

**Michigan Renewable Energy Program**  
*Net Metering Program Report*  
*for the years ended June 30, 2007 and June 30, 2008*  
*to the Michigan Public Service Commission*

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December 2008

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## Current Status of Michigan Net Metering Program

Under the current net metering program, utilities are required to report net metering data annually to the MPSC MREP Staff by September 30 of each year to cover the 12-month period ending June 30.<sup>1,2</sup> Staff is directed to include net metering data and status reports in annual reports to the Commission. This report covers the time period of July 1, 2006 through June 30, 2008. Commission activities related to net metering through October 2008 are also included in this report.

Tables 1 and 2 summarize utility net metering reports for the years ending June 30 for both 2007 and 2008. Utilities reported a total of 23 net metering customers as of June 30, 2007 and 53 customers as of June 30, 2008. The combined total capacity of net metering generation grew from 107 kW (0.107 MW) in 2007 to 204 kW (0.204 MW) in 2008. All generators in the net metering program are 10 kW or less in capacity.

Most Michigan utilities credit net metering customers for net excess generation (NEG) at the utility's retail price of generation. NEG credits, if any, are carried over from month to month, limited to a 12-billing-month cycle. At the end of each 12-billing-month cycle, cumulative NEG credits, if any, are retained by the utility and the customer's credit is reset to zero.<sup>3</sup> As shown in Tables 1 and 2, utilities reported a total of 5,678 kWh of net excess generation (NEG) credits at the end of the 12-billing-month cycle in 2007 and 11,402 kWh in 2008.

Table 3 shows breakdown of net metering installations by technology type for the three reporting years of the net metering program. Wind and solar installations are continuing to grow at a fairly equal rate (solar: 23, wind: 29) while the number of hydro facilities has remained unchanged at four. The growth in the number of customers participating in the net metering program is highlighted in Table 4.

A comparison of net metering participation rates for the top states and Michigan is shown in Table 5. The data presented represents the total number of net metering customers per million electric utility customers in each state for 2006. Nineteen states, not shown on the chart, have participation rates in between Michigan's and Wisconsin's. Seven states have participation rates equal to or lower than Michigan's.

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<sup>1</sup> A consensus agreement between Michigan's regulated utility companies and the MPSC Staff forms the basis for Michigan's net metering program. See the consensus agreement (in document 0001), and previous annual report (document 0089), at <http://efile.mpsc.cis.state.mi.us/efile/viewcase.php?casenum=14346>.

<sup>2</sup> The consensus agreement defines net excess generation (NEG) as representing the amount of electric generation by the customer, beyond the customer's own metered usage, which is delivered to the utility during a billing period. The consensus agreement directs utilities to report "total NEG by technology type and cumulative total for each utility's program (at the end of each 12-billing-month cycle)." One Michigan utility construes this to mean that every kWh delivered to the utility by the customer during the billing period is NEG. Other utilities consider NEG to be the difference between kWh delivered by the customer to the utility and utility kWh deliveries to the customer during the billing period.

<sup>3</sup> A utility may voluntarily propose a program where customers are awarded a cash payment for NEG. Some Michigan utilities handle monthly NEG credits in this manner. For those utilities, customer NEG credits do not accumulate. The value of NEG credits retained by a utility, if any, will be used to offset costs associated with the utility's operation of its net metering program.

**Table 1: Net Metering Installations by Utility, Year Ended June 30, 2007**

Number of Customers		Utility Company	Zip Code	Starting Month & Year	Technology Type	Generator Size (kW)	Net Excess Generation (NEG, in kWh)
Total	Per Utility						
1	1	Alger Delta	49821	August 2003 <sup>1</sup>	Hydro	3	0
2	2	Alger Delta	49806	May 2005 <sup>1</sup>	Wind	2.5	0
3	3	Alger Delta	49821	August 2005 <sup>1</sup>	Solar	2	0
4	1	Alpena Power	49746	November 2006	Solar	10	1,296
5	2	Alpena Power	49707	December 2006	Wind	3	0
6	1	AEP	49022	June 2007	Solar	7.1	0
7	1	Cherryland	49643	January 2007	Solar	0.33	0
8	1	Consumers Energy	49621	February 2007	Solar	5.6	140
9	2	Consumers Energy	49058	February 2007	Wind	3.7	0
10	3	Consumers Energy	49341	April 2007	Solar	2.5	0
11	4	Consumers Energy	48145	May 2007	Wind	1.8	0
12	5	Consumers Energy	49546	May 2007	Wind	3.7	0
13	1	Detroit Edison	48755	October 2006	Wind	10	4,681
14	2	Detroit Edison	48755	October 2006	Wind	10	
15	3	Detroit Edison	48895	April 2007	Wind	2.4	
16	1	Ontonagon County	49930	Late 1990s <sup>1</sup>	Hydro & Solar	10	0
17	2	Ontonagon County	49913	June 2006	Solar	10	0
18	3	Ontonagon County	49930	September 2006	Solar	10	0
19	1	UPPCo	49829	December 2006	Wind	2	0
20	1	We Energies	49886	April 1986 <sup>1</sup>	Hydro	2.5	0
21	2	We Energies	49801	November 1983 <sup>1</sup>	Hydro	2.5	0
22	3	We Energies	49896	May 1980 <sup>1</sup>	Wind	1.8	0
23	4	We Energies	49807	April 2007	Solar	0.7	0
<b>Michigan Total</b>				<b>23 Customers</b>		<b>107 kW</b>	<b>5,678 kWh</b>

<sup>1</sup>Began operation prior to net metering tariff effective date.

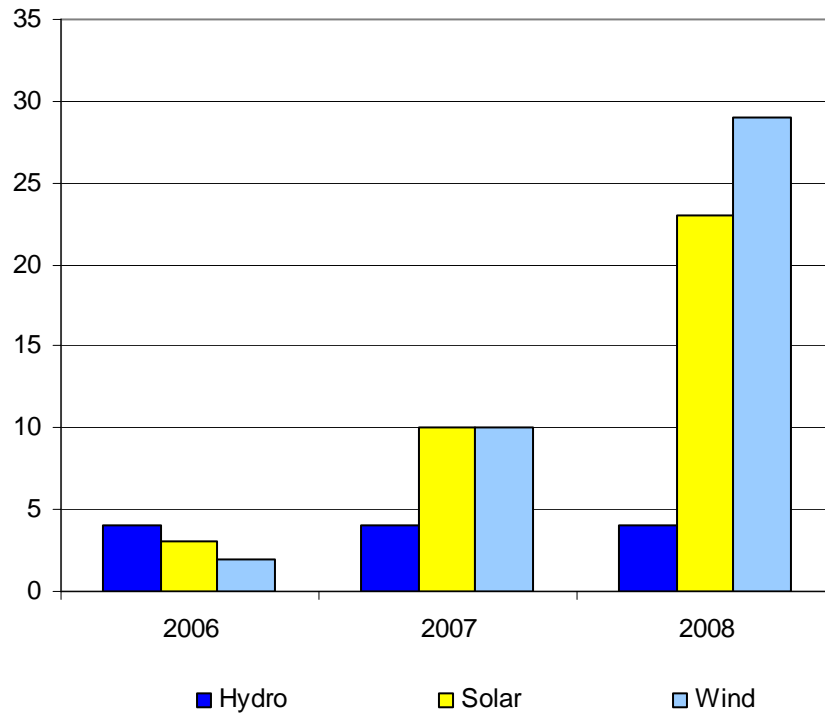
**Table 2: Net Metering Installations by Utility, Year Ended June 30, 2008**

Number of Customers		Utility Company	Zip Code	Starting Month & Year	Technology Type	Generat or Size (kW)	Net Excess Generation (NEG, in kWh)
Total	Per Utility						
1	1	Alger Delta	49821	August 2003 <sup>1</sup>	Hydro	3	1,488
2	2	Alger Delta	49806	May 2005 <sup>1</sup>	Wind	2.5	1,312
3	3	Alger Delta	49821	August 2005 <sup>1</sup>	Solar	2	1,460
4	4	Alger Delta	49987	April 2008	Wind	1.9	64
5	1	Alpena Power	49746	November 2006	Solar	10	682
6	2	Alpena Power	49707	December 2006	Wind	3	0
7	3	Alpena Power	49707	April 2008	Wind	1.8	0
8	4	Alpena Power	49707	June 2008	Wind	1.8	0
9	5	Alpena Power	49747	June 2008	Wind	1.8	0
10	6	Alpena Power	49747	June 2008	Wind	1.8	0
11	1	AEP	49022	June 2007	Solar	7.1	0
12	2	AEP	49038	July 2007	Solar	3.6	0
13	3	AEP	49098	September 2008	Wind	1.9	0
14	1	Cherryland	49643	January 2007	Solar	0.66	0
15	2	Cherryland	49684	April 2008	Wind	1.8	0
16	3	Cherryland	49684	June 2008	Wind	1.8	0
17	4	Cherryland	49570	May 2008	Wind	1.8	0
18	5	Cherryland	49690	February 2008	Solar	2	0
19	1	Cloverland	49726	April 2008	Wind	5	0
20	1	Consumers Energy	49621	February 2007	Solar	5.6	3,669
21	2	Consumers Energy	49058	February 2007	Wind	3.7	0
22	3	Consumers Energy	49341	April 2007	Solar	2.5	0
23	4	Consumers Energy	48145	May 2007	Wind	1.8	0
24	5	Consumers Energy	49546	May 2007	Wind	3.7	0
25	6	Consumers Energy	49635	October 2007	Solar	1.8	0
26	7	Consumers Energy	49421	December 2007	Wind	1.8	0
27	8	Consumers Energy	49331	December 2007	Wind	5	0
28	9	Consumers Energy	48838	March 2008	Solar	2.5	0
29	10	Consumers Energy	49341	March 2008	Solar	2	0
30	11	Consumers Energy	48858	April 2008	Solar	5	1,012

Number of Customers		Utility Company	Zip Code	Starting Month & Year	Technology Type	Generat or Size (kW)	Net Excess Generation (NEG, in kWh)
Total	Per Utility						
31	1	Detroit Edison	48755	October 2006	Wind	10	Wind NEG: 615 kWh  Solar NEG: 740 kWh
32	2	Detroit Edison	48755	October 2006	Wind	10	
33	3	Detroit Edison	48895	April 2007	Wind	2.4	
34	4	Detroit Edison	48130	August 2007	Solar	2	
35	5	Detroit Edison	48103	September 2007	Solar	4	
36	6	Detroit Edison	48198	January 2008	Solar	1.1	
37	7	Detroit Edison	48187	February 2008	Solar	2	
38	8	Detroit Edison	48063	April 2008	Wind	17	
39	9	Detroit Edison	48302	May 2008	Solar	3	
40	10	Detroit Edison	48472	May 2008	Wind	3.7	
41	1	Midwest	49002	February 2008	Solar	2	0
42	2	Midwest	49220	March 2008	Wind	5	0
43	1	Ontonagon County	49930	Late 1990s <sup>1</sup>	Hydro & Solar	10	0
44	2	Ontonagon County	49913	June 2006	Solar	10	0
45	3	Ontonagon County	49930	September 2006	Solar	10	0
46	1	Thumb	48744	June 2008	Wind	1.9	0
47	1	UPPCo	49829	December 2006	Wind	2	0
48	2	UPPCo	49829	May 2008	Wind & Solar	7.6	0
49	1	We Energies	49886	April 1986 <sup>1</sup>	Hydro	2.5	0
50	2	We Energies	49801	November 1983 <sup>1</sup>	Hydro	2.5	0
51	3	We Energies	49896	May 1980 <sup>1</sup>	Wind	1.8	0
52	4	We Energies	49807	April 2007	Solar	0.7	0
53	1	WPSC	49893	April 2008	Wind	2.5	0
<b>Michigan Total</b>				<b>53 Customers</b>		<b>204 kW</b>	<b>11,042 kWh</b>

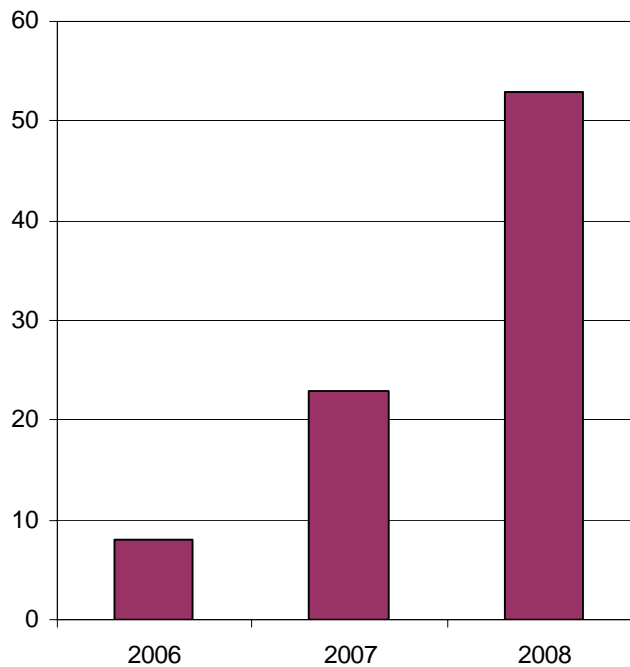
<sup>1</sup>Began operation prior to net metering tariff effective date.

**Table 3: Number of Net Metering Installations by Technology Type**

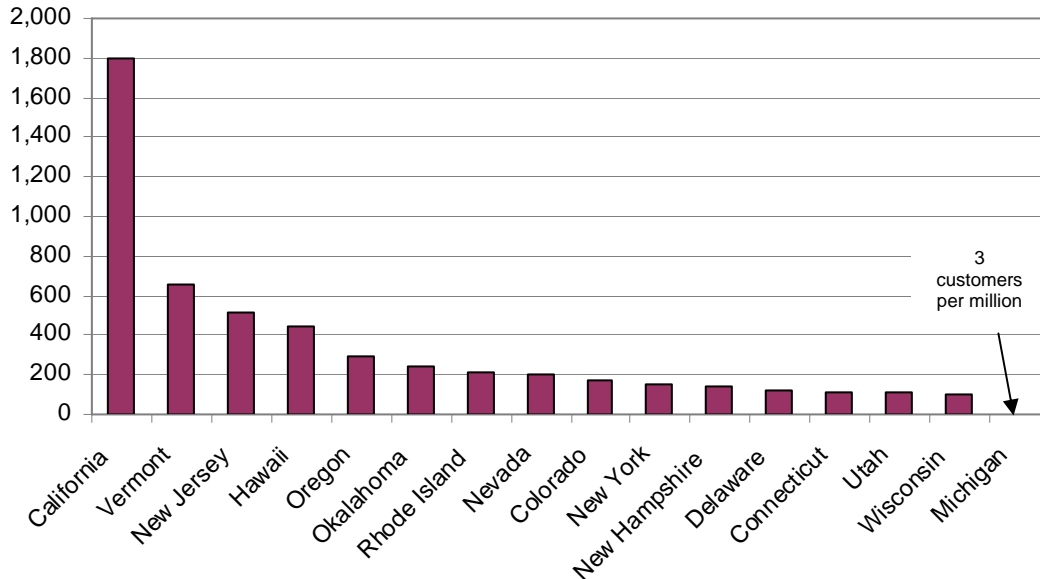


Note: The total number of installations is higher than the number of customers due to several customers having two types of renewable energy installed. (ie: wind and solar & solar and hydro)

**Table 4: Number of Net Metering Customers (through year ending June 30, 2008)**



**Table 5: Comparative Net Metering Program Participation Rates in Other States  
(2006 Net Metering Customers per Million Total Utility Customers)**



Source: [http://www.eia.doe.gov/cneaf/solar.renewables/page/greenprice/table4\\_2.xls](http://www.eia.doe.gov/cneaf/solar.renewables/page/greenprice/table4_2.xls)

### Michigan Net Metering Activities through October 2008

#### **SB 213/PA 295 – Section 5 Net Metering Program**

On October 6, 2008, Governor Granholm signed SB 213 into law enacting 2008 PA 295 (Act 295). Act 295 includes a provision that requires the Commission to establish a net metering program within 180 days. Basic elements of the program are as follows:

- Program size is 1% of in-state peak load
  - 0.5% for 20 kW or smaller generators
  - 0.25% for >20 kW to 150 kW generators
  - 0.25% for methane digesters up to 550 kW
- Program includes 3 billing methods:
  - 20 kW and under systems will be billed based on net kWh
  - >20 kW up to 550 kW will receive the generation component of the full retail rate for their deliveries to the utility and pay full retail rate for all kWh delivered by the utility
  - Additionally, >150 kW will pay full distribution charges for all usage at the site
- Net metering credit will be given for negative net metered quantities



- The amount of the credit shall be either of the following:
  - Monthly average real-time locational marginal price (LMP)
  - Power supply component of the full retail rate
- Credit shall appear on the next month's bill, and carry forward indefinitely

A proposed set of net metering rules has been developed by Staff and has been combined with the proposed revised interconnection rules. The formal rulemaking process for this combined set of rules is expected to begin shortly.

### **Net Metering Task Force**

On October 24, 2006, the Commission commenced an investigation into the interconnection of independent power producers with a utility's system, in Case No. U-15113.<sup>4</sup> During the investigation, net metering issues were raised in both written comments and discussions at public meetings. A Staff Report on Utility Interconnection Issues was filed with the Commission on January 31, 2007. That report included a recommendation to seek a new consensus on a simplified net metering approach for inverter based systems with less than 10 kW of generating capacity.<sup>5</sup> As part of the investigation, the Commission issued an Order on February 27, 2007, which directed the Michigan Renewable Energy Program Ratemaking and Net Metering Committee to form a task force comprised of representatives from MPSC Staff, utilities, and interested parties to seek a new consensus and report to the Commission within 90 days on a simplified approach for net metering for inverter based systems smaller than 10 kW. As directed by the Commission Order, the Staff Interim Report on Net Metering Issues was completed on May 25, 2007,<sup>6</sup> and on October 1, 2007, the Staff Report on Net Metering and Electric Utility Interconnection Issues was issued.<sup>7</sup> Staff reported that a consensus was not reached on the design of a simplified net metering approach. However, during the investigation process, many of the net metering issues became more clearly understood. Since the workgroup did not reach a consensus for the Commission's consideration, Staff proposed a simplified approach to net metering that is a compromise between a true net metering program sought by net metering advocates and the complex programs offered by Consumers Energy and Detroit Edison.

As one outcome of these deliberations, interconnection applications, technical interconnection issues, and charges for site visits will likely be covered under a revised set of interconnection rules. As discussed above, the proposed revised interconnection rules have been combined with the proposed net metering rules. Formal rulemaking is expected to begin very shortly.

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<sup>4</sup> For associated documents, see <http://efile.mpsc.cis.state.mi.us/efile/viewcase.php?casenum=15113>.

<sup>5</sup> An inverter is a device used to convert the direct current electricity produced by small-scale renewable energy systems into alternating current electricity. Inverters also incorporate software and hardware to manage the operation of on-site generating equipment in parallel operation with the utility grid, and provide for equipment protection and safety in the event of a grid failure. See <http://www.sandia.gov/SAI/Balanceofsystems.htm> and <http://www.sandia.gov/pv/docs/glossary.htm#Anchor1> to learn more about inverters.

<sup>6</sup> See document number 0050, at <http://efile.mpsc.cis.state.mi.us/efile/viewcase.php?casenum=15113>.

<sup>7</sup> See <http://efile.mpsc.cis.state.mi.us/efile/viewcase.php?casenum=15113> documents numbered 59 through 61.

### **U-15316 Net Metering Standard Consideration**

On January 2, 2008 the Commission issued an order commencing a proceeding pursuant to the federal Energy Policy Act of 2005. The purpose of this proceeding was for the Commission to consider the implementation of utility standards passed by the U.S. Congress, including net metering, fuel sources, and fossil fuel generation efficiency. The net metering standard (Section 1254) reads:

**Net metering** – Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term “net metering service” means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.<sup>8</sup>

A public hearing was held on February 6, 2008 and written comments were filed by February 27, 2008. In an order issued on August 6, 2008, the Commission adopted the PURPA net metering standard. Michigan utilities regulated by the Commission were ordered to file an application for approval of a new, conforming net metering tariff by December 31, 2009.

On September 5, 2008, the Michigan Regulated Electric Utility Service Providers filed a petition for rehearing and clarification of the August 6 order. In an order issued on October 21, 2008, the Commission found that in light of the comprehensive nature of the new net metering legislation (Act 295) and the short time frame of 180 days for its implementation, the petition for rehearing should be granted, and the August 6 order should be amended to delete any requirement to file applications for net metering tariffs by December 31, 2009.

### **U-15353 Complaint**

On July 24, 2007, a net metering complaint was filed, in Case No. U-15353, by a customer of the Detroit Edison Company. The complaint was eventually resolved through a settlement agreement between the customer and the utility, and the Commission dismissed the case on December 4, 2007.

### **U-15440 MREP Order**

On April 1, 2008, the Commission issued an Order in Case No. U-15440 directing the staff to file net metering reports on November 1<sup>st</sup> of each year, to provide this data on a more timely basis. In the Order, the Commission noted that many of the comments regarding the current disincentives to net metering may be addressed in the course of the Commission’s investigation into interconnection problems. Once these problems are identified and corrected, interconnection for net metering may be substantially simplified. The Commission directed the Staff to continue its efforts in regard to the investigation, and to update this information annually. The Commission also directed Staff to continue to follow legislative activities that address an

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<sup>8</sup> <http://www.doi.gov/iepa/EnergyPolicyActof2005.pdf>, page 370.

RPS. Depending upon the outcome of any RPS initiative, the Commission has indicated it “may wish to reexamine the utility system cap on net metering.”<sup>9</sup>

### **Streamlined Interconnection Application**

In 2007 and 2008, Michigan utilities worked cooperatively with staff and renewable energy developers to create a streamlined and simplified interconnection application for inverter-based, under 30 kW projects that utilize equipment that has been certified as meeting the latest UL 1741 standard. The application is user-friendly and includes all of the information the utility needs to complete its review for these interconnections. At least some Michigan utilities have already agreed to begin utilizing this new application form.

### **Distribution System Issues**

According to provisions of the generally accepted interconnection technical standard, IEEE 1547, there can be some instances where an interconnection project is inverter-based, less than 30 kW and utilizing equipment that has been certified as meeting the latest UL 1741 standard, that still fails to meet the IEEE 1547 requirements because of specific circumstances associated with the utility distribution system at the location of the interconnection.<sup>10</sup> In July 2008, Detroit Edison contacted Staff about a related distribution system issue involving recloser coordination.<sup>11</sup> Detroit Edison reported in September 2008 that the issue has been resolved.

### **Conclusion**

The development of rules to implement the new net metering program is already underway. Staff believes the new program will simplify net metering and resolve many of the issues and concerns reported under the current net metering program. Staff is looking forward to working with utilities and net metering customers on the implementation of this program.

Additionally, Staff thanks all of the utilities for their efforts to provide data and information used in preparing this report.

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<sup>9</sup> April 1, 2008 Order in Case No. U-15440, p. 11;  
<http://efile.mpsc.cis.state.mi.us/efile/viewcase.php?casenum=15440> (document 0012).

<sup>10</sup> IEEE (Institute of Electrical and Electronics Engineers) 1547 is the Standard for Interconnecting Distributed Resources with Electric Power Systems. Copies of this standard may be purchased at [http://grouper.ieee.org/groups/scc21/1547/1547\\_index.html](http://grouper.ieee.org/groups/scc21/1547/1547_index.html). Specific instances identified by utilities include saturation of installed discrete generation on a given distribution circuit and proximity to synchronous motor loads.

<sup>11</sup> The concern is to make certain that the timing sequences for reclosers and inverters will be properly coordinated. Detroit Edison reports some circuits on its distribution system have reclosers that operate faster than a UL 1741 certified inverter is required to cease to energize. Interconnecting a generator on these particular circuits could violate IEEE 1547, because of the requirement for generators to cease to energize a circuit prior to reclosure. In these situations, it could be necessary to install additional protective equipment to solve the problem and proceed with interconnection. See “What is a recloser?” at <http://www.cooperpower.com/Library/Literature/R280908/>.

## Appendix A

### Introduction and History of Michigan Net Metering Program

In its May 18, 2004 Order in Case No. U-12915, the Commission directed Staff to work with the newly created Michigan Renewable Energy Program (MREP) Ratemaking & Net Metering committee to develop a statewide net metering proposal for the Commission's consideration.<sup>1</sup> Commission Staff, representatives of regulated utilities, and other interested parties worked cooperatively during late 2004 and early 2005 to develop a net metering proposal. A consensus agreement reached between Staff and the utilities regulated by the Commission was approved by the Commission, with amendments, in an Order dated March 29, 2005.<sup>2</sup>

The consensus agreement is a voluntary agreement that provides for utilities to track eligible costs: program operating costs, transmission and distribution costs attributable to the net metering customer, and the above-market costs, if any, of generation credits provided to net metered customers. Utilities may design their programs to assign all eligible costs to participating customers. To precisely track these costs, utilities meter the inflow (utility deliveries to the customer), outflow (customer generation delivered to the utility), and the generator. Both Consumers Energy and Detroit Edison meter net metering customers in such a way to obtain all of this information. Some utilities meter only the inflow and outflow while others simply measure the net energy use using a single standard meter.

The net metering program is for customers with generator capacity sized under 30 kW. A utility may voluntarily set its limit to under 150 kW; however, all Michigan utility net metering tariffs currently set the size limit at under 30 kW with the exception of Xcel and We Energies with a 20 kW size limit.<sup>3</sup> A second size limit requirement is that a customer's generator must be sized to meet the customer's needs. The intent is for the net metering program to assist the customer in meeting their own power and energy requirements, but net metering is not intended for customers who expect to make money through the sale of electricity. A third size limit is for the combined capacity of all net metered generators on any utility's system, not to exceed either 100 kW or 0.1% of the utility's peak system demand, whichever is greater.

Each utility filed net metering tariff sheets within 30 days of the Order. Net Metering tariff sheets for each utility are available on the Commission's website.<sup>4</sup>

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<sup>1</sup> See the Order at <http://efile.mpsc.cis.state.mi.us/efile/docs/12915/0136.pdf>. Net metering is an accounting mechanism whereby retail electric utility customers who generate a portion or all of their own retail electricity needs are billed for generation (or energy) by their electric utility for only their net energy consumption during each billing period. Net energy consumption during a billing period is defined as the amount of energy delivered by the utility and used by the customer, minus the amount of energy, if any, generated by the retail customer and delivered to the utility at the location of the eligible unit.

<sup>2</sup> See the consensus agreement at <http://efile.mpsc.cis.state.mi.us/efile/docs/14346/0001.pdf> and March 29, 2005 Commission Order at <http://efile.mpsc.cis.state.mi.us/efile/docs/14346/0031.pdf>.

<sup>3</sup> The consensus agreement provides for multi-state utilities presently offering net metering in Michigan and other states through filed tariffs to continue those offerings in their present form, as compliance with the consensus. We Energies and Xcel Energy notified the Commission they will continue providing net metering service under existing tariffs.

<sup>4</sup> See <http://www.michigan.gov/netmetering>.