



# Status of Renewable Energy, Distributed Generation, and Legacy Net Metering in Michigan

September 29, 2023

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## Contents

Executive Summary .....	i
Introduction.....	1
Renewable Portfolio Standard .....	1
Renewable Energy Credit Portfolio Standard – 2021 Compliance .....	2
Voluntary Green Pricing Programs.....	4
Utility Integrated Resource Plans.....	5
PURPA Purchases .....	6
Renewable Energy Data.....	7
Progress Toward the 35% by 2025 Goal .....	9
Renewable Energy Cost .....	9
Distributed Generation and Legacy Net Metering.....	12
Level 1: DG program for projects 20 kW and smaller (certified equipment) .....	12
Level 2: DG program for projects over 20 kW and as large as 150 kW.....	13
Level 3: Limited to Methane Digesters over 150 kW and as large as 550 kW .....	13
Distributed Generation Program Data .....	13
Conclusion .....	18
Appendices.....	20

## Executive Summary

This is the first Michigan Public Service Commission (Commission) annual report combining and summarizing renewable energy activities related to the Renewable Energy Portfolio Standard (RPS) pursuant to Public Act 295 of 2008 (PA 295), as amended by Public Act 342 of 2016 (PA 342); Voluntary Green Pricing Programs (VGP); Integrated Resource Plans (IRP); Public Utility Regulatory Policies Act (PURPA) resources; and the Distributed Generation and Legacy Net Metering Programs.<sup>1</sup>

For 2021, electric providers were required to retire<sup>2</sup> the number of Renewable Energy Credits (RECs)<sup>3</sup> needed to meet the 15% RPS. 2021 was the final year of statutory renewable portfolio standard requirements. All<sup>4</sup> of Michigan's electric providers subject to the renewable portfolio standard in 2021 met this requirement. **Figure ES-1** shows the different renewable energy technologies used to generate the RECs retired for compliance by all electric providers in 2021. After 2021, all rate-regulated electric providers plan to maintain a 15% standard. Additionally, most of the non-rate-regulated electric providers intend to voluntarily meet the 15% standard for 2022 and beyond. Wind generation currently accounts for the majority of RECs used to meet the portfolio standard, but increasingly favorable economics have led to solar installations emerging as the primary new renewable energy resource for most of Michigan's electric providers.

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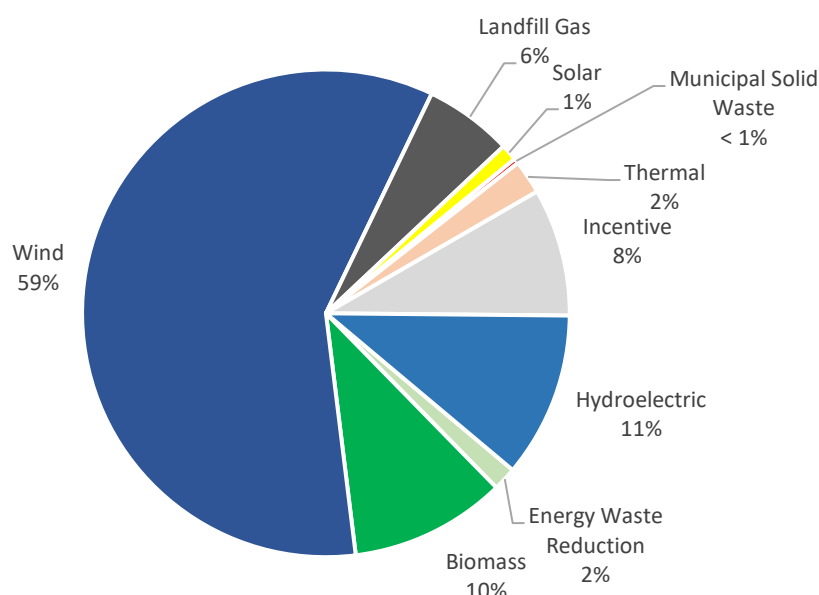
<sup>1</sup> Subject to Section 51 of Public Act 295, as amended, the MPSC was directed to prepare an annual report summarizing the Commission's activities related to PA 295 and electric provider's annual reports. Section 51 was repealed effective January 1, 2023. The final reports issued pursuant to Section 51 are available at the MPSC's website: <https://www.michigan.gov/mpsc/regulatory/reports/legislative>

<sup>2</sup> Renewable energy credits are "retired" when used for compliance.

<sup>3</sup> The term "renewable energy credit" includes renewable energy credits, Michigan incentive renewable energy credits, and energy waste reduction credits when substituted for renewable energy credits.

<sup>4</sup> Through the 2021 compliance year there were 65 electric providers subject to the renewable energy standard including: 7 rate-regulated utilities, 10 cooperative utilities, 40 municipal utilities, and 8 AESs. Fifteen licensed AESs not currently serving customers are not included in this total.

**Figure ES-1: Compliance REC Breakdown**  
**All Electric Providers – 2021 Compliance RECs**  
 14,545,315 Total RECs



While electric providers retired enough RECs to achieve the 15% renewable portfolio standard using RECs generated from 2017 to 2021 it is useful to note that based on the number of RECs generated only in 2021, Michigan's 2021 renewable energy percentage was equal to 14.1%<sup>5</sup> of retail sales. The remainder was accomplished through the use of prior year banked RECs. PA 342 extended the life for RECs generated after April 1, 2017, to five years from the previous three-year REC "banking" allowance.<sup>6</sup> All RECs are tracked through the Michigan Renewable Energy Certification System (MIRECS).<sup>7</sup>

By the end of 2022, Michigan's rate-regulated electric providers had approximately 6,000 MW of approved renewable energy projects within Michigan, as shown in the contract summary in **Appendix A**. It should be noted that the actual amount of renewable generation within the state will exceed this number as non-rate-regulated electric providers are not required to submit renewable energy contracts to the Commission for review. When factoring in rate-regulated electric provider projections in IRPs, it is expected that Michigan's rate-regulated electric providers will have over 8,000 MW of operational renewable energy by the end of 2026.

<sup>5</sup> MIRECS vintage 2021 RECs and 2020 retail sales data were used to calculate the percentage.

<sup>6</sup> RECS used to comply in 2021 were primarily from renewable energy generated in 2019 and 2020.

<sup>7</sup> <https://mirecs.org/>

## Introduction

This is the first Michigan Public Service Commission (Commission) annual report which provides information on renewable energy activities through calendar year 2022 and summarizes data from electric provider 2021 annual reports and the contract summary as shown in **Appendix A**. Additionally, this report shows renewable energy projections through 2026 based on the Renewable Portfolio Standard (RPS), Voluntary Green Pricing Programs (VGP), Integrated Resource Plans (IRPs), Public Utility Regulatory Policies Act (PURPA) resources, and the Distributed Generation and Legacy Net Metering Programs.<sup>8</sup>

## Renewable Portfolio Standard

PA 342 (Act) provided for RPS requirements of 12.5% in 2019 and 2020 and 15% in 2021, which was the final year of statutory RPS requirements. The RPS was applicable to Michigan's rate-regulated electric utilities, cooperative electric utilities, municipal electric utilities, and alternative electric suppliers (AESs). Electric providers filed initial Renewable Energy Plans (REP) in 2009.<sup>9</sup> The 74 initial REPs described how each electric provider intended to meet the RPS requirements. Prior to PA 342, PA 295 directed electric providers to file REPs biennially for Commission review. PA 342 directed the Commission to review each electric provider's REP within one year of the Act's effective date and eliminated the requirement for biennial REP filings.

All REPs filed by Michigan's seven rate-regulated electric providers show the continued achievement of a 15% renewable energy credit<sup>10</sup> (REC) portfolio from 2021 through the end of the 20-year plan period in 2029. In addition to the portfolio standard, many of Michigan's providers are planning for additional renewable generation growth as part of their IRPs.

Per Section 49(1) of the Act, seven rate-regulated electric providers filed annual renewable energy cost reconciliation cases for 2021. Commission staff examined the pertinent revenues and expenses, determined the electric provider's compliance with its filed REP, and assessed whether the provider met its compliance targets.<sup>11</sup>

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<sup>8</sup> Subject to Section 51 of Public Act 295, as amended, the MPSC was directed to prepare an annual report summarizing the Commission's activities related to PA 295 and electric provider's annual reports. Section 51 was repealed effective January 1, 2023. The final reports issued pursuant to Section 51 are available at the MPSC's website: <https://www.michigan.gov/mpsc/regulatory/reports/legislative>

<sup>9</sup> Through the 2021 compliance year there were 65 electric providers subject to the renewable energy standard including: 7 rate-regulated utilities, 10 cooperative utilities, 40 municipal utilities, and 8 AESs. Fifteen licensed AESs not currently serving customers are not included in this total.

<sup>10</sup> The term "renewable energy credit" includes renewable energy credits, Michigan incentive renewable energy credits, and energy waste reduction credits when substituted for renewable energy credits.

<sup>11</sup> Link to 2021 electric provider reconciliation filings: [https://www.michigan.gov/mpsc/0,9535,7-395-93308\\_93325\\_93423\\_93502\\_94989-506587--,00.html](https://www.michigan.gov/mpsc/0,9535,7-395-93308_93325_93423_93502_94989-506587--,00.html)

Electric providers were directed by Section 51(1) of PA 295 to file annual reports for each plan year beginning with 2009. While this Section is repealed, the Commission issued Orders in Case No. U-15825 *et al* on July 27, 2022, requesting that non-rate-regulated electric providers continue to voluntarily submit annual reports through the end of the 20-year plan period in 2029. Rate-regulated electric providers will continue to provide annual reports as part of their renewable energy cost reconciliation cases. Michigan electric provider annual reports for 2009 through 2021 are available on the Commission's website.<sup>12</sup>

## Renewable Energy Credit Portfolio Standard – 2021 Compliance

PA 342 required providers to meet the 15% renewable portfolio standard through 2021. Section 28 of the Act was rescinded therefore eliminating the statutory requirement. After 2021, all rate-regulated electric providers plan to maintain a 15% standard. Additionally, most of the non-rate-regulated electric providers intend to continue to voluntarily meet the 15% standard for 2022 and beyond. The number of RECs required for 2021 compliance was calculated by multiplying the applicable electric provider retail sales figure by the 15% compliance percentage. All of Michigan's electric providers subject to the standard in 2021 met the standard and retired<sup>13</sup> a total of 14,545,315 RECs. **Figure 1** shows the different renewable energy technologies used to generate RECs for the 2021 compliance by all electric providers.

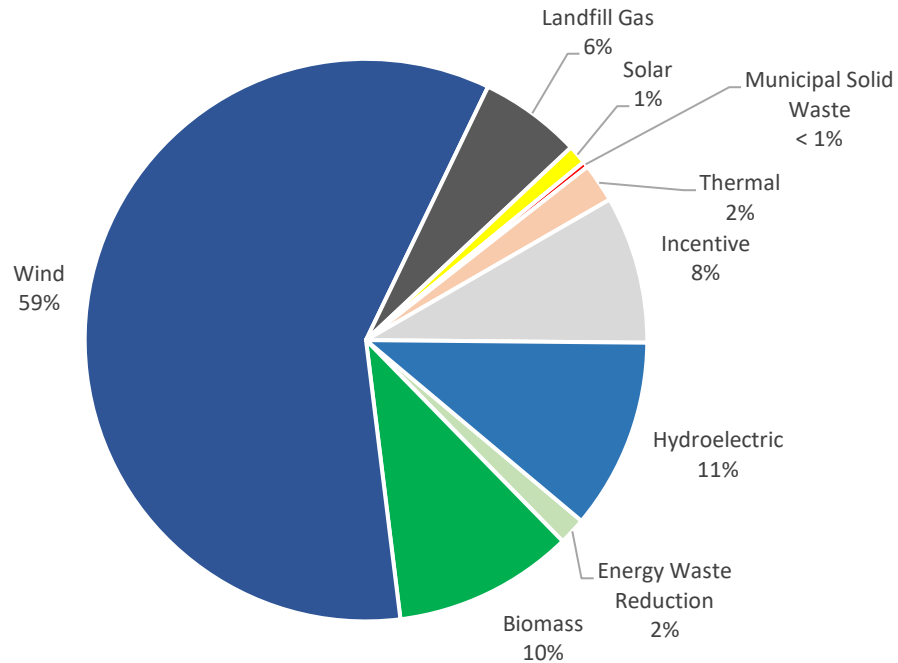
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<sup>12</sup> Link to 2022 electric provider annual reports:

<https://www.michigan.gov/mpsc/regulatory/electricity/renewable-energy/renewable-energy-filings/2022-renewable-energy-annual-reports>

<sup>13</sup> RECs are "retired" when used for compliance.

**Figure 1: Compliance REC Breakdown**  
**All Electric Providers – 2021 Compliance RECs**  
 14,545,315 Total RECs



For 2022, the number of RECs that the non-rate-regulated electric providers voluntarily retired was 3,102,942. The number of RECs that rate-regulated electric providers retired to continue meeting the 15% compliance standard was 11,497,460. Of the non-rate-regulated electric providers, nearly all chose to voluntarily meet the 15% standard. The total number of RECs that were retired for 2022 for both rate-regulated and non-rate-regulated providers was 14,600,402 RECs.

Section 29 of PA 342 includes provisions for determining whether the location of a renewable energy project is eligible for Michigan's renewable portfolio standard. Nearly 97% of the RECs used for 2021 compliance were from renewable energy generated in Michigan. Indiana was the source of 1.5%, Wisconsin was 1.4% and a small number of RECs came from renewable energy generated in Iowa and Minnesota.



## Voluntary Green Pricing Programs

Renewable energy supply needed for compliance with the RPS has largely been constructed with the final projects achieving commercial operation in 2022 and 2023.<sup>14</sup> A growing number of customers have shown interest in additional renewable energy supply beyond the portfolio standard and are turning to their electric provider to provide renewable additionality.<sup>15</sup> VGP programs are becoming a major driver of new renewable energy growth in Michigan. Section 61 of PA 342 requires each electric provider to "...offer its customers the opportunity to participate in a voluntary green pricing program...". These programs provide customers the option to match up to 100% of their electric usage with renewable energy. Electric providers whose rates are regulated by the Commission have developed these programs and the Commission has approved the rates paid by participating customers for renewable energy. After the initial utility VGP case filings were conducted in 2017 and 2018, the Commission established a biennial review timeframe for these cases.

Although VGP is intended to provide additionality outside of the RPS, both Consumers Energy and DTE Electric have requested and received Commission approval to utilize the PA 295 renewable energy cost recovery mechanism for any unsubscribed portion of the VGP program renewable energy supply. This cost recovery mechanism has several advantages over traditional utility cost recovery for these programs, including:

- Under the renewable energy plan cost recovery mechanism, utility cost recovery begins when the project achieves commercial operation.
- The cost recovery mechanism allows the utility to recover costs according to traditional utility revenue requirement and depreciation accounting methods while the participating customer pays for renewable energy on a levelized cost basis for the life of the project. Under a traditional generation asset cost recovery methodology, the utility revenue requirement is higher than the project's levelized cost in the first half of the project life and lower in the last half.
- Any unsubscribed energy and RECs may be utilized by the renewable energy plan program for compliance with the renewable portfolio standard.

Any RECs associated with a customer's participation in a VGP program may not be used for the electric provider's RPS compliance, because, as previously mentioned, the program is intended to promote additionality.

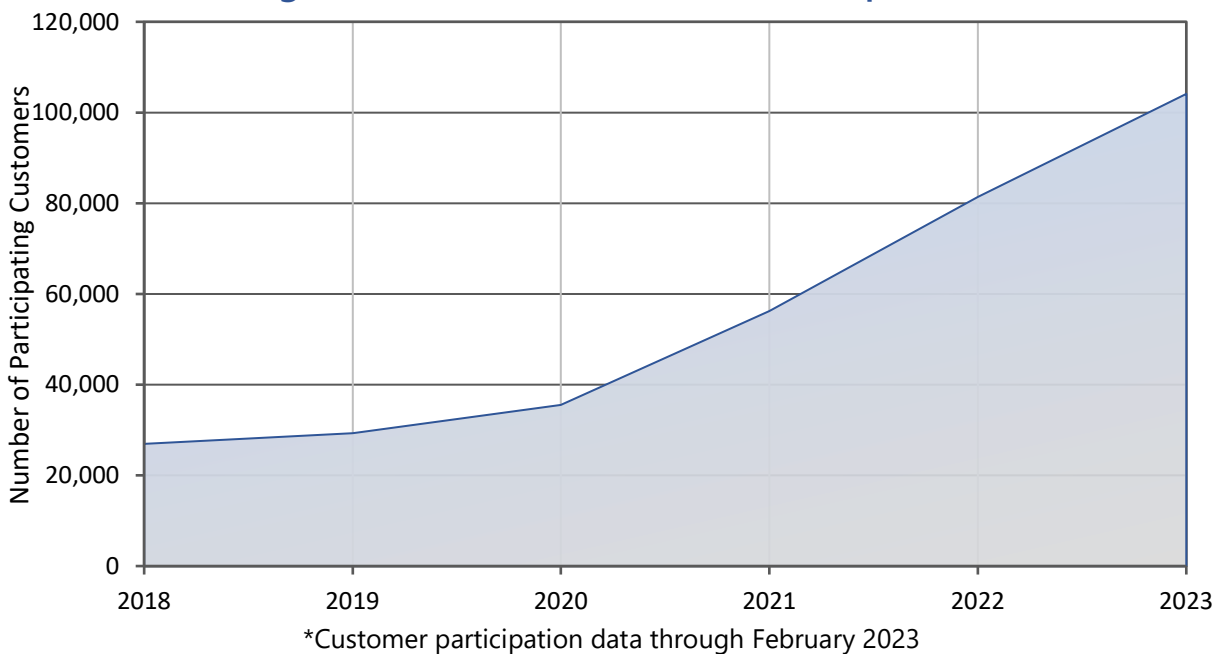
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<sup>14</sup> While 2021 was the benchmark year to meet the 15% portfolio standard, PA 342 allows for compliance using banked RECs with a 5-year life. Therefore, providers could still comply with the standard without contracting for, or owning, renewable generating units that add to exactly 15%.

<sup>15</sup> Additionality refers to the renewable generation that is above and beyond any state or federal renewable standards.

VGP programs in Michigan are experiencing strong growth, particularly from commercial and industrial customers. A majority of participants in VGP programs are customers of Consumers Energy Company and DTE Electric Company. At this time, both electric providers have exhausted the currently available renewable energy supply for their commercial and industrial programs as renewable energy pricing has reached market parity. The demand for VGP program supply is significantly contributing to renewable energy growth, as evidenced in **Figure 2**.

**Figure 2: Total VGP Customer Participation**



## Utility Integrated Resource Plans

As shown in **Figure 5** below, renewable energy costs in Michigan have declined since the approval of the first PA 295 renewable energy supply contracts in 2009. This cost decrease and environmental benefits related to renewable generation are key factors contributing to the selection of renewable energy projects as a supply resource in capacity planning efforts outside of the RPS.

Public Act 341 of 2016 (PA 341), Section 6t, requires utilities to file IRPs every five years that look at anticipated customer electricity needs over the next 5, 10, and 15 years (although many plan out to 20 years and beyond), as well as the appropriate mix of resources to serve those needs, including base load generation, renewable energy, energy waste reduction, demand response, energy storage, and customer-owned resources. The first round of IRPs has concluded, and many electric providers have either concluded or are actively involved in their second filings. Renewable energy, particularly solar, continues to be a key resource in the future supply mix to meet customer electricity needs.

**Table 1** summarizes the most recent IRPs and planned renewable energy additions included in utilities' preferred course of action.

**Table 1: Integrated Resource Plans – Preferred Course of Action  
Renewable Energy Additions**

Utility	MPSC Case Number	Renewable Energy Approved for the Initial 3-Years	3-Year Post IRP Filing Period	Renewable Energy in Current Preferred Course of Action throughout IRP Planning Horizon
Alpena Power	U-20300		07/2022 – 07/2025	Provided through future REC contracts*
Consumers Energy	U-21090	250 MW	06/2022 – 06/2025	4,500 MW of solar by 2030 and 6,000 MW by 2040
DTE Electric	U-21193	400 MW solar	04/2023 – 04/2026	6,500 MW solar and 8,900 MW wind
Indiana Michigan**	U-21189	800 MW wind, 500 MW solar	09/2023 – 09/2026	2,200 MW solar and 1,600 MW wind
Northern States Power Wisconsin Xcel*	U-20599		02/2020 – 02/2023	5,200 MW (4,000 MW solar, 1,200 MW wind)
Upper Michigan Energy Resource Corporation	U-21081		10/2022 – 10/2025	100 MW solar
Upper Peninsula Power Company	U-20350	20 MW solar	02/2020 – 02/2023	UPPCO is currently pursuing a 22.5 MW PPA and 62.5 MW of company-owned solar through competitive solicitation.
<p>*Explained in Renewable Energy Reconciliation Case No. U-21351</p> <p>**Data provided for Indiana Michigan Power Company and Northern States Power Wisconsin (Xcel) is representative of the Company's multi-state service territory.</p> <p>Renewable energy quantities are subject to change according to actual contracting results and adjustments to the preferred course of action in future IRP cases.</p>				

## PURPA Purchases

In 1978, Congress passed, the Public Utility Regulatory Policies Act, commonly referred to as PURPA. PURPA requires that electric utilities interconnect with qualifying facilities (QF), purchase

energy and capacity at the utility's avoided cost, and sell supplemental, backup, maintenance, and interruptible power to the QF on a non-discriminatory basis. Michigan has seen considerable growth in the number of QFs that have projects, or are planning projects, with investor-owned utilities.

During 2019 and 2020, Consumers had a significant increase in the number of executed PURPA QF Power Purchase Agreements (PPAs) resulting in the vast majority of new PURPA resources within the state. The surge was the result of a settlement agreement approved in a September 11, 2019, Commission Order in Case No. U-20615.<sup>16</sup> In this Order, Consumers agreed to award 170 MW to PURPA QFs of 20 MW or smaller that were in its interconnection queue as of a chosen cutoff date. Consumers also agreed to award 414 additional MW to PURPA QFs of 20 MW or smaller that were in CE's interconnection queue as of a second chosen cutoff date. **Appendix B** includes project sizes and locations for PURPA projects under Michigan Utility Scale Solar Farms.

In 2020, the Federal Energy Regulatory Commission (FERC) issued Order no. 872, reducing the rebuttable presumption for nondiscriminatory access to power markets from 20 MW down to five MWs for small power production facilities, which includes solar and wind.<sup>17</sup> Since this time, FERC has allowed Consumers, DTE, Indiana Michigan Power Company, Northern States Power Company, Upper Peninsula Power Company, and Upper Michigan Energy Resources Corporation to terminate the requirement under section 292.303(a) of PURPA to enter into new contracts or obligations to purchase electric energy and capacity from any small power production qualifying facility (QF) with a net capacity greater than five megawatts.

## Renewable Energy Data

Michigan Renewable Energy Certification System (MIRECS) data shows a total of 13,697,844 MWhs of renewable energy in 2021. Dividing the number of 2021 PA 342 eligible renewable MWhs by the 2020 RPS retail sales figure of 96,898,869 MWh yields an estimated renewable energy percentage of 14.1%, although, utilizing banked RECs and incentive RECs<sup>18</sup> (and in the case of Consumers Energy and DTE Electric, substituting a limited quantity of energy waste reduction credits for RECs), a total 14,545,315 RECs were retired to meet the 15% RPS. MIRECS data shows a total of 15,889,437 PA 342 eligible renewable MWhs generated in 2022. Dividing the number of 2022 PA 342 eligible MWhs by the 2021 RPS retail sales figure of 97,499,320 MWh yields an estimated renewable energy percentage of 16.2% for 2022, which is a significant increase over the 2021 percentage of 14.1%. For 2022, rate-regulated utilities and other electric providers voluntarily retired a total of 14,600,402 RECs.

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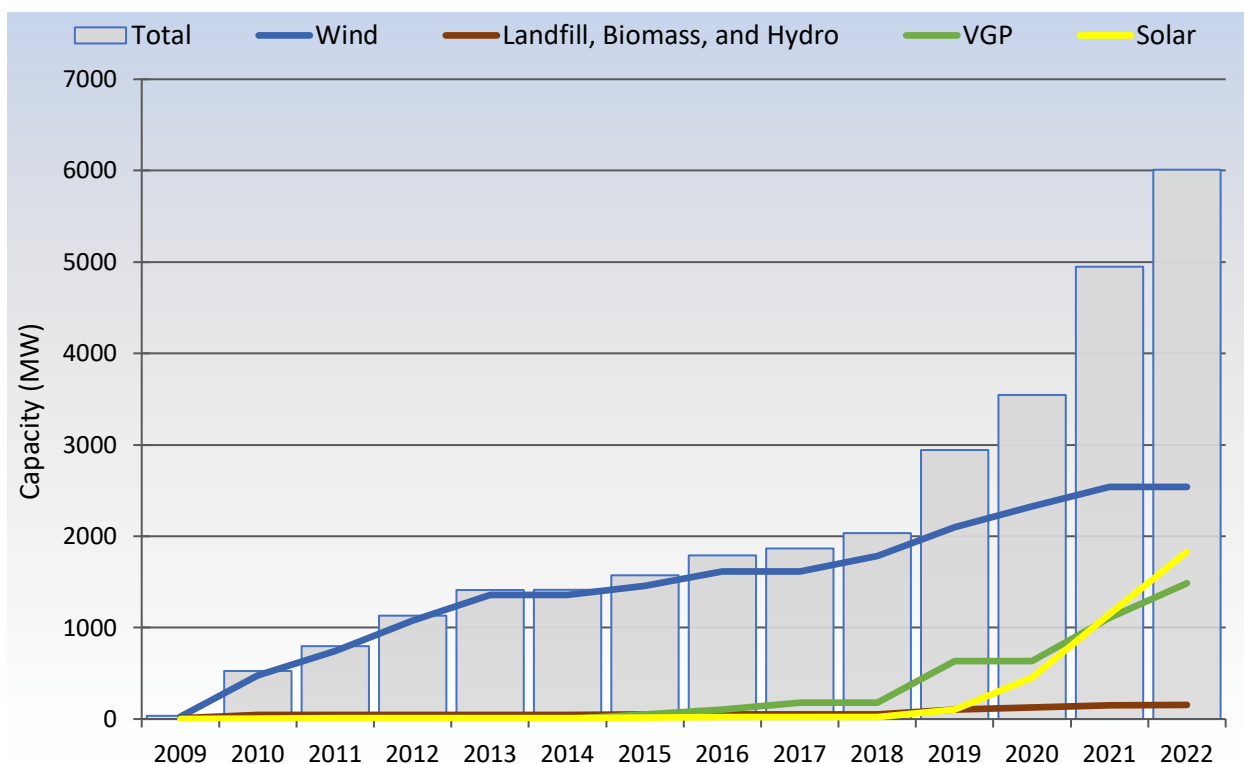
<sup>16</sup> <https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000005XvMxAAK>

<sup>17</sup> <https://www.ferc.gov/sites/default/files/2020-07/07-2020-E-1.pdf>

<sup>18</sup> Section 39 of PA 342 provided for incentive renewable energy credits if certain conditions were met.

**Figure 3** shows the growth of renewable capacity based on contracts filed for approval with the Commission as shown in **Appendix A**. Renewable projects developed by non-rate-regulated electric providers, where contracts are not filed for approval with the MPSC, are not reflected in **Figure 3**.<sup>19</sup>

**Figure 3: Cumulative Commission-Approved Renewable Energy Portfolio Capacity**



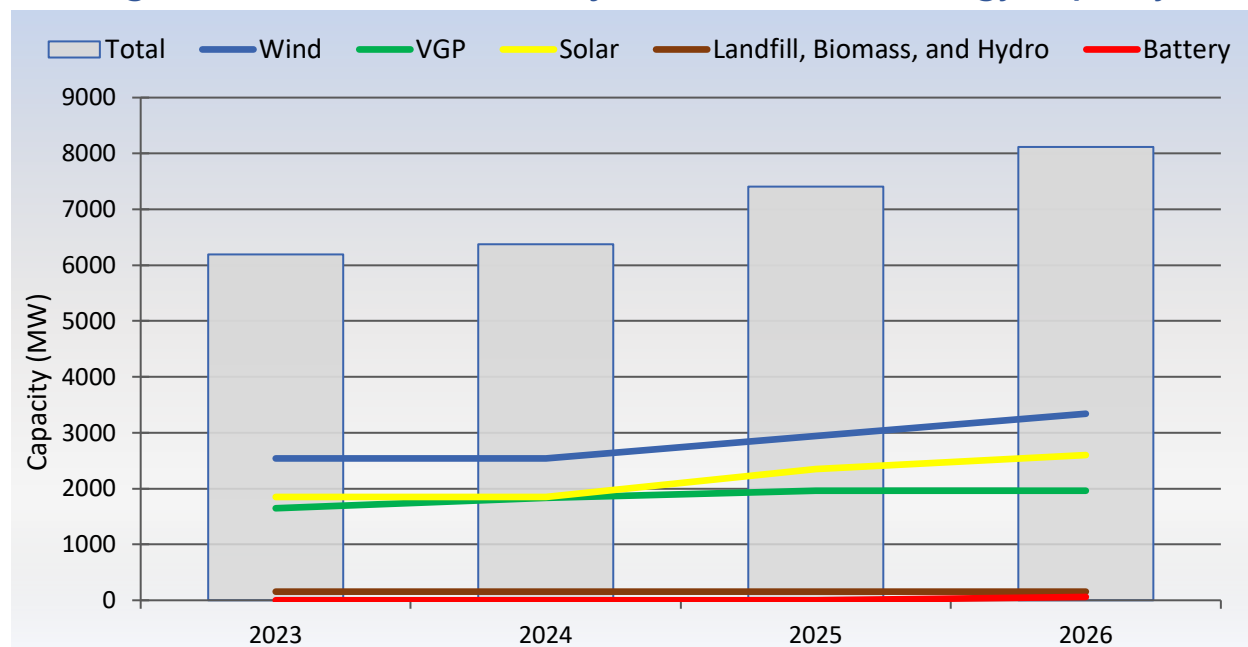
**Figure 4** shows the number of projected capacity additions based on VGP and IRP (including IRP modeled PURPA) projects approved by the Commission. It is expected that Michigan will have over 8,000 MW of renewable energy capacity by the end of 2026.<sup>20</sup> While the planning period for IRPs is 20 years, the figure shows the pre-approved capacity additions from the IRPs. Since IRPs are filed on a three-to-five-year cadence, projections beyond this are not included as they are subject to change with dynamic state and federal policy, future contested case proceedings and unforeseen events. Capacity additions for VGP are expected to continue to grow, though the most

<sup>19</sup> Nearly all AESs are purchasing unbundled renewable energy credits to meet the renewable energy credit portfolio requirements. The terms and conditions of these purchases are unknown.

<sup>20</sup> This number is based on projects that have been approved or will be reviewed by the Commission. This does not include projects from electric providers that are not subject to rate-regulation or renewable generation that existed prior to PA 295.

recent IRP cases include VGP simply as IRP capacity but do not clearly distinguish it from other capacity additions. Therefore, **Figure 4** shows only modest growth for VGP over the projection period.

**Figure 4: Combined Total Projected Renewable Energy Capacity**



### Progress Toward the 35% by 2025 Goal

Section 1 of PA 342 establishes a goal of not less than 35% of the state's electric needs should be met through a combination of energy waste reduction and renewable energy by 2025. However, the goal should only be met "...if the investments in energy waste reduction and renewable energy are the most reasonable means of meeting an electric utility's energy and capacity needs relative to other resource options." Renewable energy capacity additions beyond the 15% renewable portfolio standard and future energy waste reduction levels have been examined in each utility's IRP filed pursuant to 2016 PA 341 and are part the Michigan Integrated Resource Planning Parameters.<sup>21</sup> Each electric provider has shown progress toward this goal. For 2022 the percentage towards the goal was 25%.

### Renewable Energy Cost

While wind generation was the prominent new renewable energy resources to meet RPS for many years after the passage of PA 295 in 2008, the rapid decrease in solar costs and continuing siting

<sup>21</sup> <https://mi-psc.force.com/sfc/servlet.shepherd/version/download/0688y000003OYYUAA4>

concerns for wind have contributed to a transition toward solar. Solar has become one of the fastest growing resources, not only in Michigan, but throughout the country.

Due in part to factors related to the solar supply chain, MISO has experienced capacity shortages through much of its footprint, which caused the Planning Resource Auction to clear at the Cost of New Entry for Zone 7 (Michigan's lower peninsula) in the 2020-2021 planning year for only the second time in its history. Zone 7 continues to have a narrow margin today. This shortening of capacity is largely driven by baseload generation retirements and slower-than-expected project development for replacement resources. Much of this is attributable to solar supply chain issues and increased demand due to state's renewable policies, corporate carbon reduction goals, and the renewable tax incentives from the Inflation Reduction Act. Solar resources make up approximately 1 GW of the current MISO generation fleet, with an additional 10 GW of new solar having executed interconnection agreements.<sup>22</sup> In February 2018, the Trump Administration imposed a 30% tariff on crystalline silicon cells and modules. Following this, the Department of Commerce opened an investigation into allegations related to circumventing the antidumping duty orders on solar cells and modules to evade these tariffs.<sup>23</sup> On August 18, 2023, a final decision was reached and found that five Chinese companies were shipping solar cells and modules through Cambodia, Malaysia, Thailand and/or Vietnam to circumvent these tariffs. President Biden's June 2022 Presidential Proclamation provides that duties will not be collected from these countries through June 2024 if the imports are consumed within the U.S market in an effort to allow time to establish new solar supply chains to meet U.S. solar demand.<sup>24</sup> Currently, 80% of all polysilicon (a necessary component of solar panels) comes from China, with 50% of that from the Xinjiang province.<sup>25</sup> The allegations of forced labor practices within the Xinjiang province have prevented solar panels containing Xinjiang polysilicon from coming to the States regardless of the tariffs. To compound these supply chain issues, COVID-19 resulted in a significant decline in manufacturing and the cancellation of shipments by sea. The shipping industry is only recently recovering from this impact.<sup>26</sup> Michigan electric providers have indicated these, along with local permitting obstacles, continue to cause significant delays in the commercial operation dates and pricing stabilization of solar resources in Michigan.

The renewable energy contracts submitted to the Commission to-date had historically shown significant cost reductions, but, starting in late 2021, Michigan has seen a slight increase in prices. These cost increases most likely are the result of the solar supply chain issues discussed above,

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<sup>22</sup> [MISO Renewable Integration Impact Assessment](#), February 2021.

<sup>23</sup> <https://www.commerce.gov/news/press-releases/2022/12/departments-commerce-issues-preliminary-determination-circumvention>, December 2, 2022

<sup>24</sup> <https://www.commerce.gov/news/press-releases/2023/08/departments-commerce-issues-final-determination-circumvention-inquiries> August 18, 2023

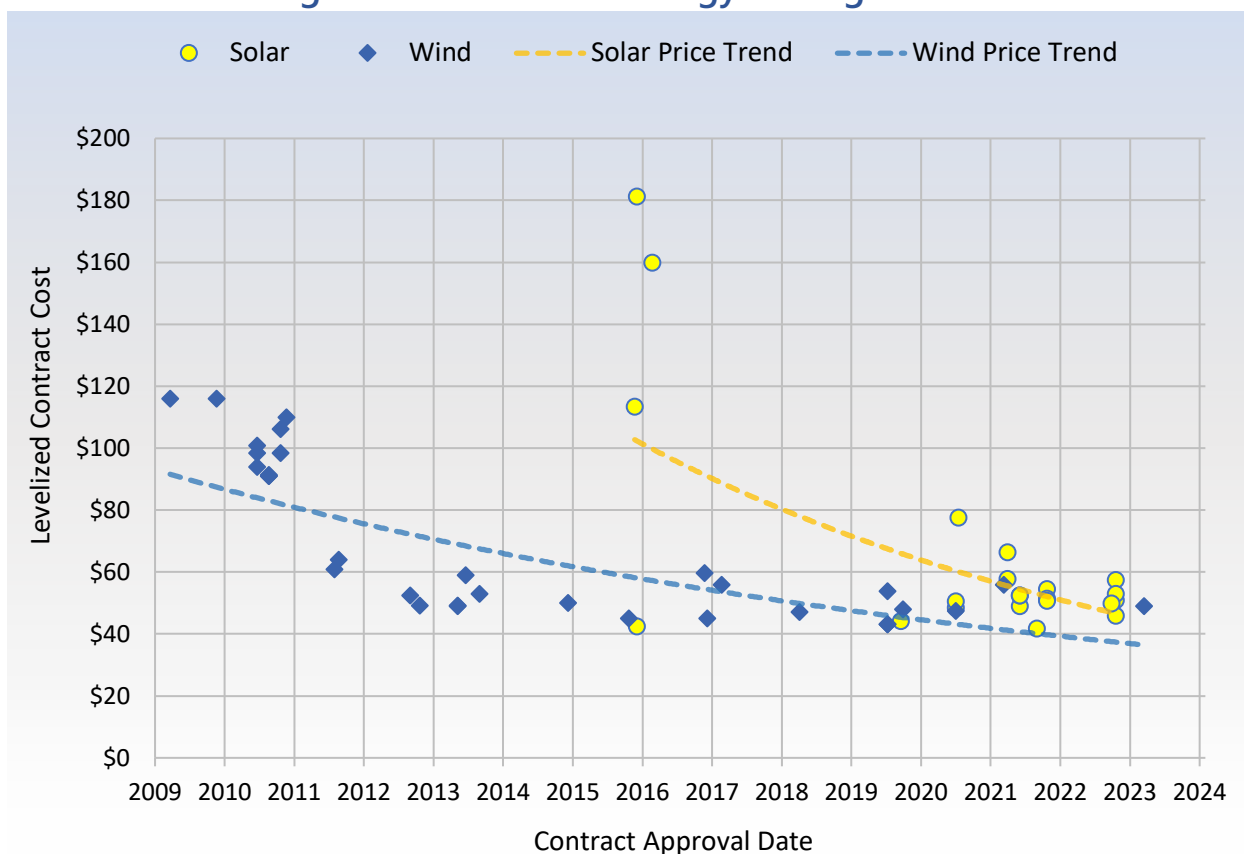
<sup>25</sup> [Solar Market Grapples with Supply Chain Issues](#), Solar World Power, January 4, 2022.

<sup>26</sup> *Id.*

combined with inflation. In addition, due to commercial operations date delays and pricing updates, several contracts submitted to the Commission have required amendments or have been terminated altogether.

The weighted average of levelized costs for all contracts from 2009 to the present results in an average cost of \$58.69 per MWh. The weighted average levelized cost for 2021 and 2022 contract approvals is \$53.28 per MWh. **Figure 5** shows the trend in levelized costs over time of wind and non-PURPA solar.

**Figure 5: Renewable Energy Pricing Trends**



Pursuant to the former Section 37 of the PA 295, replaced by Section 28 of PA 342, renewable energy power purchase and REC-only agreements entered into by any electric provider whose rates are regulated by the Commission must be submitted to the Commission for approval. **Appendix A** has been expanded to include PURPA, VGP and utility IRP contracts in addition to Act 295 renewable energy REP contracts approved by the MPSC.

Commission staff continues to review competitive bidding activities through process audits for all contracts submitted to the Commission for approval. The purpose and design of the audits are to ensure that the utilities followed the processes and procedures previously outlined in the



Commission's December 4, 2008, Temporary Order in MPSC Case No. U-15800, Attachment D<sup>27</sup> and pursuant to the former Section 33 of PA 295. On August 20, 2021, the Commission opened a docket in U-20852 and directed Staff to convene a competitive bidding collaborative, referred to as the Competitive Procurement Workgroup. Rate-regulated utilities and other stakeholders participated in the Competitive Procurement Workgroup to develop recommended competitive bidding guidance that aligns with the comprehensive planning processes being developed through the MI Power Grid collaborative<sup>28</sup>. The Commission's objective for the Competitive Procurement Workgroup was to ensure strong, technology-neutral market response and value for ratepayers through transparency, non-discriminatory access, certainty, and fairness in bidding processes. On September 9, 2021, the Commission adopted new Competitive Procurement Guidelines for rate-regulated electric utilities in Case No. U-20852.<sup>29</sup> These new Guidelines have been implemented for all contracts approved by the Commission since their adoption. In keeping with the spirit of the Temporary Order in U-15800, the new Guidelines continue the Staff audit process.

## **Distributed Generation and Legacy Net Metering**

The distributed generation and legacy net metering programs (collectively DG program) enable Michigan's electric provider and alternative electric supplier customers to install on-site renewable energy electric generation projects to meet some or all of their electric energy needs and reduce their electric bills.

DG projects are grouped into three levels based on size with differing billing, metering, and interconnection requirements. Project size is limited such that the annual generation does not exceed the customer's annual electricity consumption. Customers reduce electricity purchases from the utility by using their generated electricity "behind the meter" and receive a credit for excess generation.

### **Level 1: DG program for projects 20 kW and smaller (certified equipment)**

The Level 1 DG program is available to any customer meeting the generator size requirements (20 kW and under) and using an Underwriters Laboratory (UL) 1741 certified inverter. Typically, residential customers would fit within this size level.

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<sup>27</sup> <https://mi-psc.force.com/s/filing/a00t0000005pa5hAAA/u158000001>

<sup>28</sup> <https://www.michigan.gov/mpsc/commission/workgroups/mi-power-grid/competitive-procurement>

<sup>29</sup> <https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000TTDJAAA5>

Program features:

- Billing based on an inflow and outflow mechanism for customers of utilities with the new DG tariff in place.<sup>30</sup> Inflow represents kWh delivered by the utility and is billed at the full retail rate. Outflow represents kWh generated by the customer but not used on-site. To date, the outflow credit has been equal to the power supply component of the full retail rate and may have transmission costs subtracted.
- A generator meter is available at cost, if requested by the customer. (The generator meter allows the customer to monitor the amount of generation. Utilities are not obligated to read a customer's generator meter.)
- A maximum program and interconnection application processing fee of \$50. Customers pay all interconnection costs.

## **Level 2: DG program for projects over 20 kW and as large as 150 kW**

The Level 2 DG program is available to any customer meeting the generator size requirements. Typically, these customers would be commercial, small industrial, or institutional customers.

Program features:

- Billing based on an inflow and outflow mechanism. Inflow represents kWh delivered by the utility and is billed at the full retail rate. Outflow represents kWh generated by the customer but not used on-site. To date, the outflow credit has been equal to the power supply component of the full retail rate and may have transmission costs subtracted.
- A maximum program and interconnection application processing fee of \$50. Customers pay all interconnection costs.

## **Level 3: Limited to Methane Digesters over 150 kW and as large as 550 kW**

- Same as Level 2, except customers may be subject to standby charges.

## **Distributed Generation Program Data**

Customer participation in the DG program increased from 14,262 customers and 14,446<sup>31</sup> installations in 2020 to 19,571 customers and 19,778 installations through quarter 3 of 2023. A complete list of projects by electric provider, ZIP code, type and size is available at the [Commission's website](#). As of the release of this report, the total capacity of DG program installations was approximately 174,876 kW, an increase from 124,749 kW over the previous DG

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<sup>30</sup> For the legacy net metering program, the billing is based on net usage with the credit for excess generation equal to the full retail rate.

<sup>31</sup> The number of installations exceeds the number of customers due to some customers having multiple installations.

Report.<sup>32</sup> While the program continues to grow, it still represents only ~0.20% of Michigan’s total retail electricity sales through quarter 3 of 2023. As shown in **Figure 6**, program participation continues to increase each year.

Current Michigan law allows utilities to cap participation in their DG programs at 1% of average annual peak load, with suballocations of 0.5% of average peak load for Level 1 systems, 0.25% of average peak load for Level 2 systems, and 0.25% of average peak load for Level 3 systems.<sup>33</sup> However, several Michigan utilities have voluntarily agreed to allow enrollments over and above the 1% minimum participation level. A summary of activities related to the DG tariff expansion is provided in **Table 2**.

**Table 2: Summary of Distributed Generation Program Tariff Implementation**

Utility	Beginning DG Program Enrollment Date	Current program Cap (Percentage of Average In-State Load)	Case Number approving DG program Cap
Alpena Power	January 1, 2022	1%	U-21045
Consumers Energy	January 1, 2021	4%	U-21124
DTE Electric	May 9, 2019	6%	U-21193
Indiana Michigan	February 1, 2020	1%	U-20359
NSP	January 1, 2023	1%	U-21097
UPPCO	May 24, 2019	3%	U-20995

**Table 3** summarizes DG program capacity and level cap by electric provider for all three program size categories.<sup>34</sup> Pursuant to PA 342, DG program Level 1 is available to new customers until the program size reaches 0.5% of the electric provider’s average in-state peak load for the preceding five calendar years or the voluntarily increased program size offered by the electric provider. DG program Levels 2 and 3 are available to new customers until the program size reaches 0.25% of the electric provider’s average in-state peak load for the preceding five calendar years or the voluntarily increased program size offered by the electric provider. **Table 4** shows the remaining capacity in each DG level for each regulated utility. To date the only AESs with customers

<sup>32</sup><https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/regulatory/reports/distributed-generation/DG-Staff-Report-for-Calendar-Year-2021-Final.pdf?rev=af32e70ad89c42f3aa3dd31861a567ba&hash=A667BC79515418992A51C2439EB9B3F0>

<sup>33</sup> Level 1 and 2 systems may be any renewable energy technology, but Level 3 systems are limited to methane digesters.

participating in the DG program are Constellation New Energy and Direct Energy, with a combined total of 26 customers. AES DG program customers are included in utility reporting and are not shown separately on **Table 3**.

During this reporting period, electric providers reported a combined total of 532 customers participating in the Level 2 size range, which is up from 520 customers reported last year. While this is just a modest increase in Level 2 customers, Level 1 projects account for 78.1% of the total installed capacity and show the greatest increase year after year.

The state's two largest utilities, Consumers Energy and DTE Electric, host 94% of the statewide total program capacity.

Michigan's member-regulated cooperatives are not required to offer the statewide DG program pursuant to Public Act 342 of 2016. However, many of these electric providers have established programs for customer distributed generation and voluntarily provide annual reporting data to the MPSC Staff for inclusion in this report.

**Table 3: Distributed Generation Program Data**

Company	Level 1 Nameplate Capacity (kW)	Level 1 Cap (kW)	Level 2 Nameplate Capacity (kW)	Level 3 Nameplate Capacity (kW)	Level 2 & 3 Caps, Each (kW)
<b>Rate-Regulated Utilities (Act 295 Statewide DG Program)</b>					
<b>Alpena</b>	<b>151</b>	<b>323</b>			
<b>Consumers Energy*</b>	<b>69,819</b>	<b>150,472</b>	<b>23,590</b>	<b>190</b>	<b>75,236</b>
<b>DTE Electric**</b>	<b>55,225</b>	<b>329,868</b>	<b>10,325</b>		<b>164,934</b>
<b>Indiana Michigan</b>	<b>4,140</b>	<b>3,185</b>	<b>954</b>		<b>1,593</b>
<b>UMERC</b>	<b>443</b>	<b>1,296</b>	<b>102</b>		<b>648</b>
<b>UPPCO***</b>	<b>1,790</b>	<b>2,229</b>	<b>375</b>		<b>1,115</b>
<b>Xcel</b>	<b>28</b>	<b>127</b>			
<b>Total</b>	<b>131,596</b>	<b>487,500</b>	<b>35,346</b>	<b>190</b>	<b>243,526</b>
<b>Member-Regulated Cooperative Utilities with Programs for Small Scale Distributed Generation</b>					
<b>Alger Delta</b>	<b>155</b>		<b>90</b>		
<b>Cherryland</b>	<b>94</b>				
<b>Cloverland</b>	<b>230</b>		<b>57</b>	<b>208</b>	
<b>Great Lakes Energy</b>	<b>2,916</b>		<b>124.5</b>	<b>400</b>	
<b>Homeworks Tri-County</b>	<b>1,271</b>		<b>93</b>		
<b>Midwest</b>	<b>1,426</b>				
<b>Ontonagon</b>	<b>206</b>				
<b>Presque Isle</b>	<b>143</b>				
<b>Thumb</b>	<b>290</b>		<b>40</b>		
<b>Total</b>	<b>6,731</b>		<b>405</b>	<b>608</b>	
<b>Total</b>	<b>138,327</b>	<b>487,500</b>	<b>35,751</b>	<b>798</b>	<b>243,526</b>

All rate-regulated utility data through 8/31/2023 except UMERC and UPPCO. All other data is through 2022.

Member-regulated cooperatives are not required to offer the statewide DG program. Data provided reflects voluntary programs. Alger Delta, Cherryland, Midwest, Ontonagon, Presque Isle, and Thumb data is from previous reporting years.

Alternative electric supplier program data is included in utility reporting.

**\*Based on Consumers increasing its cap to 4%**

**\*\*Based on DTE increasing its cap to 6%**

**\*\*\*Based on UPPCO increasing its cap to 3%**

Source: [2021 Electric Provider Annual Program Reports, Case No. U-15787](#) and updated Staff surveys

**Table 4: Distributed Generation Cap Space Remaining**

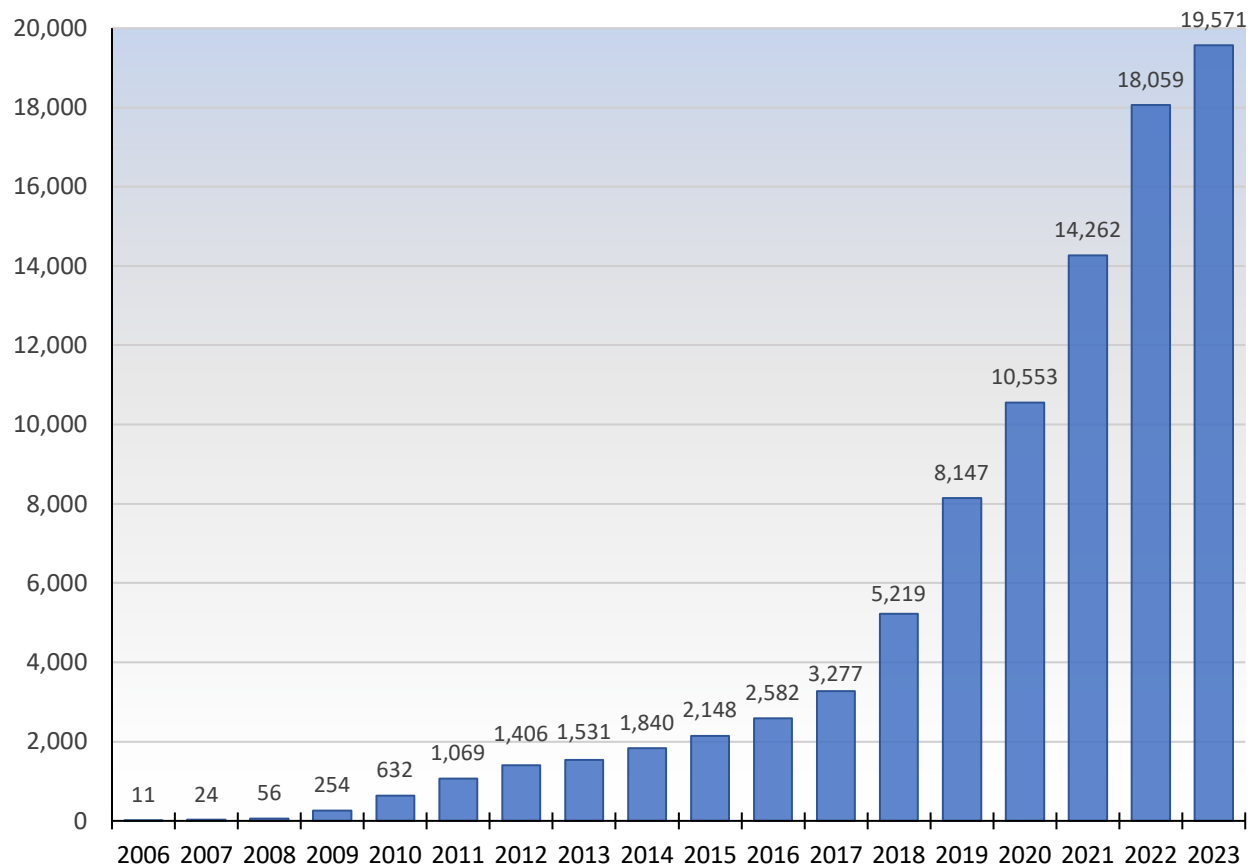
Company	Level 1 Capacity Remaining (kW)	Level 1 % Capacity Remaining	Level 2 Capacity Remaining (kW)	Level 2 % Capacity Remaining	Level 3 Capacity Remaining (kW)	Level 3 % Capacity Remaining
<b>Rate-Regulated Utilities (Act 295 Statewide DG Program)</b>						
<b>Alpena</b>	<b>172</b>	<b>53.3%</b>	<b>162</b>	<b>100%</b>	<b>162</b>	<b>100%</b>
<b>Consumers</b>	<b>80,653</b>	<b>53.6%</b>	<b>51,646</b>	<b>69%</b>	<b>75,046</b>	<b>99.7%</b>
<b>DTE Electric</b>	<b>274,643</b>	<b>83.3%</b>	<b>154,609</b>	<b>94%</b>	<b>164,934</b>	<b>100%</b>
<b>I&amp;M</b>	<b>(954)</b>	<b>-30.0%</b>	<b>638</b>	<b>40%</b>	<b>1,593</b>	<b>100%</b>
<b>UMERC</b>	<b>853</b>	<b>65.8%</b>	<b>546</b>	<b>84%</b>	<b>648</b>	<b>100%</b>
<b>UPPCO</b>	<b>1,786</b>	<b>80.1%</b>	<b>740</b>	<b>66%</b>	<b>1,115</b>	<b>100%</b>
<b>Xcel</b>	<b>98</b>	<b>77.6%</b>	<b>60</b>	<b>100%</b>	<b>60</b>	<b>100%</b>

With the change from the legacy net metering program, which credited excess generation at the full retail rate, to the DG tariff program, which credits outflow generation at a rate less than the full retail rate, it is becoming increasingly advantageous for customers to utilize as much of the energy they produce on-site as possible. Given the reduced outflow credit value and the declining costs of battery storage, participants are increasingly interested in pairing their generation with battery storage. The annual reporting form scope was expanded in 2021 to gather data about whether customers were participating in the legacy net metering or DG tariff programs and collect customer battery storage information. Through quarter 3, electric providers reported 3,616 DG program customers with battery storage for a total battery storage capacity of 22,984 kW. A summary of battery storage capacity by utility is provided in **Table 5**.

**Table 5: Michigan Distributed Generation Program Customers with Battery Storage**

Company	No. of Customers	Battery Storage Capacity (kW)
<b>Consumers Energy</b>	<b>1,338</b>	<b>9,572</b>
<b>DTE Electric</b>	<b>2,193</b>	<b>12,731</b>
<b>Indiana Michigan</b>	<b>85</b>	<b>681</b>
<b>Total</b>	<b>3,616</b>	<b>22,984</b>

**Figure 6: Total Distributed Generation Program Customers\***



\*Customer count accurate through August 2023

Source: [2021 Electric Provider Annual Program Reports, Case No. U-15787](#) and updated Staff surveys.

The Commission continues to see significant interest in the DG program in contested cases and proposed legislation which would expand and revise the program. Staff and the Commission will continue to actively participate in actions to craft the future of DG programs in Michigan.

## Conclusion

The Commission is pleased to note that all electric providers were able to achieve the renewable portfolio standard for 2021, and the vast majority have indicated that they will continue to maintain this standard for 2022 and beyond. The combined efforts of the electric providers, renewable energy project developers, communities hosting renewable energy projects, renewable energy advocates, and many others have contributed to the effective implementation of Michigan's renewable portfolio standard. PA 342 can be credited with the development of approximately 6,000 MW of new renewable energy projects through 2022 and has paved the way for utilities to continue developing and contracting for renewable energy outside of the renewable energy portfolio standard. The weighted average price of renewable energy contracts approved

by the Commission over the 2009 through 2022 time-period is \$58.69 per MWh, which is considerably less than forecasted in the initial 2009 renewable energy plans.

There has been extensive renewable energy development as a result of PA 295. This law was the keystone for providers to gain experience with these resources and allowed for the continued development of renewable energy in Michigan electric providers' forward planning processes. IRP filings for Consumers and DTE and others have resulted in preferred courses of action with significant quantities of solar and wind over the next 20 years.

Act 295 statutory REC requirements ended with the 2021 compliance year. However, all seven rate-regulated electric providers will continue to maintain at least a 15% REC portfolio through the 2029 renewable portfolio planning period, and Michigan continue to see renewable development through IRPs and VGP as renewable energy, particularly solar, has become one of the most economical choices of all generation types.

Distributed generation programs have allowed Michigan customers a means to gain energy independence and helped to reduce electric providers' need to provide energy resources during the times that customer's DG resources are generating. We continue to see significant interest and growth in these programs and commend the providers who have increased their DG caps.

The Commission will continue tracking progress toward the combined goal of meeting Michigan's electric needs through a combination of 35% energy waste reduction and renewable energy by 2025 based on data filed in annual reports by rate-regulated electric providers and through IRP processes.



## Appendices

Appendix A- Contract Summary

Utility	Seller (Link goes to application requesting contract approval and includes the contract.)	County	Quantity MW	Contract Type	Price	Price Description	Term	Renewable Energy Type	Request for Proposal	Commission Approval (Date links to Order)	Amendment 1	Amendment 2	Current Commercial Operation Date	Previous Commercial Operation Date
Alpena	<a href="#">Consumers Energy</a>	Various	"Bulk of RECs needed to meet the RPS"	REP	Consumers Energy Company's Average	REC pricing	20 Years	Misc.	Unsolicited	<a href="#">9/15/2009</a>			8/4/2009	
Alpena	<a href="#">Eagle Creek Development Holdings, LLC</a>	Various	"Bulk of RECs needed to meet the RPS"	REP	Redacted	REC pricing	3 Years	Misc.	2021	<a href="#">1/20/2022</a>			12/9/2021	
Alpena	<a href="#">Four Mile</a>	Alpena	2.08	PURPA	see contract		3 years +	Hydroelectric	Unsolicited	<a href="#">7/2/2021</a>			12/1/1913	
Alpena	<a href="#">Hillman</a>	Montmorency	0.25	PURPA	see contract		3 years +	Hydroelectric	Unsolicited	<a href="#">7/2/2021</a>			12/1/1944	
Alpena	<a href="#">Ninth Street</a>	Alpena	1.2	PURPA	see contract		3 years +	Hydroelectric	Unsolicited	<a href="#">7/2/2021</a>			12/1/1910	
Alpena	<a href="#">Norway Point</a>	Alpena	4	PURPA	see contract		3 years +	Hydroelectric	Unsolicited	<a href="#">7/2/2021</a>			12/1/1924	
Consumers	<a href="#">General Electric Company</a>							Wind	10/2/2012	<a href="#">6/28/2013</a>				
Consumers	<a href="#">13 Mile Solar, LLC</a>	Calhoun	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			8/18/2020	
Consumers	<a href="#">ABB Transformers</a>							Wind	2/27/2013	<a href="#">9/10/2013</a>				
Consumers	<a href="#">Ada Hydroplant</a>	Kent	1.4	PURPA	see contract		5 years	Hydroelectric	Amendment	<a href="#">7/31/2017</a>	<a href="#">10/5/2022</a>		7/31/2017	
Consumers	<a href="#">Addle Solar</a>	Hillsdale	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>			7/4/2024	
Consumers	<a href="#">Allegheny, LLC</a>	Saginaw	10.699	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		7/29/2024	
Consumers	<a href="#">Aluminum Solar, LLC</a>	Calhoun	8	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		11/28/2024	
Consumers	<a href="#">Alverno Hydro Plant</a>	Cheboygan	1.2	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>			6/1/2019	
Consumers	<a href="#">Angola Solar, LLC</a>	Branch	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			8/18/2020	
Consumers	<a href="#">Arthur Solar Farm, LLC Plant</a>	Midland	1.827	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>			1/1/2021	
Consumers	<a href="#">Barton Malow Company</a>							Wind	4/25/2013	<a href="#">9/10/2013</a>				
Consumers	<a href="#">Belding Plant</a>	Ionia	0.3	PURPA	see contract		20 years	Hydroelectric		<a href="#">11/14/2019</a>			1/1/2019	
Consumers	<a href="#">Bellevue Gothic Mill Plant</a>	Eaton	0.045	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>			6/1/2019	
Consumers	<a href="#">Bingham Solar, LLC</a>	Clinton	20	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			11/30/2020	
Consumers	<a href="#">Blissfield Wind (Beebe Wind)</a>	Gratiot	81	REP	\$100.88/MWh	LCOE	20 Years	Wind	Amendment	<a href="#">7/27/2010</a>	<a href="#">1/26/2012</a>		12/31/2012	2013
Consumers	<a href="#">Blue Elk Solar I, LLC</a>	Lenawee	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/5/2022</a>		5/1/2024	
Consumers	<a href="#">Blue Elk Solar II Plant</a>	Ingham	20	PURPA	see contract	negotited rates based on avoided cost	20 Years	Solar		<a href="#">10/5/2022</a>			9/15/2023	
Consumers	<a href="#">Blue Elk Solar III, LLC</a>	Lenawee	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>			5/5/2023	
Consumers	<a href="#">Blue Elk Solar IV, LLC</a>	Lenawee	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>			5/5/2023	
Consumers	<a href="#">Blue Elk Solar VII, LLC</a>	Genesee	12.331	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>			5/5/2023	
Consumers	<a href="#">Bullhead Solar, LLC</a>	Hillsdale	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">7/9/2020</a>		10/15/2020	
Consumers	<a href="#">Byrne Solar, LLC</a>	Genesee	5	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		5/1/2023	
Consumers	<a href="#">Byron Center Plant</a>	Kent	3	PURPA	see contract		20 years	Landfill Gas		<a href="#">2/4/2021</a>			6/1/2019	

Appendix A- Contract Summary

Consumers	<a href="#">Calhoun Solar Energy</a>	Calhoun	140	IRP	\$57.73/MWh; \$54.53 w/o FCM	Average Cost	25 years	Solar	2019 RFP	<a href="#">4/8/2021</a>	Delayed	5/31/2022
Consumers	<a href="#">Captain Solar, LLC</a>	Genesee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/3/2020
Consumers	<a href="#">Cascade Hydro Plant</a>	Kent	1.4	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>		1/1/2019
Consumers	<a href="#">Cement City Solar, LLC</a>	Jackson	20	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/19/2019</a>	<a href="#">1/20/2022</a>	7/1/2022
Consumers	<a href="#">Cereal City Solar</a>	Calhoun	100	IRP	\$51.38/MWh; \$47.99 w/o FCM	Average Cost	25 years	Solar	2020 RFP	<a href="#">11/18/2021</a>		5/31/2023
Consumers	<a href="#">City of Beaverton Hydro Plant</a>	Gladwin	0.5	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>		6/1/2019
Consumers	<a href="#">Coldwater Solar, LLC</a>	Genesee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/3/2020
Consumers	<a href="#">Confluence Solar</a>	Genesee & Saginaw	150	IRP	\$49.85 MWh	LCOE	25-Years	Solar	9/24/2021	<a href="#">10/5/2022</a>		12/31/2024
Consumers	<a href="#">Coopersville Plant</a>	Ottawa	6.1	PURPA	see contract		20 years	Landfill Gas		<a href="#">2/4/2021</a>		6/1/2019
Consumers	<a href="#">Copenhagen Solar</a>	Saginaw	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>		7/4/2024
Consumers	<a href="#">Crescent Wind</a>	Hillsdale	166	REP	\$48/MWh	LCOE	Company Owned	Wind	6/1/2018	<a href="#">12/6/2019</a>	<a href="#">10/7/2019</a>	2/15/2021 12/31/2020
Consumers	<a href="#">Cross Winds</a>	Tuscola	111	REP	\$59.00/MWh	LCOE	Company Owned	Solar		<a href="#">9/24/2013</a>		12/31/2014
Consumers	<a href="#">Cross Winds II</a>	Tuscola	44	VGP	\$45/MWh	LCOE	Company Owned	Wind	10/2/2012	<a href="#">12/20/2016</a>		12/31/2017
Consumers	<a href="#">Cross Winds III</a>	Tuscola	76	VGP	\$46/MWh	LCOE	Company Owned	Wind	12/1/2016	<a href="#">3/10/2017</a>		12/31/2019
Consumers	<a href="#">DSC Corp Center Solar Plant</a>	Bay	0.0313	PURPA	see contract	Full avoided cost	10 years	Solar		<a href="#">11/4/2021</a>		9/4/2021
Consumers	<a href="#">Elk Rapids Hydro Electric** 1</a>	Antrim	0.7	REP	\$121.31/MWh	LCOE	10 Years	Hydroelectric	1/29/2009	<a href="#">10/13/2009</a>		7/11/2009
Consumers	<a href="#">Elk Rapids Hydro Plant</a>	Antrim	0.7	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>		10/13/2019
Consumers	<a href="#">Experimental Advanced Renewable Program</a>	Various	0.9877	REP	Commercial \$0.375/KWh Residential \$0.525/KWh	Tariffed Program	12 Years	Solar	Unsolicited	<a href="#">5/10/2011</a>		Varies
Consumers	<a href="#">Experimental Advanced Renewable Program</a>	Various	1	REP	Commercial \$0.45/KWh Residential \$0.65/KWh	Tariffed Program	12 Years	Solar	Unsolicited	<a href="#">12/21/2010</a>		5/1/2010
Consumers	<a href="#">Experimental Advanced Renewable Program Anaerobic Digester</a>	Various	2.6	REP	\$86/MWh or \$76.39/MWh- 106.39/MWh	Tariffed Program	20 years	Anaerobic	Unsolicited	<a href="#">4/23/2015</a>		Varies
Consumers	<a href="#">Experimental Advanced Renewable Program Phases 16-21</a>	Various	1.4	REP	\$0.199-\$0.243	Tariffed Program	Up to 15 Years	Solar	Unsolicited	<a href="#">4/23/2015</a>		Varies
Consumers	<a href="#">Experimental Advanced Renewable Program Phases 10-15</a>	Various	1.2	REP	Non-Residential \$0.199-0.209/kWh Residential \$0.243- 0.249/kWh	Tariffed Program	Up to 15 Years	Solar	Unsolicited	<a href="#">5/2/2014</a>		Varies
Consumers	<a href="#">Experimental Advanced Renewable Program Phases 26-35</a>	Various	2.2	REP	\$0.199- \$0.243/kWh	Tariffed Program	Up to 15 years	Solar	Unsolicited	<a href="#">2/11/2016</a>		Varies
Consumers	<a href="#">Fallasburg Hydro Plant</a>	Kent	0.85	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>		6/1/2019
Consumers	<a href="#">Freemont Community Digester</a>	Newaygo	3.1	REP	\$139.35/MWh	LCOE	20 Years	Anaerobic	1/29/2009	<a href="#">10/13/2009</a>		11/11/2012
Consumers	<a href="#">Geddes 1 Solar, LLC</a>	Saginaw	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">7/9/2020</a>	10/15/2020
Consumers	<a href="#">Geddes 2 Solar, LLC</a>	Saginaw	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">7/9/2020</a>	10/15/2020
Consumers	<a href="#">Geronimo Huron Wind, LLC (Apple Blossom)</a>	Huron	100	REP	Less than \$45/MWh	LCOE	Up to 15 years	Wind	Unsolicited	<a href="#">11/19/2015</a>		2017
Consumers	<a href="#">Golden Solar Farm, LLC Plant</a>	Livingston	1.828	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>		1/1/2021
Consumers	<a href="#">Good Fruit Storage, LLC</a>	Ottawa	0.179	PURPA	see contract	LMP energy rates, PRA capacity rates	10 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">2/18/2021</a>	9/30/2020
Consumers	<a href="#">Grand Blanc Plant</a>	Genesee	3.8	PURPA	see contract		20 years	Landfill Gas		<a href="#">2/4/2021</a>		6/1/2019

Appendix A- Contract Summary

Consumers	<a href="#">Gratiot Farms</a>	Gratiot	150	REP	\$46/MWh	LCOE	Company Owned	Wind	7/1/2017	<a href="#">2/7/2019</a>		12/1/2020
Consumers	<a href="#">Greenstone Solar, LLC</a>	Branch	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>		5/5/2023
Consumers	<a href="#">Harvest II Wind</a>	Huron	59.4	REP	\$98.38/MWh	LCOE	20 Years	Wind	5/7/2009	<a href="#">7/27/2010</a>		12/31/2012
Consumers	<a href="#">Hazel Solar, LLC</a>	Montcalm	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/18/2020
Consumers	<a href="#">Heartland Farms Wind Project</a>	Gratiot	200	REP	\$56/MWh	LCOE	Company owned	Wind	2018 RFP	<a href="#">3/19/2021</a>		12/31/2022
Consumers	<a href="#">Heartwood Solar</a>	Hillsdale	150	IRP	\$49.85 MWh	LCOE	25-Years	Solar	9/24/2021	<a href="#">10/5/2022</a>		12/31/2024
Consumers	<a href="#">Heathlands Solar</a>	Manistee	30	IRP	\$41.72/MWh; \$39.41 w/o FCM	Average Cost	20 years	Solar	2020 RFP	<a href="#">9/9/2021</a>		12/31/2022
Consumers	<a href="#">Hendershot Solar, LLC</a>	Lenawee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/18/2020
Consumers	<a href="#">Heritage Garden Wind Farm I</a>	Delta	20	REP	\$106.20/MWh	LCOE	20 Years	Wind	Amendment	<a href="#">11/19/2010</a>	<a href="#">1/26/2012</a>	12/31/2012 1/1/2012
Consumers	<a href="#">Heritage Stoney Corners Wind Farm I (Phase 3)</a>	Missaukee & Osceola	8.35	REP	\$106.20/MWh	LCOE	20 Years	Wind	Result of Amendment	<a href="#">1/26/2012</a>		1/1/2012
Consumers	<a href="#">Heritage Stoney Corners Wind Farm II</a>	Missaukee & Osceola	12.3	REP	\$98.50/MWh	LCOE	20 Years	Wind	Amendment	<a href="#">11/19/2010</a>	<a href="#">1/26/2012</a>	1/1/2012
Consumers	<a href="#">Hillman</a>	Montmorency	16.3	PURPA	see contract		3 years	Biomass		<a href="#">7/2/2019</a>		7/2/2019
Consumers	<a href="#">Hogan Solar, LLC</a>	Livingston	12	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>	11/28/2024
Consumers	<a href="#">Holly Solar</a>	Oakland	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>		4/5/2025
Consumers	<a href="#">Interchange Solar, LLC</a>	Genesee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/18/2020
Consumers	<a href="#">Jack Francis Solar, LLC</a>	Genesee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/3/2020
Consumers	<a href="#">Jackson County Solar</a>	Jackson	125	IRP	\$50.81/MWh; \$47.99 w/o FCM	Average Cost	20 years	Solar	2020 RFP	<a href="#">11/18/2021</a>		Delayed 12/31/2023
Consumers	<a href="#">Johnsfield Solar, LLC</a>	Midland	10	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>	7/29/2024
Consumers	<a href="#">Kleber Hydro Plant</a>	Cheboygan	1.2	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>		1/1/2020
Consumers	<a href="#">LaBarge Hydro Plant</a>	Kent	0.8	PURPA	see contract		20 years	Hydroelectric		<a href="#">9/26/2019</a>		9/26/2019
Consumers	<a href="#">Lake City Solar</a>	Missaukee	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">10/29/2020</a>	<a href="#">10/5/2022</a> 9/30/2023
Consumers	<a href="#">Lake Winds Energy Park U-15805 edocket files #251-256</a>	Mason	100.8	REP	\$110.00/MWh	LCOE	Company Owned	Wind	1/15/2010	<a href="#">12/2/2010</a>		12/31/2012
Consumers	<a href="#">Letts Creek Solar, LLC</a>	Jackson	15	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/19/2019</a>	<a href="#">1/20/2022</a>	8/1/2022
Consumers	<a href="#">Lightfoot Solar, LLC</a>	Oscada	10	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>	6/1/2023
Consumers	<a href="#">Lincoln Plant</a>	Alcona	18	PURPA	see contract		8 years	Biomass		<a href="#">4/18/2019</a>		4/18/2019
Consumers	<a href="#">Lyons Road Solar Farm, LLC</a>	Shiawassee	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>		9/1/2021
Consumers	<a href="#">Macbeth Solar, LLC</a>	Muskegon	20	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		12/24/2021
Consumers	<a href="#">Mackinaw City Plant</a>	Emmet	1.8	PURPA	see contract		2 years	Wind	Amendment	<a href="#">11/14/2019</a>	<a href="#">9/9/2021</a>	6/1/2019
Consumers	<a href="#">MAP Plant</a>	Kent	0.375	PURPA	see contract	LMP energy rates, PRA capacity rates	10 years	Solar		<a href="#">1/20/2022</a>		12/16/2019
Consumers	<a href="#">Mass Burn Incinerator Plant</a>	Kent	18.2	PURPA	see contract		20 years	Incinerator		<a href="#">7/23/2020</a>		6/1/2019
Consumers	<a href="#">May Shannon Solar, LLC</a>	Genesee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>		8/3/2020
Consumers	<a href="#">McBain Plant</a>	Missaukee	18	PURPA	see contract		8 years	Biomass		<a href="#">4/18/2019</a>		4/18/2019
Consumers	<a href="#">MCV Plant</a>	Midland	1240	PURPA	see contract		10 years	Cogeneration		<a href="#">3/4/2021</a>		3/4/2021
Consumers	<a href="#">Michigan Wind 1</a>						10 years	Wind	3/14/2005	<a href="#">10/18/2005</a>		
Consumers	<a href="#">Michigan Wind 1 Amendment</a>	Huron	12	REP			7 years	Wind	Amendment	<a href="#">2/4/2021</a>		
Consumers	<a href="#">Michigan Wind 2</a>	Sanilac	90	REP	\$94.00/MWh	LCOE	20 Years	Wind	5/7/2009	<a href="#">7/27/2010</a>		6/30/2012
Consumers	<a href="#">Midcontinent Solar, LLC</a>	Shiawassee	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>		5/5/2023

Appendix A- Contract Summary

Consumers	<a href="#">Morey Road Solar</a>	Missaukee	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">10/29/2020</a>	<a href="#">10/5/2022</a>	9/30/2023
Consumers	<a href="#">Morrow Plant</a>	Kalamazoo	0.88	PURPA	see contract	Full avoided cost	5 years	Hydroelectric		<a href="#">4/25/2022</a>			
Consumers	<a href="#">Mustang Mile</a>	Lenawee	150	IRP	\$66.51/MWh	Average Cost	Company Owned	Solar	2019 RFP	<a href="#">4/8/2021</a>			12/31/2022
Consumers	<a href="#">NANR – Lennon</a>	Shiawassee	1.6	REP	\$137.27/MWh	LCOE	20 Years	Landfill Gas	1/29/2009	<a href="#">10/13/2009</a>			12/31/2010
Consumers	<a href="#">Olivier Solar</a>	Lenawee	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>			4/5/2025
Consumers	<a href="#">Pinconning Plant</a>	Bay	3	PURPA	see contract		20 years	Landfill Gas		<a href="#">2/4/2021</a>			6/1/2019
Consumers	<a href="#">Puck Solar</a>	Ionia	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>			7/4/2024
Consumers	<a href="#">Pullman Solar, LLC</a>	Allegan	20	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/19/2019</a>	<a href="#">1/20/2022</a>		7/1/2022
Consumers	<a href="#">Rathbun Plant</a>	Saginaw	1.6	PURPA	see contract		20 years	Landfill Gas		<a href="#">9/26/2019</a>			9/26/2019
Consumers	<a href="#">River Fork Solar</a>	Calhoun	100	REP	\$44.16/MWh	LCOE	20 years	Solar	Amendment	<a href="#">9/26/2019</a>	<a href="#">10/29/2019</a>		3/31/2022 - 11/30/2022; 3/31/2022
Consumers	<a href="#">Robert Swift Solar Farm, LLC Plant</a>	Branch	1.828	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar		<a href="#">4/15/2020</a>			1/1/2021
Consumers	<a href="#">Scenic View Dairy**</a>	Allegan		REP	\$138.17/MWh	LCOE	7 Years	Anaerobic	1/29/2009	<a href="#">10/13/2009</a>	<a href="#">10/26/2010</a>		7/11/2009
Consumers	<a href="#">SCHS Solar</a>	Kent	0.55	PURPA	see contract	LMP energy rates, PRA capacity rates	10 years	Solar		<a href="#">11/18/2021</a>			10/1/2021
Consumers	<a href="#">Shipsterns Solar, LLC</a>	Calhoun	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		7/1/2023
Consumers	<a href="#">Shoreline Solar</a>	St. Joseph	20	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>			4/5/2025
Consumers	<a href="#">Solar Gardens</a>	Various	10	VGP	\$160.00/MWh	LCOE	Company Owned	Solar		<a href="#">3/29/2016</a>			Starting with 4/18/2016
Consumers	<a href="#">Stoneheart Solar, LLC</a>	Saginaw	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			12/8/2020
Consumers	<a href="#">Sunbelievable Solar</a>	Clinton	12	PURPA	see contract		20 Years	Solar		<a href="#">10/27/2022</a>			7/4/2024
Consumers	<a href="#">Surbrook Solar, LLC</a>	Jackson	10	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		1/30/2024
Consumers	<a href="#">Surrey Road Solar</a>	Clare	2	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/6/2019</a>	<a href="#">10/29/2020</a>	<a href="#">10/5/2022</a>	9/30/2023
Consumers	<a href="#">TART Solar, LLC</a>	Grand Tranverse	8.49	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">6/23/2021</a>		7/1/2022
Consumers	<a href="#">Temperance Solar, LLC</a>	Monroe	20	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			11/30/2020
Consumers	<a href="#">Thorn Lake Solar, LLC</a>	Washtenaw	20	PURPA	see contract	Full avoided cost	20 years	Solar	Amendment	<a href="#">12/19/2019</a>	<a href="#">1/20/2022</a>		9/15/2024
Consumers	<a href="#">Topanga Solar, LLC</a>	Arenac	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		1/30/2024
Consumers	<a href="#">Tower Hydro Plant</a>	Cheboygan	0.56	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>			1/1/2020
Consumers	<a href="#">Washtenaw Solar</a>	Washtenaw	150	IRP	\$54.46/MWh	Average Cost	Company Owned	Solar	2020 RFP	<a href="#">11/18/2021</a>			12/31/2023
Consumers	<a href="#">White's Bridge Hydro Plant</a>	Ionia	0.817	PURPA	see contract		20 years	Hydroelectric		<a href="#">7/23/2020</a>			6/1/2019
Consumers	<a href="#">Willford Solar, LLC</a>	Gladwin	20	PURPA	see contract	Avoided energy rates, PRA capacity rates	20 years	Solar	Amendment	<a href="#">4/15/2020</a>	<a href="#">10/27/2022</a>		12/1/2023
Consumers	<a href="#">WM Renewable Energy - Northern Oaks Landfill</a>	Clare	1.6	REP	\$122.39/MWh	LCOE	20 Years	Landfill Gas	1/29/2009	<a href="#">10/13/2009</a>			11/11/2010
Consumers	<a href="#">WM Renewable Energy - Pine Tree Acres</a>	Macomb	12.8	REP	\$98.75/MWh	LCOE	20 Years	Landfill Gas	5/7/2009	<a href="#">7/27/2010</a>			6/30/2012
Consumers	<a href="#">Woodley Solar, LLC</a>	Branch	0.821	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			12/8/2020
Consumers	<a href="#">Workman Road Solar</a>	Missaukee	2	PURPA	see contract	Full avoided cost	20 years	Solar		<a href="#">12/6/2019</a>			9/30/2020
Consumers	<a href="#">Zeeland**</a>	Ottawa	1.6	REP	\$122.20/MWh	LCOE	7 Years	Landfill Gas	1/29/2009	<a href="#">10/13/2009</a>			7/11/2009
DTE	<a href="#">Assembly Solar</a>	Shiawassee	79	REP	\$47-50/MWh	LCOE	25 Years	Solar	9/1/2019	<a href="#">7/9/2020</a>			Year 2022
DTE	<a href="#">Big Turtle 2 Wind Park</a>	Huron	29.4	VGP	\$48-\$50/MWh	LCOE	Company-owned	Wind	Unsolicited	<a href="#">3/24/2023</a>			4/1/2023
DTE	<a href="#">Big Turtle Wind Farm, LLC</a>	Huron	20	REP	\$53/MWh	LCOE	20 Years	Wind	Unsolicited	<a href="#">9/24/2013</a>			Expected 2014

Appendix A- Contract Summary

DTE	<a href="#">Blue Water Renewables - Smiths Creek Landfill</a>	St. Clair	3.2	REP	\$99.00/MWh	LCOE	20 Years	Landfill Gas	Unsolicited	<a href="#">1/20/2011</a>	12/31/2011
DTE	<a href="#">Boyce Hydro**</a>	Various	Firm 210,000 RECs w/additional 112,000 RECs dependent on generation	REP	\$7.75/ REC	REC pricing	7 Years	Hydroelectric	12/23/2009	<a href="#">4/27/2010</a>	3/16/2010
DTE	<a href="#">Calhoun County Solar</a>	Calhoun	100	VGP	\$52.46/MWh	LCOE	25 years	Solar		<a href="#">6/9/2021</a>	Cancelled 12/31/2022
DTE	<a href="#">Echo Wind</a>	Huron	110	REP	\$52.50/MWh	Staff estimate	Company Owned	Wind	4/17/2012	<a href="#">9/11/2012</a>	12/31/2013
DTE	<a href="#">Fairbanks Wind Park</a>	Delta	72.45	VGP	\$53.78/MWh***	LCOE	Company Owned	Wind	5/59/2018	<a href="#">7/18/2019</a>	1/7/2022
DTE	<a href="#">Freshwater Solar</a>	Montcalm	200	VGP	\$48-51/MWh	LCOE	Company-owned	Solar		<a href="#">6/9/2021</a>	Cancelled 12/31/2022
DTE	<a href="#">Gratiot Co-Location Solar Park</a>	Gratoit	50	VGP	\$59-63/MWh	LCOE	Company-owned	Solar	4/1/2022	<a href="#">10/27/2022</a>	12/31/2023
DTE	<a href="#">Gratiot County Wind</a>	Gratiot	89.6	REP	\$94.43/MWh	LCOE	20 Years	Wind	8/18/2009	<a href="#">9/14/2010</a>	5/1/2012
DTE	<a href="#">Gratiot County Wind (Amendment)</a>	Gratiot	12.8	REP	Unchanged from original contract		Company Owned	Wind	Amendment	<a href="#">5/10/2011</a>	12/31/2012
DTE	<a href="#">Heritage Sustainable Energy Stoney Corners Wind Farm</a>	Missaukee & Osceola	12.2	REP	Unchanged from original contract		20 Years	Wind	Unsolicited	<a href="#">12/1/2009</a>	1/1/2011
DTE	<a href="#">Heritage Sustainable Energy Stoney Corners Wind Farm</a>	Missaukee & Osceola	14	REP	\$116.00/MWh	LCOE	20 Years	Wind	Unsolicited	<a href="#">4/30/2009</a>	12/21/2009
DTE	<a href="#">Innovatus (DTE Solar)</a>		50.28	VGP	\$54.75/MWh	LCOE	Company Owned	Solar	6/24/2015	<a href="#">12/11/2015</a>	10/31/2016
DTE	<a href="#">Inovateus Solar, LLC. (SolarCurrents)</a>	Wayne	0.504	REP	\$3,741/kW	Average cost	Company Owned	Solar	9/28/2012	<a href="#">7/8/2014</a>	4/1/2015
DTE	<a href="#">Isabella I Wind Farm</a>	Isabella	197	VGP	\$43.20/MWh***	LCOE	Company Owned	Wind	5/29/2018	<a href="#">7/18/2019</a>	6/1/2021
DTE	<a href="#">Isabella II Wind Farm</a>	Isabella	186	VGP	\$43.20/MWh***	LCOE	Company Owned	Wind	5/29/2018	<a href="#">7/18/2019</a>	6/1/2021
DTE	<a href="#">L’Anse Warden Electric Company</a>	Baraga	110,374 RECs	REP	\$11.98 (Average of 4 REC/ACEC Contracts)	REC pricing	Amendment Acquiring Vintage RECs	Biomass	8/18/2009	<a href="#">8/25/2011</a>	7/1/2010
DTE	<a href="#">L’Anse Warden Electric Company</a>	Baraga	17	REP	\$98.94/MWh		20 years	Biomass	8/18/2009	<a href="#">8/10/2010</a>	7/1/2010
DTE	<a href="#">Meridian Wind Farm</a>	Saginaw	224.9	REP	\$46-49/MWh	LCOE	Company-owned	Wind	9/1/2019	<a href="#">7/9/2020</a>	4/18/2023
DTE	<a href="#">Michigan Waste Energy, Inc</a>	Wayne	Up to 65,000 RECs/Year	REP	\$7.00/REC	REC pricing	13 Years	Incinerator	Unsolicited	<a href="#">12/6/2011</a>	1991
DTE	<a href="#">Nova Consultants (SolarCurrents)</a>	Various		RE	Unchanged from original contract		Company Owned	Solar	Extension	<a href="#">12/21/2010</a>	12/31/2011
DTE	<a href="#">Nova Consultants (SolarCurrents)</a>	Various	3	REP	Up to \$18 Million		Company Owned	Solar	11/23/2009	<a href="#">3/2/2010</a>	12/31/2010
DTE	<a href="#">Pheasant Run Wind II, LLC</a>	Huron	74.8	REP	Up to \$49.25/MWh	LCOE	Company Owned “Brookfield”	Wind	Unsolicited	<a href="#">5/17/2013</a>	12/31/2014
DTE	<a href="#">Pheasant Run Wind, LLC</a>	Huron	74.8	REP	Up to \$49.25/MWh	LCOE	20 Years	Wind	Unsolicited	<a href="#">5/17/2013</a>	12/31/2014
DTE	<a href="#">Pine River Co-Location Solar Park</a>	Gratiot	80	VGP	\$52-54/MWh	LCOE	Company-owned	Solar	4/1/2022	<a href="#">10/27/2022</a>	12/31/2023
DTE	<a href="#">Pine River Wind Energy, LLC</a>	Gratiot & Isabella	161.3	REP	\$59.67/MWh***	LCOE	Company Owned “Pine River”	Wind	5/20/2016	<a href="#">12/20/2016</a> <a href="#">6/9/2021</a>	12/31/2018
DTE	<a href="#">Pinnebog Wind</a>	Huron	50	VGP	\$54.75/MWh	LCOE	Company Owned	Wind	6/20/2014	<a href="#">12/11/2015</a>	12/9/2016
DTE	<a href="#">Polaris Co-Location Solar Park</a>	Gratiot	100	VGP	\$56-59/MWh	LCOE	Company-owned	Solar	4/1/2022	<a href="#">10/27/2022</a>	12/31/2023

Appendix A- Contract Summary

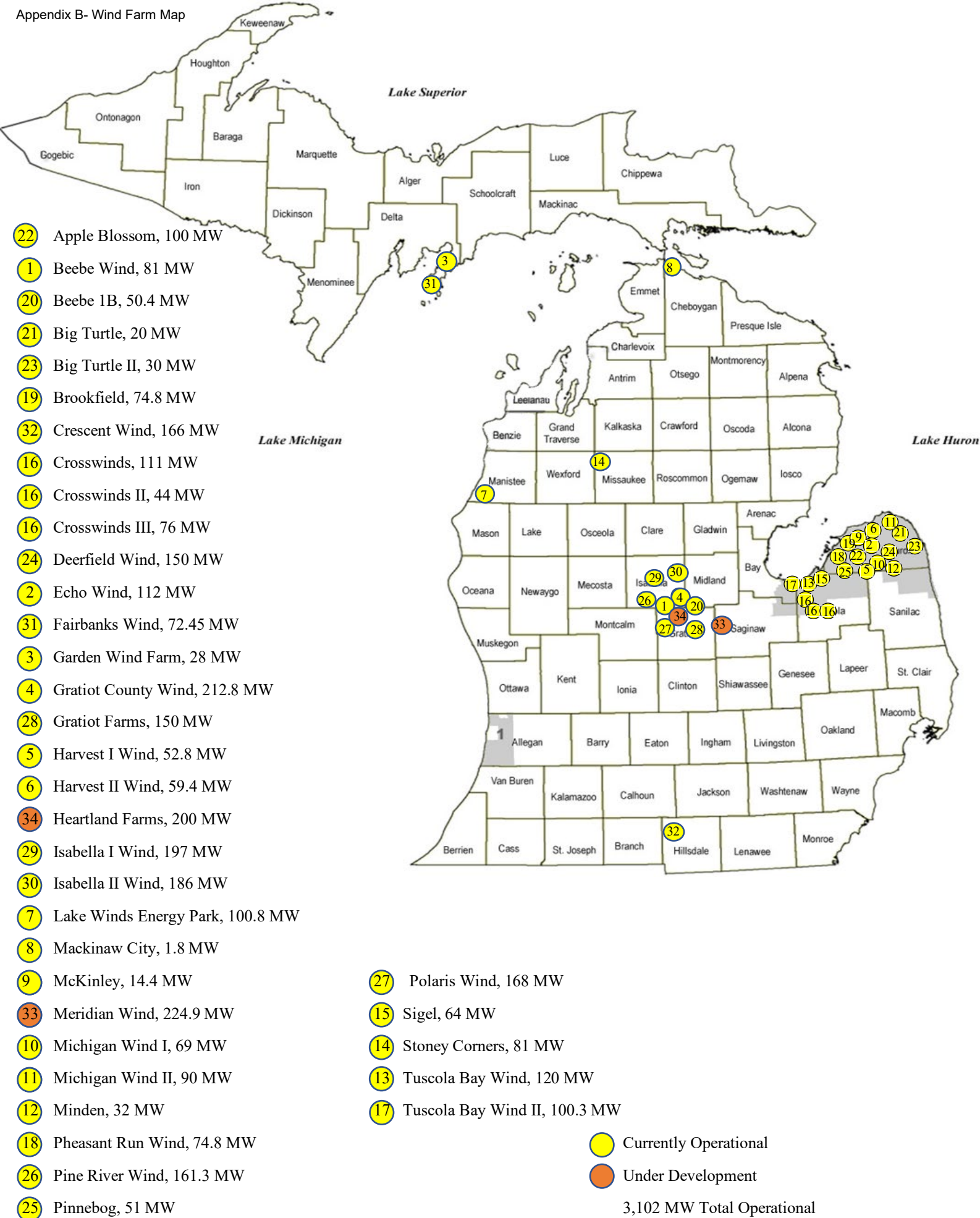
DTE	<a href="#">Polaris Wind Park</a>	Gratiot	168	REP	\$47.18/MWh***	LCOE	Company Owned "Polaris "	Wind	6/19/2017	<a href="#">4/12/2018</a>		4/23/2020
DTE	<a href="#">Riverfork Solar II</a>	Calhoun	49	REP	\$49-52/MWh	LCOE	25 Years	Solar	9/1/2019	<a href="#">7/9/2020</a>	<a href="#">1/27/2022</a>	12/31/2023 12/31/2022
DTE	<a href="#">Rudolf Libbe, Inc</a>	Wayne	0.75	REP	\$3,741/kW	Average cost	Company Owned	Solar	9/28/2012	<a href="#">7/8/2014</a>		
DTE	<a href="#">Sauk Solar</a>	Branch	150	VGP	\$45-47/MWh	LCOE	Company-owned	Solar	4/1/2022	<a href="#">10/27/2022</a>		12/31/2023
DTE	<a href="#">SolarCurrents</a>	Various	12	REP	Up to \$48 Million	Tariffed Program	Company Owned	Solar	3/24/2011	<a href="#">11/10/2011</a>		12/31/2015
DTE	<a href="#">SolarCurrents Phase II</a>	Various	2	REP	\$0.13/W \$0.02/kWh- \$0.20/W \$0.03/kWh	Tariffed Program	Through 8/31/2029	Solar	Unsolicited	<a href="#">11/16/2012</a>		Varies
DTE	<a href="#">Sterling Planet**</a>	Various	Firm 2,500,000 RECs	REP	of \$12.46/REC	REC pricing	10 Years	Misc.	12/23/2009	<a href="#">12/1/2009</a>		10/1/2009
DTE	<a href="#">Thumb Wind (McKinley, Minden, and Sigsbee)</a>	Huron & Sanilac	110.4	REP	\$61-\$64/MWh	LCOE	Company Owned	Wind	5/6/2011	<a href="#">9/13/2011</a>		12/31/2010
DTE	<a href="#">Tuscola Bay Wind, LLC</a>	Tuscola, Bay, & Saginaw	120	REP	Up to \$60.90/MWh	LCOE	20 Years	Wind	11/18/2010	<a href="#">8/25/2011</a>		12/31/2013
DTE	<a href="#">Tuscola Wind II, LLC</a>	Tuscola & Bay	100	REP	\$49.25/MWh***	LCOE	20 Years	Wind	5/3/2012	<a href="#">10/31/2012</a>		12/31/2013
DTE	<a href="#">UPPCO**</a>	Various	Firm 500,000 RECs	REP	Combined average price	REC pricing	7 Years	Hydroelectric	12/23/2009	<a href="#">12/1/2009</a>		10/1/2009
DTE	<a href="#">Whitetail Solar</a>	Washtenaw	120	VGP	\$51-54/MWh	LCOE	Company-owned	Solar		<a href="#">6/9/2021</a>		Delayed 12/31/2022
DTE	<a href="#">WM Renewable Energy - Eagle Valley Landfill</a>	Oakland	3.2	REP	Combined average of	LCOE	20 years	Landfill Gas	8/18/2009	<a href="#">8/10/2010</a>		6/1/2011
I&M	<a href="#">Clean Energy Solar Pilot Project (CESPP)</a>	Various	15.7 MW (4.6 MW in MI)	REP	\$42.48/MWh	LCOE	20 Years	Solar	Competitive Solicitation	<a href="#">12/11/2015</a>		10/1/2016
I&M	<a href="#">Fowler Ridge Wind Farm II</a>	Benton County, Indiana	50 MW (7.5MW for MI)	REP	Redacted		20 Years	Wind	Unsolicited	<a href="#">9/15/2009</a>		2/15/2010
I&M	<a href="#">South Bend Solar Project</a>	St. Joseph County, Indiana	20 MW (3 MW MI Jurisdictional)	REP	\$77.58/MWh	LCOE	30 Years	Solar	Competitive Solicitation	<a href="#">7/23/2020</a>		4/1/2021
I&M	<a href="#">Wildcat I Wind Farm, LLC</a>	Madison and Tipton Counties, Indiana	100 MW (60MW for MI)	REP	Redacted		20 years	Wind	Competitive Solicitation	<a href="#">8/25/2011</a>		12/31/2012
UMERC	Cadillac Renewable Energy, LLC	Various	REC-Only Redacted	REP	Redacted		Redacted	Biomass	Competitive Solicitation	<a href="#">1/23/2014</a>		Redacted



Appendix B- Wind Farm Summary

	Project Name	County	Capacity (MW)	Turbine Size (MW)	Number of Turbines	Turbine Manufacturer	Developer	Power Purchaser	Commercial Operation Date
22	Apple Blossom	Huron	100	3.45	29		Geronimo Energy	Consumers Energy	October 2017
1	Beebe	Gratiot	81	2.4	34	Nordex	Exelon & Great Lakes Wind	Consumers Energy	December 2012
20	Beebe 1B	Gratiot	50.4	2.4	21	Nordex	Exelon	Municipal Utility	December 2014
21	Big Turtle	Huron	20	2.0	10	Gamesa	Heritage Sustainable Energy	DTE	December 2014
23	Big Turtle II	Huron	30	2.0	15	Gamesa	Heritage Sustainable Energy		December 2016
19	Brookfield	Huron	74.8	1.7	44	GE Energy	NextEra Energy	DTE	February 2014
32	Crescent Wind	Hillsdale	166	2.8 & 2.3	60	GE Energy	Crescent Wind, LLC	Consumers Energy	February 2021
16	Cross Winds	Tuscola	111	1.7	65	GE Energy	Consumers Energy	N/A	December 2014
16	Cross Winds II	Tuscola	44	2.3	19	GE Energy	Consumers Energy	N/A	January 2018
16	Cross Winds III	Tuscola	76	2.3	33	GE Energy	Consumers Energy	N/A	December 2019
24	Deerfield Wind	Huron	150	2	72	Vestas	RES Americas	Wolverine Power Cooperative	January 2017
2	Echo	Huron	112	1.6	70	GE Energy	DTE	N/A	September 2014
31	Fairbanks Wind Farm	Delta	72.45	3.0	21	Siemens Gamesa	Gichi Noodin Wind	DTE	April 2021
4	Gratiot County	Gratiot	102.4	1.6	64	GE Energy	Invenergy & DTE	DTE	June 2012
28	Gratiot Farms	Gratiot	150	2	75		Tradewind Energy, Inc.	Consumers	December 2020
5	Harvest	Huron	52.8	1.65	32	Vestas	Exelon	Wolverine Power Cooperative	2008
6	Harvest II	Huron	59.4	1.8	33	Vestas	Exelon	Consumers Energy	November 2012
34	Heartland Farms	Gratiot	200	2.82 & 2.52	72	GE	Heartland Farms Wind Project, LLC	Consumers Energy	December 2022
3	Heritage Garden I	Delta	28	2.0	14	Gamesa	Heritage Sustainable Energy	Consumers Energy**	September 2012
29	Isabella I	Isabella	197	2.82	70	GE Energy	Isabella Wind, LLC	DTE	April 2021
30	Isabella II	Isabella	186	2.82	66	GE Energy	Isabella Wind, LLC	DTE	April 2021
7	Lake Winds	Mason	100.8	1.8	56	Vestas	Consumers Energy	N/A	November 2012
8	Mackinaw City	Emmet	1.8	0.9	2	NEG Micon	Mackinaw Power	Consumers Energy	2001
9	McKinley	Huron	14.4	1.6	9	GE Energy	DTE	N/A	December 2012
33	Meridian Wind Farm	Saginaw	224.9	2.82 & 3.6	77	GE Energy, Vestas	DTE	N/A	April 2023
10	Michigan Wind I	Huron	69	1.5	46	GE Energy	Exelon	Consumers Energy	2008
11	Michigan Wind II	Sanilac	90	1.8	50	Vestas	Exelon	Consumers Energy	January 2012
12	Minden	Sanilac	32	1.6	20	GE Energy	DTE	N/A	December 2012
18	Pheasant Run Wind	Huron	74.8	1.7	44	GE Energy	NextEra Energy	DTE	December 2013
26	Pine River Wind	Gratiot, Isabella	161.3	2.5	65	GE Energy	Pine River Wind Energy, LLC	DTE	December 2018
25	Pinnebog	Huron	51	1.7	30	GE Energy	DTE	DTE	December 2016
27	Polaris Wind Park	Gratiot	168	2.5 & 2.3	68	GE Energy	DTE	DTE	April 2020
15	Sigel	Huron	64	1.6	40	GE Energy	DTE	N/A	December 2012
14	Stoney Corners	Missaukee & Osceola	46.85	2 - 2.5	29	Repower, Fuhrlander, Northern Power Systems	Heritage Sustainable Energy	Consumers Energy, DTE, Traverse City Light & Power	2008 - October 2012
13	Tuscola Bay Wind	Tuscola, Bay & Saginaw	120	1.6	75	GE Energy	NextEra Energy	DTE	December 2012
17	Tuscola Wind II	Tuscola & Bay	100.3	1.7	59	GE Energy	NextEra Energy	DTE	November 2013
	Totals		3,382	MW	1,589	Turbines			
	Operational Totals		2,930	MW	1,512	Turbines			
	***Heritage may supply power and RECs from this wind farm to DTE under an "additional supply" provision in a separate contract. * Prepared by MPSC Staff and includes all wind farms operational, planned or under contract with an MPSC-rate-regulated electric provider. Additional wind farms are included as MPSC Staff becomes aware of the project.								





Appendix B- Solar Farm Summary

	Project Name	County	Capacity (MW)	Owner/Power Purchaser	Type	Commercial Operation Date
1	13 Mile Solar, LLC	Calhoun	2	Consumers Energy	PURPA	August 2020
2	Addle Solar	Hillsdale	20	Consumers Energy	PURPA	July 2024
3	Allegheny, LLC	Saginaw	10.699	Consumers Energy	PURPA	July 2024
4	Aluminum Solar, LLC	Calhoun	8	Consumers Energy	PURPA	November 2024
5	Angola Solar, LLC	Branch	2	Consumers Energy	PURPA	August 2020
6	Arthur Solar Farm, LLC Plant	Midland	1.827	Consumers Energy	PURPA	January 2021
7	Assembly Solar	Shiawassee	50			December 2020
8	Assembly Solar II	Shiawassee	110	MPPA/BWL		December 2021
9	Assembly Solar III	Shiawassee	79	DTE Electric	REP	2022
10	Bingham Solar, LLC	Clinton	20	Consumers Energy	PURPA	November 2020
11	Blue Elk Solar I, LLC	Lenawee	20	Consumers Energy	PURPA	May 2024
12	Blue Elk Solar II Plant	Ingham	20	Consumers Energy	PURPA	September 2023
13	Blue Elk Solar III, LLC	Lenawee	20	Consumers Energy	PURPA	May 2023
14	Blue Elk Solar IV, LLC	Lenawee	20	Consumers Energy	PURPA	May 2023
15	Blue Elk Solar VII, LLC	Genesee	12.331	Consumers Energy	PURPA	May 2023
16	Bullhead Solar, LLC	Hillsdale	2	Consumers Energy	PURPA	October 2020
17	Byrne Solar, LLC	Genesee	5	Consumers Energy	PURPA	May 2023
18	Calhoun County Solar	Calhoun	100	DTE Electric	VGP	December 2022
19	Calhoun Solar Energy	Calhoun	140	Consumers Energy	IRP	May 2022
20	Captain Solar, LLC	Genesee	2	Consumers Energy	PURPA	August 2020
21	Cement City Solar, LLC	Jackson	20	Consumers Energy	PURPA	July 2022
22	Cereal City	Calhoun	100	Consumers Energy	IRP	May 2023
23	Clean Energy Solar Pilot	Berrien	4.6	I&M	REP	October 2016
24	Coldwater Solar, LLC	Genesee	2	Consumers Energy	PURPA	August 2020
25	Confluence Solar	Genesee & Saginaw	150	DTE Electric	IRP	December 2024
26	Copenhagen Solar	Saginaw	20	Consumers Energy	PURPA	July 2024
27	Demile Solar	Lapeer	28.56	DTE Electric	VGP	May 2017
28	DSC Corp Center Solar Plant	Bay	0.0313	Consumers Energy	PURPA	September 2021
29	Freshwater Solar	Montcalm	200	DTE Electric	VGP	Cancelled
30	Geddes 1 Solar, LLC	Saginaw	2	Consumers Energy	PURPA	October 2020
31	Geddes 2 Solar, LLC	Saginaw	2	Consumers Energy	PURPA	October 2020
32	Golden Solar Farm, LLC Plant	Livingston	1.828	Consumers Energy	PURPA	January 2021
33	Good Fruit Storage, LLC	Ottawa	0.179	Consumers Energy	PURPA	September 2020
34	Gratiot Co-Location Solar Park	Gratiot	50	DTE Electric	VGP	December 2023

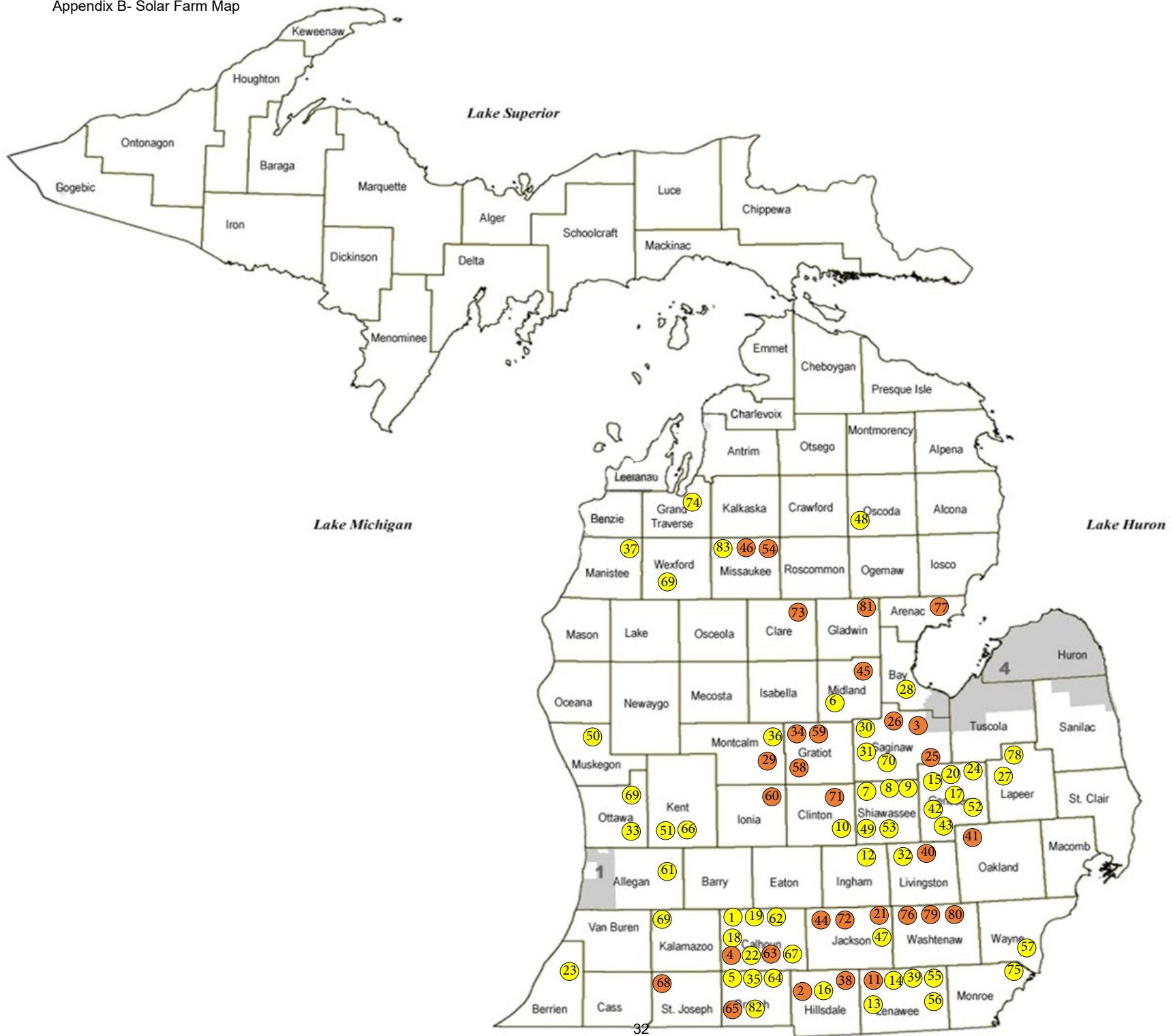
Appendix B- Solar Farm Summary

	Project Name	County	Capacity (MW)	Owner/Power Purchaser	Type	Commercial Operation Date
35	Greenstone Solar, LLC	Branch	20	Consumers Energy	PURPA	May 2023
36	Hazel Solar, LLC	Montcalm	2	Consumers Energy	PURPA	August 2020
37	Heathlands Solar	Manistee	30	Consumers Energy	IRP	December 2022
38	Heartwood Solar	Hillsdale	150	DTE Electric	IRP	December 2024
39	Hendershot Solar, LLC	Lenawee	2	Consumers Energy	PURPA	August 2020
40	Hogan Solar, LLC	Livingston	12	Consumers Energy	PURPA	November 2024
41	Holly Solar	Oakland	20	Consumers Energy	PURPA	April 2025
42	Interchange Solar, LLC	Genesee	2	Consumers Energy	PURPA	August 2020
43	Jack Francis Solar, LLC	Genesee	2	Consumers Energy	PURPA	August 2020
44	Jackson County Solar	Jackson	125	Consumers Energy	IRP	Delayed
45	Johnsfield Solar, LLC	Midland	10	Consumers Energy	PURPA	July 2024
46	Lake City Solar	Missaukee	2	Consumers Energy	PURPA	September 2023
47	Letts Creek Solar, LLC	Jackson	15	Consumers Energy	PURPA	August 2021
48	Lightfoot Solar, LLC	Oscada	10	Consumers Energy	PURPA	June 2023
49	Lyons Road Solar Farm, LLC	Shiawassee	20	Consumers Energy	PURPA	September 2021
50	Macbeth Solar, LLC	Muskegon	20	Consumers Energy	PURPA	December 2021
51	MAP Plant	Kent	0.375	Consumers Energy	PURPA	Decemer 2019
52	May Shannon Solar, LLC	Genesee	2	Consumers Energy	PURPA	August 2020
53	Midcontinent Solar, LLC	Shiawassee	20	Consumers Energy	PURPA	May 2023
54	Morey Road Solar	Missaukee	2	Consumers Energy	PURPA	September 2023
55	Mustang Mile	Lenawee	150	Consumers Energy	IRP	December 2022
56	Olivier Solar	Lenawee	20	Consumers Energy	PURPA	April 2025
57	O'Shea Solar Park	Wayne	2	DTE Electric	VGP	August 2017
58	Pine River Co-Location Solar Park	Gratiot	80	DTE Electric	VGP	December 2023
59	Polaris Co-Location Solar Park	Gratiot	100	DTE Electric	VGP	December 2023
60	Puck Solar	Ionia	20	Consumers Energy	PURPA	July 2024
61	Pullman Solar, LLC	Allegan	20	Consumers Energy	PURPA	July 2022
62	River Fork Solar	Calhoun	100	Consumers Energy	REP	June 2021
63	River Fork Solar II	Calhoun	49	DTE Electric	REP	December 2023
64	Robert Swift Solar Farm, LLC Plant	Branch	1.828	Consumers Energy	PURPA	January 2021
65	Sauk Solar	Branch	150	DTE Electric	VGP	December 2023
66	SCHS Solar	Kent	0.55	Consumers Energy	PURPA	October 2021
67	Shipsterns Solar, LLC	Calhoun	20	Consumers Energy	PURPA	July 2023
68	Shoreline Solar	St. Joseph	20	Consumers Energy	PURPA	April 2025

Appendix B- Solar Farm Summary

	Project Name	County	Capacity (MW)	Owner/Power Purchaser	Type	Commercial Operation Date
69	Solar Gardens, 3 sites	Ottawa, Kalamazoo, Wexford	28	Consumers Enegy	VGP	April 2016
70	Stoneheart Solar, LLC	Saginaw	2	Consumers Enegy	PURPA	December 2020
71	Sunbelievable Solar	Clinton	12	Consumers Enegy	PURPA	July 2024
72	Surbrook Solar, LLC	Jackson	10	Consumers Enegy	PURPA	January 2024
73	Surrey Road Solar	Clare	2	Consumers Enegy	PURPA	September 2023
74	TART Solar, LLC	Grand Traverse	8.49	Consumers Enegy	PURPA	July 2022
75	Temperance Solar, LLC	Monroe	20	Consumers Enegy	PURPA	November 2020
76	Thorn Lake Solar, LLC	Washtenaw	20	Consumers Enegy	PURPA	September 2024
77	Topanga Solar, LLC	Arenac	20	Consumers Enegy	PURPA	January 2024
78	Turrill Solar	Lapeer	19.72	DTE Electric	VGP	May 2019
79	Washtenaw Solar	Washtenaw	150	Consumers Enegy	IRP	December 2023
80	Whitetail Solar	Washtenaw	120	DTE Electric	VGP	Delayed
81	Willford Solar, LLC	Gladwin	20	Consumers Enegy	PURPA	December 2023
82	Woodley Solar, LLC	Branch	0.821	Consumers Enegy	PURPA	December 2020
83	Workman Road Solar	Missaukee	2	Consumers Enegy	PURPA	September 2020
	<b>Totals</b>		<b>2,861</b>			
	<b>Operational Totals</b>		<b>1,288</b>			

Appendix B- Solar Farm Map



## Appendix B- Solar Farm Map

1 13 Mile Solar, LLC, 2 MW	30 Geddes 1 Solar, LLC, 2 MW	59 Polaris Co-Location Solar Park, 100 MW
2 Addle Solar, 20 MW	31 Geddes 2 Solar, LLC, 2 MW	60 Puck Solar, 20 MW
3 Allegheny, LLC, 10.699 MW	32 Golden Solar Farm, LLC Plant, 1.828 MW	61 Pullman Solar, LLC, 20 MW
4 Aluminum Solar, LLC, 8 MW	33 Good Fruit Storage, LLC, 0.179 MW	62 River Fork Solar, 100 MW
5 Angola Solar, LLC, 2 MW	34 Gratiot Co-Location Solar Park, 50 MW	63 Riverfork Solar, 49 MW
6 Arthur Solar Farm, LLC Plant, 1.827 MW	35 Greenstone Solar, LLC, 20 MW	64 Robert Swift Solar Farm, LLC Plant, 1.828 MW
7 Assembly Solar, 79 MW	36 Hazel Solar, LLC, 2 MW	65 Sauk Solar, 150 MW
8 Assembly Solar II, 110 MW	37 Heathlands Solar, 30 MW	66 SCHS Solar, 0.55 MW
9 Assembly Solar III, 79 MW	38 Heartwood Solar, 150 MW	67 Shipsterns Solar, LLC, 20 MW
10 Bingham Solar, LLC, 20 MW	39 Hendershot Solar, LLC, 2 MW	68 Shoreline Solar, 20 MW
11 Blue Elk Solar I, LLC, 20 MW	40 Hogan Solar, LLC, 12 MW	69 Solar Gardens, 28 MW
12 Blue Elk Solar II Plant, 20 MW	41 Holly Solar, 20 MW	70 Stoneheart Solar, LLC, 2 MW
13 Blue Elk Solar III, LLC, 20 MW	42 Interchange Solar, LLC, 2 MW	71 Sunbelievable Solar, 12 MW
14 Blue Elk Solar IV, LLC, 20 MW	43 Jack Francis Solar, LLC, 2 MW	72 Surbrook Solar, LLC, 10 MW
15 Blue Elk Solar VII, LLC, 12.331 MW	44 Jackson County Solar, 125 MW	73 Surrey Road Solar, 2 MW
16 Bullhead Solar, LLC, 2 MW	45 Johnsfield Solar, LLC, 10 MW	74 TART Solar, 8.49 MW
17 Byrne Solar, LLC, 5 MW	46 Lake City Solar, 2 MW	75 Temperance Solar, LLC, 20 MW
18 Calhoun County Solar, 100 MW	47 Letts Creek Solar, LLC, 15 MW	76 Thorn Lake Solar, LLC, 20 MW
19 Calhoun Solar Energy, 50 out of 140 MW	48 Lightfoot Solar, LLC, 10 MW	77 Topanga Solar, LLC, 20 MW
20 Captain Solar, LLC, 2 MW	49 Lyons Road Solar Farm, LLC, 20 MW	78 Turrill Solar, 19.72 MW
21 Cement City Solar, LLC, 20 MW	50 Macbeth Solar, LLC, 20 MW	79 Washtenaw Solar, 150 MW
22 Cereal City Solar, 100 MW	51 MAP Plant, 0.375 MW	80 Whitetail Solar, 120 MW
23 Clean Energy Solar Pilot Project (CESPP), 4.6 MW	52 May Shannon Solar, LLC, 2 MW	81 Willford Solar, LLC, 20 MW
24 Coldwater Solar, LLC, 2 MW	53 Midcontinent Solar, LLC, 20 MW	82 Woodley Solar, LLC, 0.821 MW
25 Confluence Solar, 150 MW	54 Morey Road Solar, 2 MW	83 Workman Road Solar, 2 MW
26 Copenhagen Solar, 20 MW	55 Mustang Mile, 150 MW	
27 Demille Solar, 28.56 MW	56 Olivier Solar, 20 MW	Currently Operational
28 DSC Corp Center Solar Plant, 0.0313 MW	57 O'Shea Solar, 2 MW	Under Development
29 Freshwater Solar, 200 MW	58 Pine River Co-Location Solar Park, 80 MW	1,288 MW Total Operational