	260,221	0	195,624	4,442,804	0	0	0	0	0	0	0	0	223,258	264,190	338,795	649,389	7,388,661
14	2036	250,366	185,678	310,898	0	174,049	47,031	0	27,001	17,695	260,221	0	195,128	5,005,593	0	0	0	0	0	0	0	0	222,070	262,800	337,021	646,007	7,941,557
15	2037	250,366	185,678	309,236	0	174,049	47,031	0	27,001	17,695	260,221	0	193,565	5,567,166	0	0	0	0	0	0	0	0	220,883	261,409	335,247	642,625	8,492,171
16	2038	250,366	185,678	307,573	0	174,049	47,031	0	27,001	17,695	260,221	0	192,535	5,960,211	0	0	0	0	0	0	0	0	219,695	260,019	333,473	639,243	8,874,789
17	2039	250,366	185,678	305,910	0	174,049	47,031	0	27,001	17,695	260,221	0	191,506	6,203,574	0	0	0	0	0	0	0	0	218,507	258,628	331,700	636,860	9,107,727
18	2040	250,366	185,678	304,248	0	174,049	47,031	0	27,001	17,695	260,221	0	190,998	6,299,140	0	0	0	0	0	0	0	0	217,320	257,238	329,926	632,478	9,193,388
19	2041	250,366	185,678	302,585	0	174,049	47,031	0	27,001	17,695	260,221	0	189,446	6,257,907	0	0	0	0	0	0	0	0	216,132	255,847	328,152	629,096	9,141,207
20	2042	250,366	185,678	300,923	0	174,049	47,031	0	27,001	17,695	260,221	0	188,417	6,203,246	0	0	0	0	0	0	0	0	214,945	254,457	326,378	625,714	9,076,120
21	2043	250,366	185,678	299,260	0	174,049	47,031	0	27,001	17,695	260,221	0	187,387	6,184,590	0	0	0	0	0	0	0	0	213,757	253,066	324,604	622,331	9,047,038
22	2044	250,366	185,678	297,598	0	174,049	47,031	0	27,001	17,695	260,221	0	124,579	6,157,181	0	0	0	0	0	0	0	0	212,570	0	322,831	618,949	8,695,748
23	2045	250,366	185,678	295,935	0	174,049	47,031	0	27,001	17,695	260,221	0	0	6,108,398	0	0	0	0	0	0	0	0	211,382	0	321,057	615,567	8,514,380
	TOTAL	5,737,416	4,267,794	7,155,457	126,251	4,003,128	1,082,117	77,612	617,083	404,245	5,985,081	86,533	3,960,197	79,467,275	0	0	51,067	690,556	0	7,411	30791.453	24,193	4954771.392	5,028,752	6,801,287	12,095,550	142,654,567

[1] EARP AD (Scenic View Diary, Brook View Diary and Green Meadow) RECs are no longer available

Col (i): DTE Garden Windfarm I (Solar) represents the 2.35 MW capacity

Col (o),(p)&(q): Workpaper: CBIKWELU_WP_2024 REP_Proxy Assets

Col (ab): Actual 2023 RECs and Incentive RECs

Col (ab): Forecast 2024 thru 2045 base RECs and Incentive RECs

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-36 (CCO-4)
Page: 1 of 2
Witness: CCObikwelu
Date: November 2024

Renewable Energy Credit Portfolio for Sales to Jurisdictional and Non-Jurisdictional Customers

RECs Obtained from Current Year: January 2023 - December 2045

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)
		Existing Renewables				Build Renewables						REPA Renewables								
	Year	RECs Generated	On-Peak Incentive RECs	Pumping Incentive RECs	Total RECs	RECs Generated	On-Peak Incentive RECs	Michigan Labor Incentive RECs	Michigan Equipment Incentive RECs	Solar Production Incentive RECs	Total RECs	RECs Generated	On-Peak Incentive RECs	Michigan Labor Incentive	Michigan Equipment Incentive	Solar Production Incentive	Total RECs	*Surplus EOCs/EWR	Market Purchases	Total RECs from Current Year
		RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs	RECs
1	2023	742,336	69,148	134,308	945,792	1,270,479	422	57,171	36,888	0	1,364,960	1,270,756	42,422	525	129	10,060	1,323,892	168,429	0	**3,803,073**
2	2024	611,921	107,636	124,501	844,058	1,793,679	693	39,460	12,666	0	1,846,498	1,615,235	94,060	17,890	0	13,504	1,740,689	1,621	0	**4,432,866**
3	2025	531,177	83,041	124,501	738,719	1,792,348	693	39,352	12,631	0	1,845,024	1,894,639	134,294	42,091	2,755	13,504	2,087,284	362	0	**4,671,389**
4	2026	523,988	81,747	124,501	730,236	2,517,364	105,096	72,502	12,325	0	2,707,286	2,229,483	182,512	62,083	8,505	13,504	2,496,086	0	243,286	**6,176,894**
5	2027	522,260	81,436	124,501	728,197	3,266,434	212,962	147,409	25,059	0	3,651,864	2,619,523	238,677	78,376	9,337	12,681	2,958,594	0	245,144	**7,583,799**
6	2028	476,449	73,190	124,501	674,141	4,496,472	353,174	265,434	48,548	0	5,163,628	3,520,014	368,348	127,579	11,719	5,327	4,032,988	0	253,310	**10,124,066**
7	2029	406,851	60,663	124,501	592,014	5,490,415	423,352	241,043	51,119	0	6,205,928	4,260,597	474,992	155,528	10,909	5,327	4,907,353	0	256,631	**11,961,926**
8	2030	397,248	58,934	124,501	580,683	6,494,917	494,710	301,223	68,076	0	7,358,926	4,749,452	545,387	149,507	10,843	5,327	5,460,516	0	881,457	**14,281,583**
9	2031	385,701	56,856	124,501	567,058	6,982,060	564,866	234,016	53,739	0	7,834,681	5,221,405	613,348	102,838	0	5,327	5,942,919	0	915,285	**15,259,943**
10	2032	385,701	56,856	124,501	567,058	7,489,973	637,249	193,563	40,666	0	8,361,452	9,499,111	678,206	103,336	0	4,511	10,285,163	0	958,493	**20,172,166**
11	2033	385,701	56,856	124,501	567,058	7,956,839	705,418	151,616	27,291	0	8,841,163	9,932,473	742,855	103,099	0	0	10,778,426	0	995,847	**21,182,494**
12	2034	385,701	56,856	124,501	567,058	8,436,281	774,455	151,501	27,270	0	9,389,508	10,410,382	811,667	103,021	0	0	11,325,071	0	1,019,224	**22,300,861**
13	2035	385,701	56,856	124,501	567,058	8,916,936	843,529	151,507	27,271	0	9,939,243	12,926,615	880,614	103,025	0	0	13,910,254	0	1,245,304	**25,661,859**
14	2036	385,701	56,856	124,501	567,058	9,409,229	913,545	151,634	27,294	0	10,501,702	13,429,080	949,831	103,111	0	0	14,482,022	0	0	**25.550.783**
15	2037	385,701	56,856	124,501	567,058	9,877,545	981,866	151,782	27,321	0	11,038,515	13,885,707	1,018,769	103,212	0	0	15,007,688	0	0	**26,613,261**
16	2038	385,701	56,856	124,501	567,058	10,217,250	1,030,896	138,915	25,005	0	11,412,066	14,220,512	1,067,499	94,462	0	0	15,382,473	0	0	**27,361,597**
17	2039	384,444	55,950	124,501	564,895	10,434,166	1,062,153	113,585	20,445	0	11,630,348	14,435,504	1,098,551	77,238	0	0	15,611,293	0	0	**27,806,537**
18	2040	383,545	55,303	124,501	563,350	10,541,380	1,076,664	75,772	13,639	0	11,707,456	14,553,992	1,112,231	51,525	0	0	15,717,748	0	0	**27,988,553**
19	2041	383,545	55,303	124,501	563,350	10,505,870	1,072,377	37,925	6,826	0	11,622,999	14,509,097	1,108,685	25,789	0	0	15,643,571	0	0	**27,829,919**
20	2042	383,545	55,303	124,501	563,350	10,461,962	1,066,062	12,610	2,270	0	11,542,904	14,463,491	1,102,151	8,575	0	0	15,574,217	0	0	**27,680,471**
21	2043	383,545	55,303	124,501	563,350	10,458,211	1,063,247	0	0	0	11,521,458	14,442,940	1,099,424	0	0	0	15,542,364	0	0	**27,627,171**
22	2044	383,545	55,303	124,501	563,350	10,417,957	1,059,026	0	0	0	11,476,983	14,147,943	1,054,831	0	0	0	15,202,774	0	0	**27,243,107**
23	2045	383,545	55,303	124,501	563,350	10,353,091	1,050,566	0	0	0	11,403,657	13,965,983	1,031,344	0	0	0	14,997,327	0	0	**26,964,333**
24	Total	9,983,557	1,458,412	2,873,332	14,315,301	##########	15,493,019	2,728,021	566,350	0	188,368,249	212,203,933	16,450,699	1,612,810	54,196	89,072	230,410,710	170,412	7,013,979	**440,278,651**

EOCs - Energy Optimization Credits
EWR - Energy Waste Reduction
*2023 EWR Excess Credit represents the value from MPSC Case No U-21557

Col (e): Sum of columns (b) thrrough (d)
Col (k): Sum of columns (f) through (j)
Col (q): Sum of columns (l) through (p)
Col (r): Workpaper: Obikwelu_WP_2024 Elec EWR Savings_Forecast_2023-2045 on 'Summary' tab
Col (s) 5% RPS market purchase RECs in accordance to PA 235 Section 28 (5)(c) to comply with the renewable energy standard
Col (t): Sum of columns (e) + (k) + (q) + (r) + (s)

Renewable Energy Credit Portfolio for Sales to Jurisdictional and Non-Jurisdictional Customers

RECs Obtained from Current Year: January 2023 - December 2045

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Year	**Jurisdictional Sales Factor**	**Non-Jurisdictional Sales Factor**	**Total RECs from Renewable Energy Plan**	**Surplus EOCs/EWR + Market Purchase**	**Total RECs from Current Year less (EWR Surplus+Market Purchase)**	**Total RECs for Jurisdictional Sales**	**Total RECs for Non-Jurisdictional Sales**
		%	**%**	**RECs**	**RECs**	**RECs**	**RECs**	**RECs**
1	2023	99.95%	0.05%	3,803,073	168,429	3,634,644	3,801,101	1,972
2	2024	99.95%	0.05%	4,432,866	1,621	4,431,245	4,430,650	2,216
3	2025	99.95%	0.05%	4,671,389	362	4,671,027	4,669,287	2,103
4	2026	99.96%	0.04%	6,176,894	243,286	5,933,609	6,174,368	2,526
5	2027	99.96%	0.04%	7,583,799	245,144	7,338,655	7,580,866	2,933
6	2028	99.96%	0.04%	10,124,066	253,310	9,870,756	10,120,252	3,813
7	2029	99.96%	0.04%	11,961,926	256,631	11,705,295	11,957,618	4,307
8	2030	99.97%	0.03%	14,281,583	881,457	13,400,126	14,276,942	4,641
9	2031	99.97%	0.03%	15,259,943	915,285	14,344,658	15,255,161	4,782
10	2032	99.97%	0.03%	20,172,166	958,493	19,213,674	20,165,923	6,244
11	2033	99.97%	0.03%	21,182,494	995,847	20,186,648	21,176,039	6,455
12	2034	99.97%	0.03%	22,300,861	1,019,224	21,281,637	22,294,204	6,657
13	2035	99.97%	0.03%	25,661,859	1,245,304	24,416,555	25,654,336	7,523
14	2036	99.97%	0.03%	25,550,783	-	25,550,783	25,543,018	7,765
15	2037	99.97%	0.03%	26,613,261	-	26,613,261	26,605,244	8,017
16	2038	99.97%	0.03%	27,361,597	-	27,361,597	27,353,409	8,188
17	2039	99.97%	0.03%	27,806,537	-	27,806,537	27,798,243	8,294
18	2040	99.97%	0.03%	27,988,553	-	27,988,553	27,980,220	8,333
19	2041	99.97%	0.03%	27,829,919	-	27,829,919	27,821,601	8,318
20	2042	99.97%	0.03%	27,680,471	-	27,680,471	27,672,159	8,312
21	2043	99.97%	0.03%	27,627,171	-	27,627,171	27,618,834	8,337
22	2044	99.97%	0.03%	27,243,107	-	27,243,107	27,234,848	8,259
23	2045	99.97%	0.03%	26,964,333	-	26,964,333	26,956,112	8,221
	Total	-	-	440,278,651	7,184,391	433,094,260	440,140,435	138,216

EOCs - Energy Optimization Credits
EWR - Energy Waste Reduction
Col (d): From Exhibit A-36 (CCO-4), pg 1, Col (t)
Col (e): Exhibit A-36 (CCO-4), pg 1, Col (r) + Exhibit A-36 (CCO-4), pg 1, Col (s)
Col (f): Col (d) minus Col (e)
Col (g): Col (f) * Col (b) + Col (e)
Col (h): Col (d) minus Col (g)

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
Exhibit No.: A-37 (CCO-5)
Page: 1 of 1
Witness: CCObikwelu
Date: November 2024

Renewable Energy Credit Portfolio for Jurisdictional Compliance

January 2023 - December 2045

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Year	**REC Portfolio Standard**	**Total REC Compliance Obligation**	**Total RECs from Current Year**	**RECs Used from Current Year**	**RECs Used from Bank**	**Total RECs Used for Compliance**	**Total RECs (Sold) / Purchased**	**Cumulative RECs Banked and Carried Over to Next Year**
1	2023	15.0%	4,847,339	3,801,101	1,530,378	3,316,961	4,847,339	-	2,270,723
2	2024	15.0%	4,837,074	4,430,650	2,566,351	2,270,723	4,837,074	-	1,864,299
3	2025	15.0%	4,848,679	4,669,287	2,984,380	1,864,299	4,848,679	-	1,684,907
4	2026	15.0%	4,865,712	6,174,368	3,180,805	1,684,907	4,865,712	243,286	2,993,563
5	2027	15.0%	4,902,878	7,580,866	1,909,315	2,993,563	4,902,878	245,144	5,671,551
6	2028	15.0%	5,066,190	10,120,252	-	5,066,190	5,066,190	253,310	10,725,613
7	2029	15.0%	5,132,615	11,957,618	-	5,132,615	5,132,615	256,631	17,550,616
8	2030	50.0%	17,629,134	14,276,942	78,518	17,550,616	17,629,134	881,457	14,198,424
9	2031	50.0%	18,305,704	15,255,161	4,107,280	14,198,424	18,305,704	915,285	11,147,881
10	2032	50.0%	19,169,851	20,165,923	8,021,970	11,147,881	19,169,851	958,493	12,143,953
11	2033	50.0%	19,916,936	21,176,039	7,772,983	12,143,953	19,916,936	995,847	13,403,056
12	2034	50.0%	20,384,486	22,294,204	6,981,430	13,403,056	20,384,486	1,019,224	15,312,774
13	2035	60.0%	24,906,071	25,654,336	9,593,297	15,312,774	24,906,071	1,245,304	16,061,038
14	2036	60.0%	25,302,993	25,543,018	9,241,955	16,061,038	25,302,993	-	16,301,063
15	2037	60.0%	25,762,645	26,605,244	9,461,582	16,301,063	25,762,645	-	17,143,662
16	2038	60.0%	26,106,888	27,353,409	8,963,226	17,143,662	26,106,888	-	18,390,184
17	2039	60.0%	26,374,620	27,798,243	7,984,436	18,390,184	26,374,620	-	19,813,807
18	2040	60.0%	26,545,940	27,980,220	6,732,133	19,813,807	26,545,940	-	21,248,087
	2041	60.0%	26,651,492	27,821,601	5,403,405	21,248,087	26,651,492	-	22,418,196
	2042	60.0%	26,657,549	27,672,159	4,239,353	22,418,196	26,657,549	-	23,432,806
19	2043	60.0%	26,587,501	27,618,834	3,154,695	23,432,806	26,587,501	-	24,464,139
20	2044	60.0%	26,453,506	27,234,848	1,989,367	24,464,139	26,453,506	-	25,245,481
21	2045	60.0%	26,313,255	26,956,112	1,067,774	25,245,481	26,313,255	-	25,888,338
22	Total		417,569,058	440,140,435	106,964,632	310,604,426	417,569,058	7,013,979	339,374,161

2,270,723

Col (c): From Exhibit A-33 (CCO-1), col (f)
Col (d): From Exhibit A-36 (CCO-4), page 2, col (g)
Col (g): Col (e) + Col (f)

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Case No.: U-21816
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Witness: CCObikwelu
Date: November 2024

Renewable Energy Plan Renewable Energy Credit Inventory Costs

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	Year	**RECs from Current Year**	**REC Cost**	**Total RECs (Sold) / Purchased**	**REC Cost (From) / To Inventory**	**Average REC Cost**	**Cumulative RECs Banked and Carried Over to Next Year**	**Cost of RECs Banked and Carried Over to Next Year**	**Average REC Inventory Value**	**Total RECs used for Compliance**	**Cost of RECs Used for Compliance**	**REC Cost From (To) Inventory**
		REC	**$**	**REC**	**$**	**$/REC**	**REC**	**$**	**$**	**REC**	**$**	**$**
1	2023	3,801,101	7,640,302	0	0	2.01	2,270,723	4,564,206	2,282,103	4,847,339	9,743,265	2,102,963
2	2024	4,430,650	7,864,942	0	0	1.85	1,864,299	3,457,747	4,010,976	4,837,074	8,971,402	1,106,460
3	2025	4,669,287	8,180,778	0	0	1.78	1,684,907	3,001,389	3,229,568	4,848,679	8,637,136	456,358
4	2026	6,174,368	8,047,667	243,286	486,571	1.47	2,993,563	4,393,869	3,697,629	4,865,712	7,141,758	-905,909
5	2027	7,580,866	7,965,797	245,144	490,288	1.22	5,671,551	6,892,019	5,642,944	4,902,878	5,957,935	-2,007,862
6	2028	10,120,252	8,064,631	253,310	506,619	0.98	10,725,613	10,502,477	8,697,248	5,066,190	4,960,793	-3,103,838
7	2029	11,957,618	8,029,091	256,631	513,262	0.84	17,550,616	14,735,489	12,618,983	5,132,615	4,309,341	-3,719,750
8	2030	14,276,942	7,806,941	881,457	1,762,913	0.76	14,198,424	10,842,728	12,789,109	17,629,134	13,462,615	5,655,674
9	2031	15,255,161	7,136,708	915,285	1,830,570	0.67	11,147,881	7,497,885	9,170,307	18,305,704	12,312,121	5,175,413
10	2032	20,165,923	6,716,827	958,493	1,916,985	0.52	12,143,953	6,256,109	6,876,997	19,169,851	9,875,588	3,158,761
11	2033	21,176,039	6,173,560	995,847	1,991,694	0.43	13,403,056	5,801,032	6,028,571	19,916,936	8,620,331	2,446,771
12	2034	22,294,204	6,179,171	1,019,224	2,038,449	0.39	15,312,774	6,013,471	5,907,252	20,384,486	8,005,181	1,826,009
13	2035	25,654,336	6,190,569	1,245,304	2,490,607	0.36	16,061,038	5,760,995	5,887,233	24,906,071	8,933,653	2,743,084
14	2036	25,543,018	6,199,184	0	0	0.29	16,301,063	4,686,169	5,223,582	25,302,993	7,274,010	1,074,826
15	2037	26,605,244	6,207,125	0	0	0.25	17,143,662	4,352,529	4,519,349	25,762,645	6,540,765	333,640
16	2038	27,353,409	6,216,196	0	0	0.24	18,390,184	4,367,946	4,360,237	26,106,888	6,200,779	-15,417
17	2039	27,798,243	6,223,228	0	0	0.23	19,813,807	4,543,378	4,455,662	26,374,620	6,047,796	-175,432
18	2040	27,980,220	6,233,408	0	0	0.23	21,248,087	4,791,103	4,667,240	26,545,940	5,985,683	-247,725
19	2041	27,821,601	6,238,878	0	0	0.22	22,418,196	5,039,206	4,915,154	26,651,492	5,990,774	-248,103
20	2042	27,672,159	6,247,475	0	0	0.23	23,432,806	5,280,031	5,159,618	26,657,549	6,006,650	-240,825
21	2043	27,618,834	6,244,705	0	0	0.23	24,464,139	5,522,697	5,401,364	26,587,501	6,002,039	-242,667
22	2044	27,234,848	6,075,751	0	0	0.22	25,245,481	5,663,716	5,593,207	26,453,506	5,934,732	-141,019
23	2045	26,956,112	5,740,634	0	0	0.22	25,888,338	5,655,760	5,659,738	26,313,255	5,748,590	7,957

Column (b) From Exhibit A-37 (CCO-5), Col (d)
Column (c) Workpaper: Obikwelu_WP_2024 REC Cost Calculation - 2023-2045
Column (d) From Exhibit A-37 (CCO-5), Col (h)
Column (e) Column (d) * $2 (assumed $/REC for RECs market purchases as supported by PA 235 Section 28)
Column (f) Sum of current year Col (c) + (e) + prior year Col (h) divided by / sum of current year col (b) + prior year col (g)
Column (g) From Exhibit A-37 (CCO-5), Col (i)
Column (h) Col (f) muntilpied by (g)
Column (i) Average of current year plus previous year Col (h)
Column (j) From Exhibit A-37 (CCO-5), Col (g)
Column (k) Col (f) multiplied by Col (j)
Column (l) Col (k) minus Col (c)

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of **CONSUMERS ENERGY COMPANY's** application for the regulatory reviews, revisions, determinations, and/or approvals necessary to fully comply with Public Act 295 of 2008, as amended by Public Act 235 of 2023.	)	Case No. U-21816

PROOF OF SERVICE

STATE OF MICHIGAN)
) SS
COUNTY OF JACKSON)

Melissa K. Harris, being first duly sworn, deposes and says that she is employed in the Legal Department of Consumers Energy Company; that on November 15, 2024, she served an electronic copy of the **Application with supporting Testimony and Exhibits of Consumers Energy Company witnesses Emily A. Walainis, Marc R. Bleckman, Chibuzo CF. Obikwelu, and Hannah L. Patton** upon the persons listed in Attachment 1 hereto, at the e-mail addresses listed therein.

Melissa K. Harris

Subscribed and sworn to before me this 15th day of November, 2024.

Jennifer Joy Yocum, Notary Public
State of Michigan, County of Jackson
My Commission Expires: 12/17/24
Acting in the County of Jackson

ATTACHMENT 1 TO CASE NO. U-21816

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* Receives Confidential Materials