

**REPORT ON THE
IMPLEMENTATION OF THE P.A. 295
RENEWABLE ENERGY STANDARD
AND THE COST-EFFECTIVENESS
OF THE ENERGY STANDARDS**

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MICHIGAN PUBLIC SERVICE COMMISSION
Department of Licensing and Regulatory Affairs
In compliance with Public Act 295 of 2008

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Introduction

Report Criteria

In October 2008, Public Act 295 of 2008 (PA 295 or the Act) was enacted. Section 51(5) (MCL 460.1051(5)) requires that by February 15, 2011, and each year thereafter, the Michigan Public Service Commission (MPSC or Commission) submit to the standing committees of the Senate and House of Representatives with primary responsibility for energy and environmental issues a report that does all of the following:

- a) Summarizes data collected under this section.
- b) Discusses the status of renewable energy and advanced cleaner energy in this state and the effect of Subparts A and B on electricity prices.¹
- c) For each of the different types of renewable energy sold at retail in this state, specifies the difference between the cost of the renewable energy and the cost of electricity generated from new conventional coal-fired electric generating facilities.
- d) Discusses how the Commission is ensuring that actions taken under this act by electric providers serving customers in the same distribution territory do not create an unfair competitive advantage for any of those electric providers.
- e) Evaluates whether Subpart A has been cost-effective.
- f) Provides a comparison of the cost effectiveness of the methods of an electric utility with one million or more retail customers in this state as of January 1, 2008, obtaining renewable energy credits from renewable energy systems owned by the electric provider and from contracts that do not require the transfer of ownership of the renewable energy system.
- g) Describes the impact of Subpart A on employment in this state. The Commission shall consult with other appropriate agencies of the department of labor and economic growth in the development of this information.²
- h) Describes the effect of the 10 percent limit on using energy optimization credits or advanced cleaner energy credits to meet the renewable energy credit standards.

¹ Subpart A (MCL 460.1021-1053) deals with renewable energy standards. Subpart B (MCL 460.1071-1097) deals with energy optimization standards.

² A State government reorganization took place in 2011 which moved employment-related agencies outside the newly-formed Department of Licensing and Regulatory Affairs (LARA). Consultation with the appropriate agencies is continuing.

- i) Makes any recommendations the Commission may have concerning amendments to Subpart A, including changes in the 10 percent limits described in (h) or changes in the definition of renewable energy resource or renewable energy system to reflect environmentally preferable technology.

Additionally, Section 97 of the Act (MCL 460.1097) requires the following:

(6) By February 15, 2011 and each year thereafter and by September 30, 2015, the Commission shall submit to the standing committees described above a report that evaluates and determines whether Subpart B and Subpart A have each been cost-effective and makes recommendations to the legislature. The report shall be combined with any concurrent report by the Commission under section 51.

This is the second annual report and provides information on Commission renewable energy activities related to the Act through 2011 and summarizes data from the electric provider annual reports through the 2010 calendar year.³

Background: Renewable Energy Plans and Commission Approval

Subpart A of the Act requires electric providers to meet a 10 percent renewable energy standard based on retail sales by the end of 2015. The Act includes interim compliance steps for 2012 – 2014. For 2016 and each year thereafter, the Act requires electric providers to maintain the same amount of renewable energy credits (RECs) needed to meet the standard in 2015.

The renewable energy standard is applicable to Michigan’s investor-owned electric utilities, cooperative electric utilities, municipal electric utilities and alternative electric suppliers (AESs).⁴ The Act directed electric providers to file initial renewable energy plans (REPs) in 2009. The 74 initial REPs described how each electric provider intended to meet the renewable energy standard requirements. The Act also directs electric providers to file REPs biennially for Commission review. In 2011, the Commission approved 66 biennial REPs, two initial REPs for new electric providers and

³ See the Commission’s February 15, 2011 report: http://www.michigan.gov/documents/mpsc/Report_on_Implementation_of_PA_295_RE_345746_7.pdf.

⁴ There is currently a total of 82 electric providers. Of those 82, 10 are AESs not serving customers and therefore are not required to file annual reports or register in MIRECS, the REC tracking system. Seventy-two electric providers are required to meet the REC requirement in the Act.

one amended REP. As of the end of 2011, there were 11 biennial REPs and one amended REP case pending. A listing of case numbers, electric provider names, and approval dates can be found in *Appendix A*. Commission Staff created a [webpage](#) with links to each electric provider's REP case docket.⁵

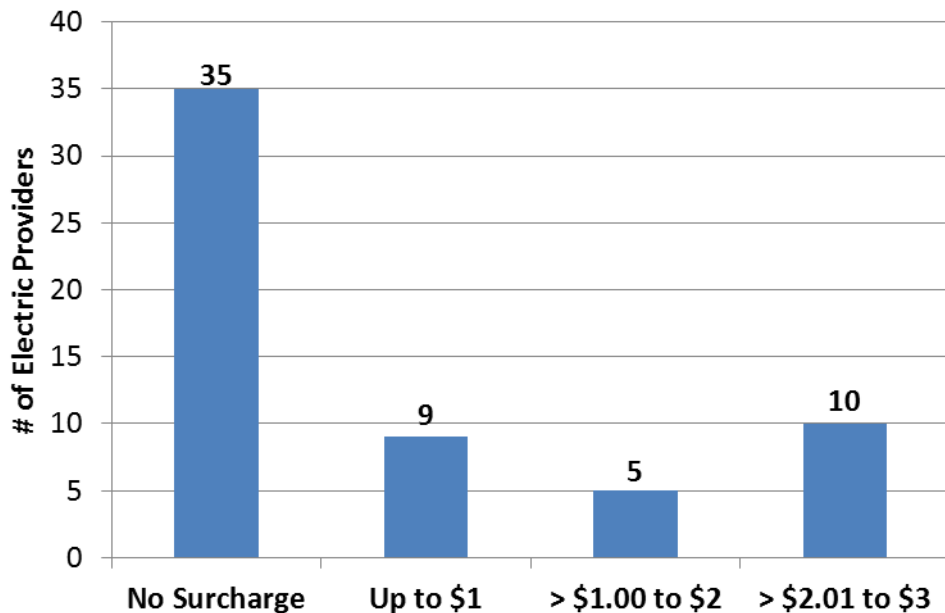
The Act allows providers to recover the incremental costs of compliance with the renewable energy standard requirements through a Commission-approved surcharge on customer bills. Section 45 of the Act limits the retail rate impact (surcharge amount) of the renewable energy standard to the following:

- (a) \$3.00 per month per residential customer meter.
- (b) \$16.58 per month per commercial secondary customer meter.
- (c) \$187.50 per month per commercial primary or industrial customer meter.

Through 2011, the Commission has established revenue recovery mechanisms for five rate-regulated providers to collect renewable energy surcharges on customer bills. Additionally, there are 19 non-rate-regulated electric providers with revenue recovery mechanisms. **Figure 1** summarizes the residential surcharges for all Michigan electric providers.

⁵ http://www.michigan.gov/mpsc/0,4639,7-159-16393_53570-240176--,00.html

**Figure 1: Residential Customer Renewable Energy Monthly Surcharge Summary
(2011 REP Data)**



AES data not included as chart shows only residential surcharges (AESs do not currently serve residential customers).
Source: Renewable energy plans filed with the MPSC.

Details about the surcharges can be found in *Appendix B*.

Based upon a review of REPs filed with the Commission, all providers are expected to be able to meet the 10 percent renewable energy standard in 2015, with the exception of three (Detroit Public Lighting Department, City of Eaton Rapids and Wisconsin Electric Power Company). The Commission notes that these exceptions represent a combined total of less than four percent of Michigan's retail electricity total, and will have REC deficiencies due to surcharge caps. At the same time, REC prices are particularly low, and the Commission anticipates that future REPs may show that electric providers are able to obtain the needed renewable energy and stay within the retail rate impact limits.

Background: Renewable Energy Reconciliation Cases and Commission Approval

Per Section 49 (1) of Act 295 (MCL 460.1049(1)), the MPSC rate-regulated electric providers are required to file annual renewable energy cost reconciliation cases.⁶

For the 2010 reconciliation period, cases were filed by 14 electric providers. After Staff review, all six electric cooperatives filed settlement agreements in their reconciliations, as have five investor-owned utilities. All settlement agreements were approved by the Commission. The three remaining investor-owned utilities, Consumers Energy, Detroit Edison and Wisconsin Electric Power Company, are currently in the contested case proceeding process to determine the reasonableness and prudence of expenditures and amounts collected pursuant to the revenue recovery mechanism. Case numbers and order dates for each renewable energy reconciliation case can be found in *Appendix A*.

Summary of Renewable Energy Data Collected

Electric providers are directed by Section 51(1) of the Act (MCL 460.1051(1)) to file annual reports for each plan year beginning with 2009. Michigan electric provider annual reports for both 2009 and 2010 are available on the [Commission's website](#).⁷ Commission Staff worked with electric providers to develop an annual report template based on Section 51 of the Act. In addition to the information specifically listed as being required in electric provider annual reports in the Act, the report template also requested information necessary to determine the total number of RECs in each electric provider's portfolio. The number of RECs reported is based on each electric provider's estimate because not all electric providers and renewable energy projects' accounts are established in MIRECS, the REC tracking system. Data from annual reports is shown in *Appendix C*.

⁶ Commission Staff audits the pertinent revenues and expenses along with other tasks. Staff analyzes and determines the electric provider's compliance with its filed REP per Act 295. Beginning in 2012, the first compliance year for the Renewable Energy Standard, the Commission will determine whether the provider has met its compliance targets. For 2010 renewable energy reconciliation case electronic dockets, see http://www.michigan.gov/mpsc/0,4639,7-159-16393_53570-240178--,00.html.

⁷ http://www.michigan.gov/mpsc/0,1607,7-159-16393_53570-240179--,00.html.

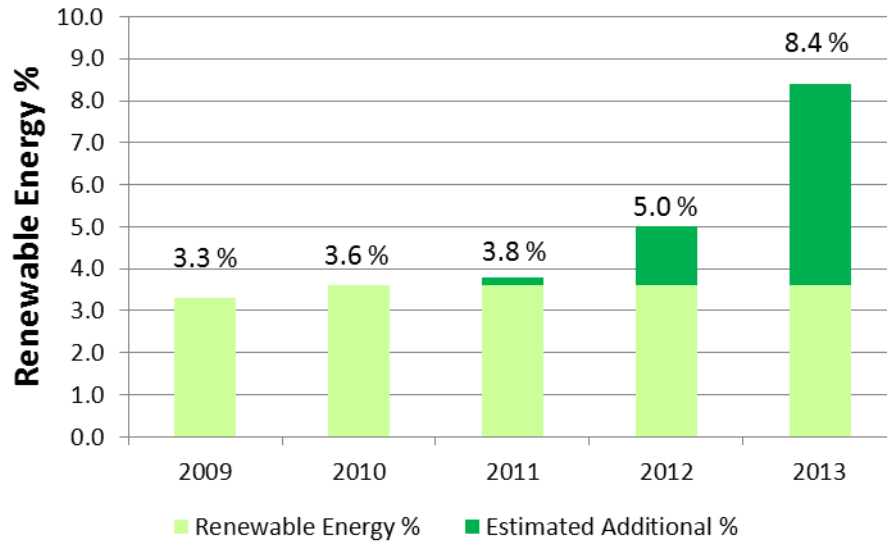
The February 15, 2011 report provided a 2009 renewable energy percentage of 3.6 percent, excluding AES data. All AES plans indicate that RECs will be purchased in later years to meet the standard. As shown in *Appendix C*, in 2009 no AESs reported having RECs; two reported having RECs in 2010. The renewable energy percentage calculation will now include all electric providers starting with this report. Based on the data provided, the estimated 2010 renewable energy percentage (now including AES data) is 3.6 percent. **Table 1** describes how the AES data impacts the renewable energy percentage.

Table 1: Michigan’s Renewable Energy Percentage

	2009	2010
Percentage with AESs	3.3%	3.6%
Percentage without AESs	3.6%	3.9%

The percentage of Michigan’s retail supply attributable to renewable energy is expected to increase significantly as new projects become operational. **Figure 2** shows the estimated renewable energy percentages for 2009 and 2010 based on electric provider annual reports and a projection of renewable energy percentages for 2011 through 2013 determined by calculating expected RECs from new renewable energy contracts approved by the Commission.

Figure 2: Estimated and Projected Renewable Energy Percentage Based on Act 295 Contracts Filed at the Commission



Source: Electric Provider Annual Reports and Act 295 Renewable Energy Contracts

Status of Renewable Energy and Advanced Cleaner Energy

For 2010, electric providers reported a total of 7,153,415 estimated available RECs and 123,804 Advanced Cleaner Energy Credits (ACECs). Michigan’s 2010 estimated renewable energy percentage of 3.6 percent is expected to increase significantly during the next two years as a total of approximately 1,041 MW of new renewable energy will become commercially operational by the end of 2012. As of January 2012, 46 renewable contracts and amendments have been filed with the Commission and all have been approved with the exception of one withdrawn application. **Figure 3** shows the expected commercial operation dates for renewable energy projects based on the contracts

filed at the MPSC through 2011.⁸ The breakdown by renewable energy technology type is shown on **Figure 4.**⁹

Figure 3: Cumulative New Renewable Energy Capacity and Commercial Operation Dates

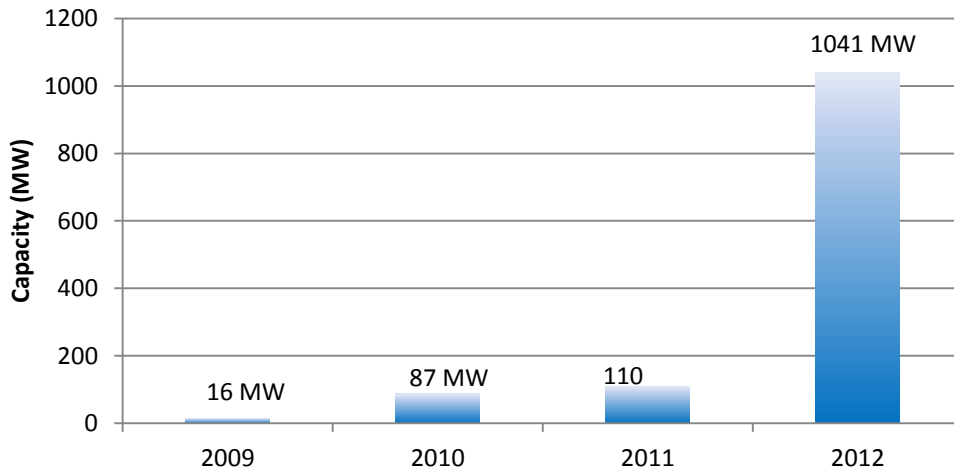
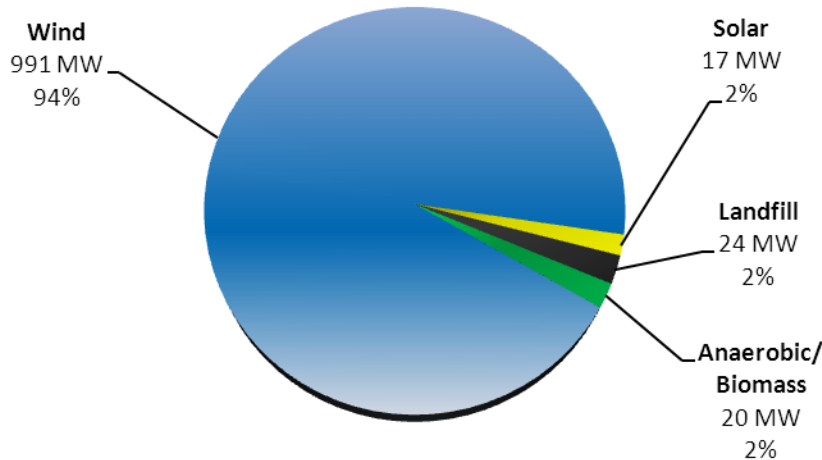


Figure 4: New Renewable Capacity by Technology Type



Includes all renewable energy contracts approved by the MPSC from 2009 - 2011.
 Includes 12 MW of Solar that will come online through 2015.
 Source: Electric provider contract approval filings.

⁸ Does not include the 3 MW continuation of the Consumers Energy Company’s EARP, the 5 MW Detroit Edison Company’s Customer-owned SolarCurrents capacity, or the remaining 12 MW of the Detroit Edison-owned SolarCurrents.

⁹ Does not include the 3 MW continuation of the Consumers Energy Company’s EARP or the 5 MW Detroit Edison Company’s Customer-owned SolarCurrents capacity.

According to the annual reports filed by each electric provider, \$21.7 million was spent on renewable energy in 2010 and \$78.6 million was anticipated during 2011. Additionally, Consumers Energy and Detroit Edison both continued to implement solar photovoltaic (PV) pilot programs. In July 2011, the Commission approved Consumers Energy's expanded solar pilot program that will bring approximately 3 MW of additional solar projects to fruition. Detroit Edison's customer-owned program met its goal of 5 MW in May 2011, but the Company is currently involved in a MPSC collaborative to explore opportunities for the expansion of the customer-owned SolarCurrents program. Additionally, Detroit Edison is working toward completing the 15 MW company-owned SolarCurrents program. These PV pilot programs are discussed in *Appendix D*.

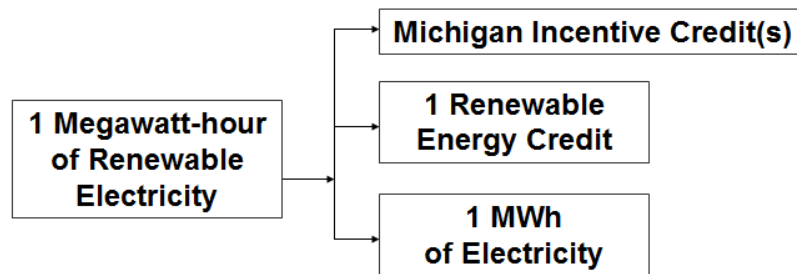
Electric providers filed REPs for biennial review in the spring of 2011. By the next biennial review in 2013, electric providers will have made significant progress toward securing all the renewable energy necessary for compliance with the Act. Based on the number of renewable energy projects shown in the Midwest Independent System Operator (MISO) queue and reported in press releases as being under development without purchase agreements, competition for utility power purchase agreements will be steep. The greater experience level of the construction, assembly and manufacturing companies that specialize in renewable energy should contribute to lower costs. Looking forward, the Commission finds that providers are on pace to hit the 2012 interim targets as well as the 10 percent by 2015 renewable energy standard.

Michigan Renewable Energy Certification System (MIRECS)

Compliance with the renewable energy standard is demonstrated through the use of RECs. One REC is created for each megawatt-hour (MWh) of renewable energy generated. Additionally, the Act provides for Michigan incentive renewable energy credits (IRECs) and substitution of energy optimization credits (EOCs) and ACECs under the renewable energy standard. RECs may be sold

separately from the energy as shown in **Figure 5**.

Figure 5: Renewable Energy Credits



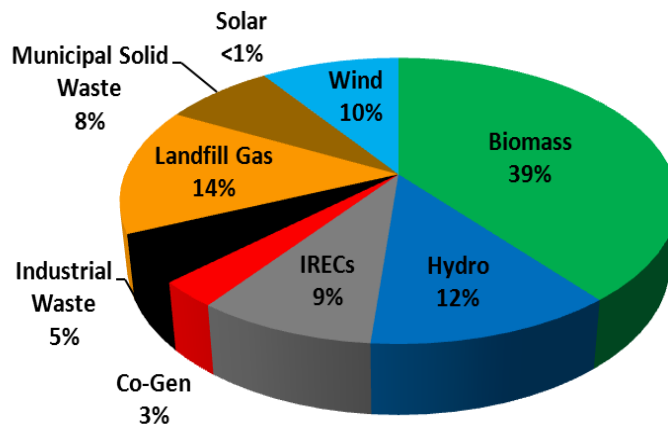
Section 41 of PA 295 (MCL 460.1041) directed the Commission to “establish a renewable energy credit certification and tracking program.” On August 11, 2009, the Commission approved the contract between the Department of Energy, Labor and Economic Growth (now LARA) and APX, Inc., that designates APX, Inc. (now NYSE Blue) as the State of Michigan Administrator of the renewable energy credit and tracking program. MIRECS was launched on October 30, 2009 and is fully functional and being used by electric providers.

MIRECS is designed to track and certify all Michigan credits necessary for compliance with PA 295. The credits include RECs, ACECs, EOCs and IRECs (on-peak, solar, Michigan labor and manufacturing, etc.).¹⁰ At this time, EOCs are not transferable. This functionality is being considered.

For vintage years 2009 through 2011, as of February 1, 2012, a total of 11,242,690 Michigan energy credits have been created in MIRECS. **Figure 6** shows the breakdown of Michigan energy credits by technology type. The number of energy credits for 2009 through 2011 is expected to increase as entities continue to access and complete the registration process. A yearly breakout of energy credits is available in *Appendix E*.

¹⁰ See Section 39 (2) of the Act.

**Figure 6: MIRECS 2009 – 2011 Vintage Energy Credits
11,242,690 Total Credits**



The number of generating units within MIRECS continues to grow. As of February 1, 2012, there were 172 registered projects (Generators) in MIRECS. MIRECS has 116 account holders which include electric service providers, generator owners and others. Fifty-eight of Michigan's 72 electric providers have established electric service provider accounts.

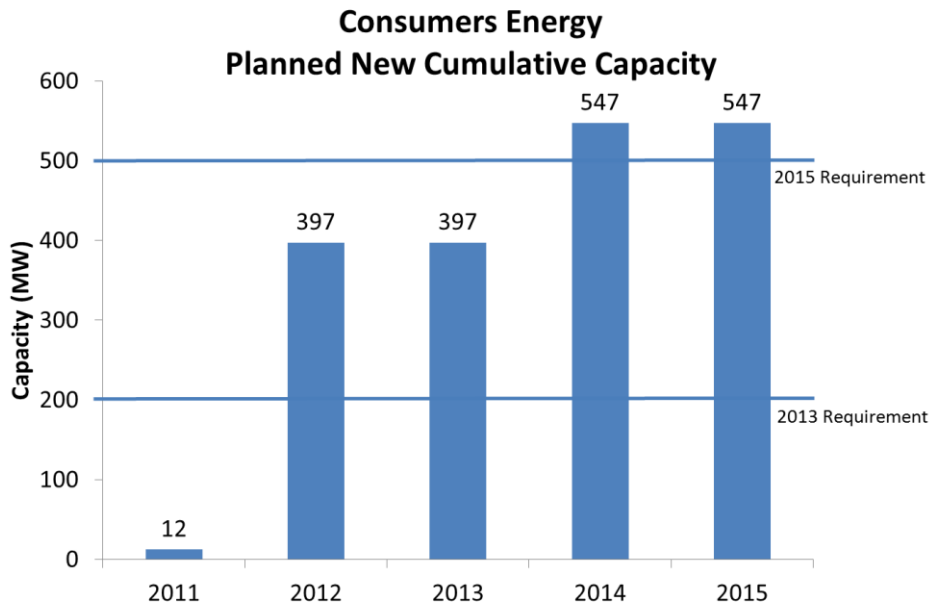
MIRECS is able to fully integrate with other tracking systems such as the Midwest Renewable Energy Tracking System (M-RETS) and North American Renewables Registry (NARS). This integration allows both businesses and individual citizens to sell their product to a wider market. Generators registered with other tracking systems as of February 1, 2012 have registered 42 import projects into MIRECS.

Commission Staff assists electric providers with the compliance process and will continue to hold training/information meetings. MIRECS may be accessed at <http://www.mirecs.org>.

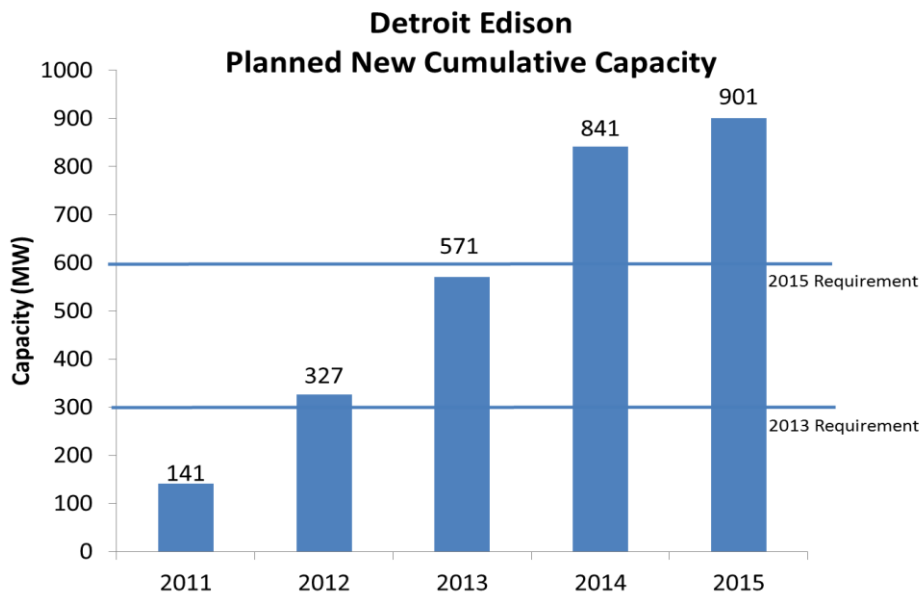
Competition in Areas Served by Multiple Providers

Consumers Energy and Detroit Edison have made substantial progress toward complying with the renewable energy standard. Consumers Energy has filed renewable energy contracts with the Commission for 397 MW of renewable energy and Detroit Edison has contracted for 508 MW, as shown in *Appendix F*. In addition to meeting the requirement in PA 295 for RECs that is applicable to all electric providers, both Consumers Energy and Detroit Edison have renewable capacity requirements pursuant to Section 27 of the Act. By the end of 2013, Consumers Energy is required to obtain 200 MW of nameplate capacity that was not in commercial operation before the effective date of the Act. Similarly, Detroit Edison's capacity portfolio requirement for 2013 is 300 MW. By the end of 2015, Consumers Energy's and Detroit Edison's total capacity portfolio requirement increases to 500 MW and 600 MW, respectively. Planned new cumulative capacity and capacity portfolio requirements are shown for each company in **Figure 7**.

Figure 7: Planned New Cumulative capacity through 2015 for Consumers Energy and Detroit Edison¹¹



Source: MPSC Case No. U-16581, Renewable Energy Plan



Source: MPSC Case No. U-16582, Renewable Energy Plan

¹¹ Data show capacity through 2015 only. Both companies have stated through renewable energy plans that additional capacity will be acquired after 2015. Consumers Energy source data is from biennial REP Case No. U-16581. Detroit Edison source data is from biennial REP Case No. U-16582.

AESs are also required to meet the energy credit requirement contained in the Act, but not a separate capacity requirement. Almost all AESs have indicated in their REPs and 2010 annual reports that they will purchase RECs to meet the 2012 renewable energy standard requirement. Customer choice participation levels are at the maximum amount allowed by law and both large electric utilities currently have customers waiting to switch providers. Although there are no indications that the Act is creating an unfair competitive advantage between utilities and AESs, the two largest utilities in Michigan have driven the expansion of renewable energy and have incurred the lion's share of the associated costs while the AESs have incurred little or no costs associated with complying with the statute at this time.

Cost-Effectiveness of Competitive Bidding and Owned Generation

Section 33 of PA 295 (MCL 460.33) includes a provision for electric providers who serve more than 1,000,000 electric customers in this state as of January 1, 2008 with regard to competitive bidding. Consumers Energy and Detroit Edison (collectively, the Companies) fall under this provision.

Pursuant to Section 33, the Companies are required to obtain RECs necessary to meet the REC standard in 2015 by one or more of the following methods:

(i) Renewable energy systems that were developed by and are owned by the electric provider. An electric provider shall competitively bid any contracts for engineering, procurement, or construction of any new renewable energy systems...

(ii) Renewable energy systems that were developed by 1 or more third parties pursuant to a contract with the electric provider under which the ownership of the renewable energy system may be transferred to the electric provider, but only after the renewable energy system begins commercial operation. Any such contract shall be executed after a competitive bidding process conducted pursuant to guidelines issued by the commission.

Additionally:

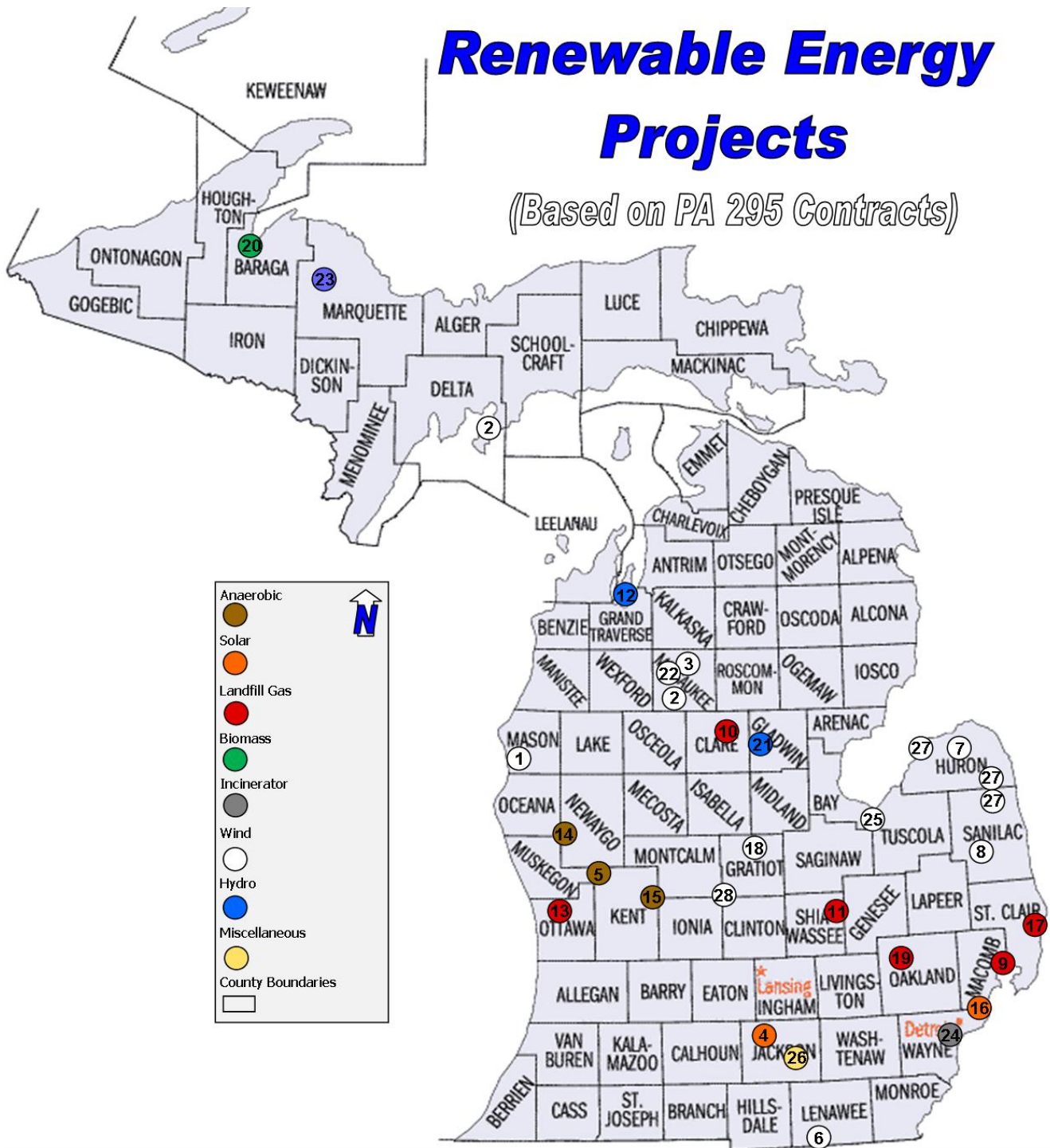
(b) At least 50% of the renewable energy credits shall be from renewable energy contracts that do not require transfer of ownership of the applicable renewable energy system to the electric provider or from contracts for the purchase of RECs without the associated renewable energy. A renewable energy contract or contract for the purchase of RECs under this subdivision shall be executed after a competitive bidding process conducted pursuant to guidelines issued by the commission.

The Companies have conducted 17 requests for proposals (RFP) in total. Consumers Energy has conducted five solicitations. Detroit Edison has conducted 12 solicitations, one Solar Solicitation of Interest (SSOI) and an auction for 2009 and 2010 vintage RECs. In response to the majority of the Companies' RFPs, Commission Staff has reviewed competitive bidding activities through process audits. The purpose and design of the audits was to assure that the Companies followed the processes and procedures outlined in the Commission's December 4, 2008 Temporary Order in MPSC Case No. U-15800, [Attachment D](#)¹² and pursuant to Section 33 of PA 295. Details about each Company's competitive bidding activities are shown in *Appendix G*.

Pursuant to [Section 37 of the Act](#) (MCL 460.1037), renewable energy contracts entered into by any electric provider whose rates are regulated by the Commission must be submitted to the Commission for determination of whether the terms are reasonable and prudent. *Appendix F* lists all renewable energy contracts that have been approved by the MPSC to date. **Figure 8** is a map showing the location of all Michigan facilities in the PA 295 contracts approved by the Commission.

¹² <http://efile.mpsc.state.mi.us/efile/docs/15800/0001.pdf>.

Figure 8: Locations of Renewable Energy Projects



Multiple Solar projects participating in Consumers Energy's Experimental Advanced Renewable Program are represented by a solar symbol placed at Jackson. Multiple Solar projects participating in Detroit Edison's SolarCurrents Program are represented by a solar symbol placed at Detroit. Alpena Power Company purchasing "bulk of RECs" from Consumers Energy represented by a yellow symbol placed at Detroit. Detroit Edison purchasing misc RECs from UPPCo represented by a blue symbol placed at UPPCo's headquarters. Map shows renewable energy projects based on PA 295 contracts filed at the Michigan Public Service Commission.

*Numbers shown on map correspond to the Map Key Column provided on *Appendix F*.

The MWh contract prices represented in *Appendix F* are levelized cost calculations and reflect the prices over the contract term for all power purchase agreements or, in the case of a Company-owned project, the useful life.¹³ The levelized cost value is used to compare multiple contracts with varying terms and conditions. It should be noted that the average levelized costs of the contracts continue to decline. Of the 45 contracts and amendments from four electric providers approved by the Commission to date, all but three have been from Consumers Energy or Detroit Edison and 10 have been unsolicited. All of the contracts filed are consistent with the electric providers' REPs and the contract prices have been much lower than expected.

Comparing the cost-effectiveness of the renewable energy competitive bidding resource acquisition methods described in Section 33 of the Act to an electric provider-owned project shows that to date, competitively bid power purchase agreements have been less costly than similar competitively bid provider-owned projects. Consumers Energy has filed one application for approval of a 100.8 MW provider-owned wind farm. Detroit Edison has filed two applications for approval of provider-owned wind farms totaling 212.8 MW and applications for 15 MW of provider-owned solar through its SolarCurrents program. Since no large scale solar installations have been contracted through power purchase agreements, only the above-mentioned wind contracts are compared for purposes of this section of the report.

Consumers Energy has filed contracts to purchase wind turbines from Vestas Wind Technology and utilize White Construction for the contraction of its wind farm. The combined

¹³ MPSC Staff performed audits of the Companies' levelized cost calculations starting in the early part of 2011. Additionally, through RFP process audits, Staff reviewed actual costs of contracts obtained through most of the Companies' competitive solicitations. Staff was provided an opportunity to review the actual costs of all contracts listed in *Appendix F*.

levelized cost of these contracts is \$110/MWh.¹⁴ Detroit Edison has filed contracts for a build-transfer arrangement with Gratiot County Wind that has an expected levelized cost of approximately \$94.43/MWh. In addition, it has filed contracts to purchase wind turbines from General Electric and use Barton Malow for the construction of its second wind farm. The combined levelized cost of these contracts is \$61-\$64/MWh. To compare these costs, a weighted average of the levelized competitively bid wind contract costs equal to \$87.26/MWh was calculated based on the five competitively bid wind contracts from non-provider-owned contracts filed by Detroit Edison and Consumers Energy. This cost was compared to the weighted average levelized cost of provider-owned wind projects of \$88.72/MWh. The analysis shows that provider-owned projects have been two percent more costly than similar competitively bid power purchase agreements.

Impact of the Renewable Energy Standard on Employment

There has been significant investment in the renewable energy sector since passage of PA 295 in 2008. Through 2011, at least \$100 million has been spent in order to meet the requirements of the renewable energy standard.¹⁵ A benefit of the additional investment, manufacturing, installation, administration and development of clean and renewable energy has been job creation.

Section 39 of the Act provides for Michigan Incentive Renewable Energy Credits for renewable energy systems meeting certain criteria. For renewable energy systems constructed

¹⁴ The contracts originally approved by the Commission stated a levelized cost of \$95/MWh. Based primarily on the Company's decision to substitute the Federal Cash Grant for the Production Tax Credit and the accounting treatment of the Grant, the levelized cost increased to \$110/MWh as stated in the most recent biennial REP available at: <http://efile.mpsc.state.mi.us/efile/docs/16581/0008.pdf>.

¹⁵ The \$100 million figure is conservative, including only those costs from electric providers with renewable energy surcharges, and thus differs from total costs reported on *Appendix C*. The \$100 million figure includes both capital investments and REC purchases.

using a threshold level of Michigan labor, the amount of the incentive is one-tenth of a REC for each MWh generated during the first three years of commercial operation. The incentive for Michigan equipment is calculated in a similar manner. **Table 2** shows the number of generators, resource technology and capacity of those generators and the incentive credits created since enactment of PA 295.

Table 2: Michigan Equipment and Michigan Labor IRECs

Incentive	Incentive Renewable Energy Credits	Renewable Resource (Number of Generators) ¹	Generator Capacity
Michigan Equipment	974	Wind (1), Solar (1), Biomass (2)	47 MW
Michigan Labor	122,831	Landfill Gas (8), Wind (6), Biomass (3), Solar (7)	223.16 MW
¹ The four generators eligible for Michigan Equipment IRECs are also eligible for the Michigan Labor IRECs.			

Preliminary reporting through 2011 indicates that over 200 MW of renewable generation, representing 22 renewable energy facilities utilizing Michigan labor, have been constructed in Michigan, based on MIRECS data. (MIRECS data for 2011 is not yet complete as new projects continue to register.) In addition, 45 contracts for utility scale projects with the potential for employing Michiganders, representing 1,041 MW of new capacity, have been approved and are expected to be commercially operational by the end of 2012.

Michigan's utilities are committed to using Michigan equipment and labor as well. On February 22, 2011, Detroit Edison and the Michigan Manufacturers Association hosted a Meet and Greet event with 10 of the leading turbine manufacturers and over 75 local Michigan service providers and manufacturers to develop relationships and the opportunity to utilize Michigan

companies for sourcing requirements. Consumers Energy and the Michigan Manufacturers Association hosted a similar event with Vestas. There has also been a continuation and expansion of Consumers Energy's EARP solar pilot program, which will result in the installation of an additional 3 MW of solar projects meeting the threshold requirement of at least 60 percent Michigan labor in their installations.

As noted in last year's annual report, the *Michigan Green Jobs Report 2009*¹⁶ was optimistic about the job creation potential of the renewable energy industry and pointed to the renewable energy standard as a driver for growth in this field. Surveys were conducted in 2011 to update the findings in the *Michigan Green Jobs Report 2009*, with results expected later this year. The Commission is confident that Michigan has the potential to become a regional leader in development and manufacturing of renewable energy systems, building on the state's engineering expertise, modernized machining, and investment in renewable energy in coming years. It appears that the Michigan incentive REC provision in the standard is meeting its intended purpose to encourage developers to maximize the amount of Michigan equipment and labor. The Commission will continue to monitor data on the impact of the renewable energy standard on employment in Michigan, and expects to be able to provide more detailed information in future annual reports.

Impact of Percentage Limits on the Use of Advanced Cleaner Energy Credits

Advanced cleaner energy (ACE) is defined in PA 295 as any of the four following types of facilities: 1) gasification, 2) industrial cogeneration, 3) coal-fired electric generation if at least 85 percent of the carbon dioxide emissions are captured and permanently geologically

¹⁶ http://www.michigan.gov/documents/nwlb/GJC_GreenReport_Print_277833_7.pdf .

sequestered, or 4) electric generating that uses technologies not in commercial operation on the effective date of PA 295.

Energy produced from these facilities is eligible for ACECs; the credits are tracked within MIRECS. Electric providers may substitute ACECs for RECs to meet the renewable energy standard. However, there are conditions on the substitution and there is a statutorily imposed limit on the percentage of ACEC substitutions eligible to be used each year for the renewable energy standard, which are described in Section 27(7) of PA 295. In general, the substitution of ACECs for RECs may not be made if the ACE is not both cost effective and provides a carbon dioxide emission benefit. Also, the combination of EOCs and ACECs may not account for more than 10 percent of the total energy credits used to meet the renewable energy standard in a given year. Further, older non plasma arc gasification ACE systems (in existence on January 1, 2008) cannot be used to meet more than 70 percent of the 10 percent limit. The substitution ratio of plasma arc gasification or industrial cogeneration is one ACEC to one REC while the ratio for other forms of ACE is 10 ACECs to one REC.

The Commission has found no negative impact on ACE based on the above-described percentage limits. ACE generation has decreased 18 percent from 2009 to 123,804 MWh in 2010. Only two electric service providers, using three facilities, are using ACE to meet their RPS. The number of electric providers generating ACECs has not changed from 2009. Given this, ACE continues to be a very small percentage of the Michigan energy portfolio (less than two percent in 2010). The percentage limits do not appear to be affecting the development of ACE in Michigan.

The Cost of Renewable Energy Compared to the Cost of New Coal Energy

Pursuant to Section 21(6)(b) (MCL 460.1021(6)(b)), rate-regulated electric providers' REPs were required to show that the life cycle cost of renewable energy acquired, less the life cycle net savings associated with Energy Optimization Plans, did not exceed the life cycle cost of electricity generated by a new conventional coal-fired facility. The Commission Staff filed a letter in MPSC Case No. U-15800 to provide the required life cycle cost of electricity generated by a new conventional coal plant:

The Commission's temporary order implementing 2008 PA 295, Case Number U-15800, directed the Staff to work with the providers to develop the required life cycle cost of electricity generated by a new conventional coal-fired facility in terms of a guidepost consisting of a levelized busbar rate, in \$/MWh, of an advanced-supercritical pulverized coal plant with a life cycle of 40 years. The Commission directed the Staff to submit the number to the Commission by January 30, 2009. The Staff has diligently worked with the providers to develop the guidepost rate and finds that the number is \$133 per MWh.¹⁷

This guidepost rate was derived from consulting services provided to Consumers Energy as a result of the Company's inquiry into a new 830 MW coal fired power facility, and was adopted by all electric providers. In its amended REP in Case U-16543, Consumers Energy updated the levelized cost of a conventional coal plant to \$107/MWh using the same construction cost estimates used in determining the \$133/MWh rate. The decrease in cost was primarily due to updated emissions assumptions.¹⁸ At the time of the updated Consumers Energy levelized coal plant assumption, the cost of coal had declined compared to the costs in 2008 when the original analysis had taken place. This had the effect of reducing the long-term fuel price projections. Additionally, federal legislation regarding carbon emissions was not enacted, resulting in emissions costs factored into the original calculation having less of an impact on the new

¹⁷ Excerpt from Commission Staff January 30, 2009 [Guidepost Rate Letter](http://efile.mpsc.state.mi.us/efile/docs/15800/0023.pdf), <http://efile.mpsc.state.mi.us/efile/docs/15800/0023.pdf>.

¹⁸ <http://efile.mpsc.state.mi.us/efile/docs/16543/0010.pdf>.

Consumers Energy assumption. However, the Commission continues to believe there is merit in the \$133/MWh guidepost rate.

In the later part of 2011, the U.S. Environmental Protection Agency (EPA) finalized the Mercury and Air Toxins Rule, one of four proposed regulations that have the potential to dramatically impact electric providers' generation sources, primarily coal-fired plants. As of December 2011, the Cross State Air Pollution Rule is on hold pending further review. The remaining two regulations are in draft form awaiting finalization.¹⁹ These EPA regulations, should they become effective, could have a considerable impact on the price of electricity going forward, as electric providers will have to make the decision to either retire or retrofit existing generators with emissions controls and technology to regulate cooling water temperatures. Any new coal capacity would likely require significant capital costs (and potentially increase rates for customers) and make the cost of new renewable energy development even more competitive. Coupled with recent increases in fuel prices, the potential costs associated with these federal regulations provide support for the original guidepost rate approved by the Commission.

By comparing the calculated levelized cost of \$133/MWh in 2008 dollars for a new conventional coal-fired power facility with the combined average levelized contract prices in **Figure 9**, the cost of all renewable energy technologies is less than the coal guidepost rate with the exception of a single hydro-electric contract. The hydro-electric price is representative of a single contract that was the result of Consumers Energy's first solicitation for small (under 5 MW) facilities. Consumers Energy and Detroit Edison have since seen much lower prices for

¹⁹ Mercury and Air Toxics Standards: <http://www.epa.gov/mats/basic.html>; Cross State Air Pollution Rule: <http://www.epa.gov/crossstaterule/>; Clean Water Act: <http://www.epa.gov/lawsregs/laws/cwa.html>; Coal Combustion Residuals: <http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/ccr-rule/index.htm>.

renewable energy. Using Consumers Energy's revised \$107/MWh levelized cost, wind and biomass still compare favorably while landfill gas is competitive.

Figure 9: Average Levelized Renewable Energy Contract Prices For Consumers Energy and Detroit Edison 2009 - 2011

Consumers Energy					
Technology	Wind	Anaerobic Digester	Biomass	Landfill Gas	Hydro
Average	\$101.33	\$120.20	--	\$120.15	\$121.31
Detroit Edison					
Technology	Wind	Anaerobic Digester	Biomass	Landfill Gas	Hydro
Average	\$87.20	--	\$98.94	\$98.97	--
Combined Average	\$94.27	\$120.20	\$98.94	\$109.56	\$121.31

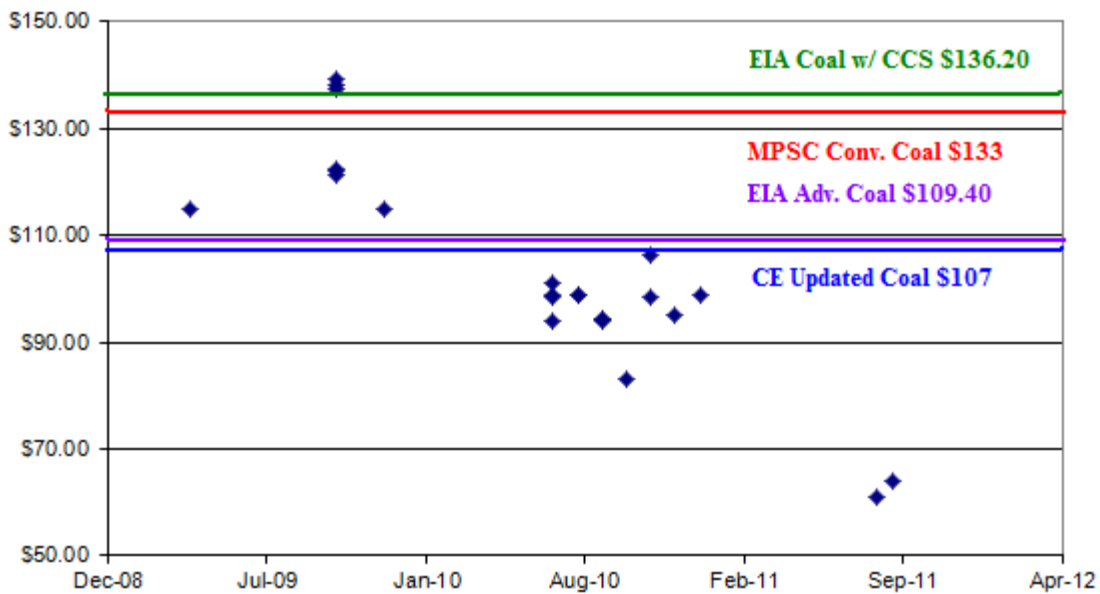
Cost-Effectiveness of Renewable Energy and Energy Optimization Standards

MCL 460.1051(5)(e) requires an evaluation of the cost-effectiveness of the renewable energy standard. In a similar vein, MCL 460.1097 requires the Commission to evaluate and determine whether the energy optimization and renewable energy standards have been cost-effective.

The actual cost of renewable energy contracts submitted to the Commission to date shows a downward pricing trend. This was the case as of the filing of this report in February of 2011 and continues to be the case as the two most recent contracts approved by the Commission for new wind capacity have levelized costs of \$61-\$64 per MWh. This is significantly lower than the levelized costs of the first wind contracts submitted in 2009. Contracts submitted to the Commission through 2011 total approximately 1,055 MW (1,041 MW of new capacity online by the end of 2012, plus 12 MW of solar and 1.87 MW of existing facilities under new contract) of

renewable capacity. Weighting the levelized costs of these contracts by the generation in MWh over the life cycle of the renewable energy systems results in an average cost of \$91.19/MWh. Almost all actual renewable energy contract prices are lower than the coal guidepost rate as shown in **Figure 10**.²⁰

Figure 10: Levelized Cost of MPSC Approved Contracts Over Time Compared to the Cost of New Coal Fired Facilities



Factoring in the cost of conserved energy due to energy optimization efforts, as required by Section 21(6)(b), **Figure 11** demonstrates the cost-effectiveness of the renewable energy and energy optimization standards using the state’s two largest electric providers. The energy optimization cost represented in Figure 11 is the life cycle levelized cost of conserved energy of the largest electric providers, weighted by the life cycle savings in MWh over the most recent planning period. The Renewable Energy cost is based on the actual levelized costs of contracts

²⁰ The October 2009 levelized contract prices reflected in the February 15, 2011 report included Consumers Energy Company escalators and have been updated here to show actual levelized costs.

submitted to the Commission for approval to date, weighted by the estimated production in MWh over the life cycle of the agreement. When combined, the cost of both Subpart A and Subpart B of 2008 PA 295 is approximately 40 percent of the cost of a new conventional coal plant, using \$133/MWh as the coal plant cost. Even when using the more conservative estimate of \$107/MWh for a new coal plant, the cost of renewables less the savings from energy optimization comes in at less than 60 percent of the cost of new coal. Based on contract pricing trends, Commission Staff anticipates that the cost of renewable energy will continue to decline, while energy optimization costs will remain relatively flat.

Figure 11: Cost Effectiveness of Energy Optimization and Renewable Energy Standards

Cost-Effectiveness of Energy Optimization and Renewable Energy Standards		
	Energy Optimization Life-Cycle Energy Savings (MWh)	Energy Optimization Cost of Conserved Energy (\$/MWh)
Detroit Edison	18,500,000	\$15.64
Consumers Energy	17,707,144	\$16.00
Energy Optimization Cost of Conserved Energy Weighted Average (\$/MWh)		\$15.82
Renewable Energy Weighted Average Cost (\$/MWh)		\$91.19
Combined Weighted Average Cost of Energy Optimization and Renewable Energy (\$/MWh)		\$61.19
<p>Source: Energy optimization life-cycle energy savings and cost of conserved energy data was provided by Consumers Energy and Detroit Edison in January 2012 based on the 2012-2015 plan periods. Renewable energy cost data is based on levelized costs provided as part of the renewable energy contract approval process.</p>		

Year-end 2012 marks the scheduled expiration of federal tax credits for wind that were a major driver behind rapid renewable development in Michigan and helped to trend the price down since wind made up the majority of the contracts.²¹ The absence of renewable tax credits should be partially negated by learning curve technology and manufacturing improvements²² combined with competition from developers and manufacturers of renewable energy generators. Additionally, in March 2011, MISO requested its Dispatchable Intermittent Resources (DIR) proposal to be approved, which changes the way it handles intermittent resources, primarily wind.²³ DIR may allow wind to operate more often and participate in the real-time market, displacing higher-priced generation. These factors, combined with increased wind forecasting experience, should allow developers to continue offering competitive pricing to electric providers.

Effect of the Renewable Energy and Energy Optimization Standard on Electricity Prices

For the 2010 calendar year, Michigan had four rate-regulated electric providers collecting revenue through a renewable energy surcharge. Alpena Power, Consumers Energy, and Detroit Edison began collecting the surcharge in September 2009. Wisconsin Electric Power Company's renewable energy surcharge began during the January 2010 billing month. A summary of renewable energy surcharge amounts, amounts collected, and copies of each electric provider's tariff sheets showing the surcharge amounts are shown in *Appendix B*. All investor-

²¹ Cash Grant - http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US53F&re=1&ee=1, Production Tax Credit - http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US13F&re=1&ee=1, Investment Tax Credit - http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F&re=1&ee=1.

²² The NASA learning curve calculator describes that for every doubling in manufactured quantity, a 5-15 percent increase in the efficiency of the operation is realized. This would result in improved pricing to the consumer and is evident in technologies such as televisions, cell phones, computers, etc. <http://cost.jsc.nasa.gov/learn.html>.

²³ <https://www.midwestiso.org/Library/Tariff/Pages/Tariff.aspx> and <https://www.midwestiso.org/Library/Repository/Tariff/FERC%20Filings/2010-11-01%20Docket%20No.%20ER11-1991-000.pdf>

owned, cooperative and municipal electric utilities (as well as Commission-regulated natural gas utilities) assess energy optimization surcharges. Specific surcharge amounts are detailed in the Commission's *2011 Report on the Implementation of the P.A. 295 Utility Energy Optimization Programs*, issued on November 30, 2011.²⁴

While these surcharges have an impact on electric rates, there are also economic benefits attributable to an increase in renewable energy generation sources and improved energy efficiency. As noted in previous sections, the cost of energy generated by renewable sources continues to decline and is cheaper than new coal-fired generation. Throughout the MISO footprint, increased growth in wind generation appears to have displaced relatively high cost generation, resulting in lower cost base-load plants more frequently setting the marginal electricity price.²⁵ The continued growth in Michigan's wind generation is expected to make a much greater contribution to this displacement in the MISO footprint by the end of 2012 as over 800 MW of new wind generation will be operational in the state. In addition, the Commission's *2011 Report on the Implementation of the P.A. 295 Utility Energy Optimization Programs* found that for every dollar spent on energy optimization, ratepayers see a return of over \$4.00 in avoided energy costs. As the renewable energy and energy optimization standards continue to be implemented, these broader economic benefits must be taken into account.

Recommendations

Progress toward the first compliance year in 2012 and the 10 percent renewable energy standard in 2015 is going smoothly. Michigan's electric providers are on track to meet the 10 percent renewable energy requirement. The renewable energy standard is resulting in the development of new renewable capacity and can be credited with the development of over 1,000

²⁴ See http://www.michigan.gov/documents/mpsc/eo_legislature_report2011_369985_7.pdf.

²⁵ [2010 State of the Market Report](#), p 7.

MW of new renewable energy projects since the Act became law. The weighted average price of renewable energy contracts is \$91.19/MWh, which is less than forecasted in REPs and is substantially lower than the cost of new coal-fired plants. The Commission will continue to monitor utility progress toward meeting the requirements of the standards as provided under the Act.

Based on experience gained through the implementation of the renewable energy standard, the Commission offers two recommendations. First, under PA 295 all rate-regulated electric providers are required to file an annual case with the Commission to reconcile charges assessed to customers through a renewable energy surcharge to recover costs to comply with the renewable energy standard. However, only five of the fourteen rate-regulated providers assess a renewable energy surcharge; for the other nine providers, there is no need for a reconciliation case. Thus, the Commission recommends that renewable energy cost reconciliation filings should not be required for rate-regulated electric providers that do not assess a renewable energy surcharge.

In addition, PA 295 requires a biennial review of all electric providers' renewable energy plans. In many cases, providers do not seek amendments to their original plan. In order to cut down on administrative burden for providers and the Commission, the Commission recommends that all electric providers with fewer than 1,000,000 customers should be relieved of the REP biennial review requirement if the following criteria are being met:

- The REP is not being amended;
- The electric provider's plan demonstrates that the full 10 percent renewable energy credit standard will be achieved by the end of 2015 and maintained through the end of the 20-year plan period;
- Renewable energy annual reports are filed in a timely manner; and

- Full compliance was achieved during the previous year.

These recommendations will reduce the time and effort necessary for electric providers who are on track to meet the standard, while not compromising the ability of the Commission to become aware of electric providers having difficulties meeting the standard.

Appendix A - RE Filings: Case Numbers, Companies, Plan Approval Dates and Reconciliation Approval Dates

	COMPANY	2009 Initial RE Plan Case #	2011 RE Biennial Plan Case #	2011 RE Biennial Plan Approval	2009 Plan Reconciliation Case #	2009 Plan Reconciliation Approval	2010 RE Plan Reconciliation Case #	2010 RE Plan Reconciliation Approval
IOUs								
1	Alpena Power Company	U-15804	U-16580	8/25/2011	U-16344	1/6/2011	U-16345	12/20/2011
2	Consumers Energy Company	U-15805	U-16581	Pending	U-16300	12/6/2011	U-16301	Pending
3	Consumers Energy Company AMENDED PLAN		U-16543	5/26/2011				
4	Detroit Edison Company	U-15806	U-16582	12/20/2011	U-16356	Pending	U-16357	Pending
5	Indiana Michigan Power Company	U-15808	U-16584	12/6/2011	U-16308	12/21/2010	U-16309	11/10/2011
6	Northern States Power Company-Wisconsin	U-15809	U-16585	10/20/2011	U-16312	1/6/2011	U-16313	11/10/2011
7	Upper Peninsula Power Company	U-15810	U-16586	8/25/2011	U-16316	12/21/2010	U-16317	11/10/2011
8	Wisconsin Public Service Corporation	U-15811	U-16587	8/25/2011	U-16360	12/21/2010	U-16361	1/26/2012
9	Wisconsin Electric Power Company	U-15812	U-16588	Pending	N/A	Not Due Until 2011	U-16367	Pending
Cooperatives - Rate Regulated								
10	Cloverland Electric Cooperative/Edison Sault*	U15816	U-16592	7/12/2011	U-16352	1/20/2011	U-16353	11/10/2011
11	Great Lakes Energy Cooperative	U15817	U-16593	7/12/2011	U-16320	12/21/2010	U-16321	10/20/2011
12	Midwest Energy Cooperative	U15818	U-16594	7/12/2011	U-16324	12/21/2010	U-16325	10/20/2011
13	Midwest Energy Cooperative AMENDED PLAN		U-16594	1/26/2012				
14	Ontonagon Co. Rural Electrification Assoc.	U15819	U-16595	7/12/2011	U-16328	12/21/2010	U-16329	10/20/2011
15	Presque Isle Electric and Gas Co-op	U15820	U-16596	7/12/2011	U-16332	12/21/2010	U-16333	10/20/2011
16	Thumb Electric Cooperative	U15821	U-16597	7/12/2011	U-16336	12/21/2010	U-16337	10/20/2011
Cooperatives - Member Regulated								
17	Alger Delta Cooperative Electric Association	U15813	U-16589	8/11/2011	Not Required			
18	Bayfield Electric Cooperative	U15814	U-16590	8/25/2011	Not Required			
19	Cherryland Electric Cooperative	U15815	U-16591	8/11/2011	Not Required			
20	Homeworks Tri-County Electric Cooperative	U15822	U-16598	8/11/2011	Not Required			
Municipals								
21	Village of Baraga	U-15848	U-16599	10/4/2011	Not Required			
22	City of Bay City	U-15849	U-16600	10/4/2011	Not Required			
23	City of Charlevoix	U-15850	U-16601	10/4/2011	Not Required			
24	Chelsea Department of Electric and Water	U-15851	U-16602	10/4/2011	Not Required			
25	Village of Clinton	U-15852	U-16603	10/4/2011	Not Required			
26	Coldwater Board of Public Utilities	U-15853	U-16604	10/4/2011	Not Required			
27	Croswell Municipal Light & Power Department	U-15854	U-16605	10/4/2011	Not Required			
28	City of Crystal Falls	U-15855	U-16606	10/4/2011	Not Required			
29	Daggett Electric Department	U-15856	U-16607	Pending	Not Required			
30	Detroit Public Lighting Department	U-15857	U-16608	10/4/2011	Not Required			
31	City of Dowagiac	U-15858	U-16609	10/4/2011	Not Required			
32	City of Eaton Rapids	U-15859	U-16610	10/4/2011	Not Required			
33	City of Escanaba	U-15860	U-16611	12/16/2011	Not Required			
34	City of Gladstone	U-15861	U-16612	10/4/2011	Not Required			
35	Grand Haven Board of Light and Power	U-15862	U-16613	10/4/2011	Not Required			
36	City of Harbor Springs	U-15863	U-16614	10/4/2011	Not Required			
37	City of Hart Hydro	U-15864	U-16615	Pending	Not Required			
38	Hillsdale Board of Public Utilities	U-15865	U-16616	10/4/2011	Not Required			
39	Holland Board of Public Works	U-15866	U-16617	10/4/2011	Not Required			
40	Village of L'Anse	U-15867	U-16618	10/4/2011	Not Required			
41	Lansing Board of Water & Light	U-15868	U-16619	10/4/2011	Not Required			
42	Lowell Light and Power	U-15869	U-16620	Pending	Not Required			
43	Marquette Board of Light and Power	U-15870	U-16621	10/4/2011	Not Required			
44	Marshall Electric Department	U-15871	U-16622	10/4/2011	Not Required			
45	Negaunee Department of Public Works	U-15872	U-16623	10/4/2011	Not Required			
46	Newberry Water and Light Board	U-15873	U-16624	Pending	Not Required			
47	Niles Utility Department	U-15874	U-16625	10/4/2011	Not Required			
48	City of Norway	U-15875	U-16626	10/4/2011	Not Required			
49	City of Paw Paw	U-15876	U-16627	Pending	Not Required			
50	City of Petoskey	U-15877	U-16628	10/4/2011	Not Required			
51	City of Portland	U-15878	U-16629	10/4/2011	Not Required			
52	City of Sebewaing	U-15879	U-16630	10/4/2011	Not Required			
53	City of South Haven	U-15880	U-16631	10/4/2011	Not Required			
54	City of St. Louis	U-15881	U-16632	10/4/2011	Not Required			
55	City of Stephenson	U-15882	U-16633	10/4/2011	Not Required			
56	City of Sturgis	U-15883	U-16634	10/4/2011	Not Required			
57	Traverse City Light & Power	U-15884	U-16635	10/4/2011	Not Required			
58	Union City Electric Department	U-15885	U-16636	10/4/2011	Not Required			
59	City of Wakefield	U-15886	U-16637	Pending	Not Required			
60	Wyandotte Department of Municipal Service	U-15887	U-16638	1/12/2012	Not Required			
61	Zeeland Board of Public Works	U-15888	U-16639	10/4/2011	Not Required			

* Cloverland Electric acquired Edison Sault in 2010
 NR NSC = Not Required - Not Serving Customers
 NSC = Currently not serving customers
 NL = New Licensee In 2010 - Initial plan
 NL1 = New Licensee in 2011 - Initial Plan

Appendix A - RE Filings: Case Numbers, Companies, Plan Approval Dates and Reconciliation Approval Dates

	COMPANY	2009 Initial RE Plan Case #	2011 RE Biennial Plan Case #	2011 RE Biennial Plan Approval	2009 Plan Reconciliation Case #	2009 Plan Reconciliation Approval	2010 RE Plan Reconciliation Case #	2010 RE Plan Reconciliation Approval
Alternative Electric Suppliers (AES)					Not Required			
62	BlueStar Energy Services Inc	U-15825	NR NSC	NR NSC				
63	CMS ERM Michigan LLC	U-15826	U-16640	7/12/2011				
64	Commerce Energy Inc	U-15828	U-16641	7/12/2011				
65	Constellation NewEnergy Inc	U-15829	U-16642	7/12/2011				
66	Direct Energy Business LLC	U-15845	U-16643	7/12/2011				
67	Direct Energy Services LLC	U-15830	U-15830	Pending NSC				
68	Duke Energy Retail Sales, LLC	NL1	U-16767	10/20/2011 NSC				
69	Exelon Energy Company	U-15831	U-15831	12/6/2011 NSC				
70	FirstEnergy Solutions Corp	U-15832	U-16644	7/12/2011				
71	GearyEnergy LLC	NL	U-16264	Not Due Until 9/28/2012 NSC				
72	Glacial Energy of Illinois	U-16007	U-16645	Pending				
73	Integrus Energy Services Inc	U-15833	U-16646	7/12/2011				
74	Quest Energy LLC	U-15842	U-16649	7/12/2011				
75	Liberty Power Delaware	U-15834	U-15834	1/12/12 NSC				
76	Liberty Power Holdings LLC	U-15835	U-15835	1/12/12 NSC				
77	MidAmerican Energy Company	U-15837	U-16647	7/12/2011				
78	Noble Americas Energy Solutions LLC f/k/a Sempra Energy Solutions LLC	U-15843	U-16650	7/12/2011				
79	Nordic Marketing LLC	U-15838	U-15838	Not Complied NSC				
80	PowerOne Corporation	U-15840	U-15840	Pending NSC				
81	Premier Energy Marketing LLC	U-15841	U-16648	8/25/11 NSC				
82	Spartan Renewable Energy Inc	U-15844	U-16651	7/12/2011				
83	U.P. Power Marketing LLC	U-165846	U-16652	8/25/2011				
84	Wolverine Power Marketing Cooperative Inc	U-15847	U-16653	7/12/2011				

* Cloverland Electric acquired Edison Sault in 2010
 NR NSC = Not Required - Not Serving Customers
 NSC = Currently not serving customers
 NL = New Licensee In 2010 - Initial plan
 NL1 = New Licensee in 2011 - Initial Plan

Appendix B - Estimate of Renewable Energy Credit Requirements and Renewable Energy Plan Summary

Company	Initial Plan	2011 Plan Docket	Estimate of 2012 Compliance Year Sales Forecast*	Retail Sales Method ¹	2007/2008 Baseline RECs	Estimated 2012 REC Requirement	Estimated 2013 REC Requirement	Estimated 2014 REC Requirement	Estimated 2015 REC Requirement	10% Standard Met	Current Residential Surcharge \$/Month
Rate Regulated Utilities											
Alpena Power	U-15804	U-16580 U-16581	323,620	3Y	0	6,472	10,679	16,181	32,362	Yes	0.24
Consumers Energy	U-15805	U-16543	33,275,578	3Y	1,549,840	1,905,384	2,136,487	2,438,699	3,327,558	Yes	0.65
Detroit Edison	U-15806	U-16582	41,684,855	W	566,819	1,287,152	1,755,369	2,367,652	4,168,486	Yes	3.00
Indiana Michigan	U-15808	U-16584	3,650,987	W	17,360	86,908	132,114	191,229	365,099	Yes	0.07
NSP-Wisc (Xcel)	U-15809	U-16585	138,567	3Y	16,211	13,857	13,857	13,857	13,857	Yes	0.00
Upper Peninsula Power	U-15810	U-16586	815,641	3Y	112,372	81,564	81,564	81,564	81,564	Yes	0.00
Wisc. PSC	U-15811	U-16587	269,411	3Y	37,569	26,941	26,941	26,941	26,941	Yes	0.00
Wisc. Elec Co	U-15812	U-16588	2,527,956	3Y	53,196	93,116	119,064	152,996	252,796	No	3.00

Rate Regulated Cooperatives											
Cloverland Electric Coop	U-15816	U-16592	805,969	3Y	301,126	80,597	80,597	80,597	80,597	Yes	0.00
Great Lakes Energy Coop	U-15817	U-16593	1,337,306	3Y	69,139	82,057	90,454	101,435	133,731	Yes	0.00
Midwest Energy Coop	U-15818	U-16594	603,111	3Y	0	12,062	19,903	30,156	60,311	Yes	0.00
Ontonagon Co. Rural Elec.	U-15819	U-16595	24,575	3Y	2,246	2,288	2,316	2,352	2,458	Yes	0.00
Presque Isle Elec & Coop	U-15820	U-16596	239,934	3Y	12,405	14,723	16,229	18,199	23,993	Yes	0.00
Thumb Elec. Coop	U-15821	U-16597	166,167	3Y	1,562	4,573	6,530	9,089	16,617	Yes	0.00

Member Regulated Cooperatives											
Alger Delta Coop Elec	U-15813	U-16589	59,985	3Y	920	1,936	2,596	3,459	5,999	Yes	0.00
Bayfield Elec. Coop	U-15814	U-16590	186	3Y	4	7	9	11	19	Yes	0.00
Cherryland Elec Coop	U-15815	U-16591	362,995	3Y	18,767	22,274	24,553	27,533	36,300	Yes	0.00
Homeworks Tri-County Elec. Coop	U-15822	U-16598	311,629	3Y	16,111	19,121	21,078	23,637	31,163	Yes	0.00

Alternative Electric Suppliers											
CMS ERM Michigan	U-15826	U-16640	196,192	3Y	0	3,924	6,474	9,810	19,619	yes	0.00
Commerce Energy	U-15828	U-16641	19,516	W	0	390	644	976	1,952	Yes	0.00
Constellation NewEnergy	U-15829	U-16642	3,000,736	W	0	60,015	99,024	150,037	300,074	Yes	0.00
Direct Energy Business	U-15845	U-16643	356,201	W	0	7,124	11,755	17,810	35,620	Yes	0.00
First Energy Solutions	U-15832	U-16644	1,417,279	W	0	28,346	46,770	70,864	141,728	Yes	0.00
Glacial Energy of Illinois	U-16007	U-16645	509,442	W	0	10,189	16,812	25,472	50,944	Yes	0.00
Integrus Energy Services	U-15833	U-16646	747,261	W	0	14,945	24,660	37,363	74,726	Yes	0.00
Quest Energy LLC	U-15842	U-16649									
MidAmerican Energy Company	U-15837	U-16647	73,093	W	0	1,462	2,412	3,655	7,309	Yes	0.00
Noble Americas Energy Solutions f/k/a Sempra Energy Solutions	U-15843	U-16650	1,951,857	W	0	39,037	64,411	97,593	195,186	Yes	0.00
Spartan Renewable Energy	U-15844	U-16651	60,991	3Y	0	1,220	2,013	3,050	6,099	Yes	0.00
U.P. Power Marketing	U-15846	U-16652	19,055	W	0	381	629	953	1,906	Yes	0.00
Wolverine Power Marketing Cooperative	U-15847	U-16653	1,090,586	3Y	28,279	44,435	54,936	68,669	109,059	Yes	0.00

Appendix B - Estimate of Renewable Energy Credit Requirements and Renewable Energy Plan Summary

Company	Initial Plan	2011 Plan Docket	Estimate of 2012 Compliance Year Sales Forecast*	Retail Sales Method ¹	2007/2008 Baseline RECs	Estimated 2012 REC Requirement	Estimated 2013 REC Requirement	Estimated 2014 REC Requirement	Estimated 2015 REC Requirement	10% Standard Met	Current Residential Surcharge \$/Month
Municipal Utilities											
Village of Baraga	U-15848	U-16599	18,942	3Y	0	379	625	947	1,894	Yes	0.00
City of Bay City	U-15849	U-16600	323,971	3Y	0	6,479	10,691	16,199	32,397	Yes	2.54
City of Charlevoix	U-15850	U-16601	60,343	3Y	0	1,207	1,991	3,017	6,034	Yes	1.83
Chelsea Dept. of Electric & Water	U-15851	U-16602	90,509	3Y	0	1,810	2,987	4,525	9,051	Yes	1.93
Village of Clinton	U-15852	U-16603	22,319	3Y	0	446	737	1,116	2,232	Yes	0.00
Coldwater Board of Public Utilities	U-15853	U-16604	283,739	3Y	0	5,675	9,363	14,187	28,374	Yes	0.00
Croswell Municipal Light & Power Dept.	U-15854	U-16605	37,283	3Y	0	746	1,230	1,864	3,728	Yes	0.47
City of Crystal Falls	U-15855	U-16606	16,164	3Y	4,400	1,616	1,616	1,616	1,616	Yes	0.00
Daggett Electric Department	U-15856	U-16607	1,418	3Y	0	28	47	71	142	Yes	0.00
Detroit Public Lighting Department	U-15857	U-16608	502,459	3Y	0	10,049	16,581	25,123	50,246	No	3.00
City of Dowagiac	U-15858	U-16609	65,140	3Y	0	1,303	2,150	3,257	6,514	Yes	0.00
City of Eaton Rapids	U-15859	U-16610	85,599	3Y	2,263	3,522	4,341	5,411	8,560	No	3.00
City of Escanaba	U-15860	U-16611	140,273	3Y	0	2,805	4,629	7,014	14,027	Yes	2.79
City of Gladstone	U-15861	U-16612	32,154	3Y	0	643	1,061	1,608	3,215	Yes	0.00
Grand Haven Board of Light & Power	U-15862	U-16613	266,675	3Y	0	5,334	8,800	13,334	26,668	Yes	0.85
City of Harbor Springs	U-15863	U-16614	36,655	3Y	0	733	1,210	1,833	3,666	Yes	1.81
City of Hart	U-15864	U-16615	39,429	3Y	804	1,432	1,840	2,373	3,943	Yes	2.75
Hillsdale Board of Public Utilities	U-15865	U-16616	122,323	3Y	0	2,446	4,037	6,116	12,232	Yes	0.00
Holland Board of Public Works	U-15866	U-16617	935,639	3Y	0	18,713	30,876	46,782	93,564	Yes	0.00
Village of L'anse	U-15867	U-16618	13,533	3Y	0	271	447	677	1,353	Yes	0.00
Lansing Board of Water & Light	U-15868	U-16619	2,156,794	3Y	8,675	50,076	76,986	112,177	215,679	Yes	2.50
Lowell Light & Power	U-15869	U-16620	62,300	3Y	0	1,246	2,056	3,115	6,230	Yes	3.00
Marquette Board of Light & Power	U-15870	U-16621	329,333	3Y	14,016	17,799	20,259	23,475	32,933	Yes	0.00
Marshall Electric Department	U-15871	U-16622	105,883	3Y	1,318	3,172	4,377	5,953	10,588	Yes	0.00
Negaunee Dept. of Public Works	U-15872	U-16623	22,074	3Y	0	441	728	1,104	2,207	Yes	0.00
Newberry Water and Light Board	U-15873	U-16624	19,640	3Y	4,931	1,964	1,964	1,964	1,964	Yes	0.00
Niles Utilities Department	U-15874	U-16625	128,749	3Y	0	2,575	4,249	6,437	12,875	Yes	0.00
City of Norway	U-15875	U-16626	29,333	3Y	21,080	2,933	2,933	2,933	2,933	Yes	0.00
Village of Paw Paw	U-15876	U-16627	40,784	3Y	0	816	1,346	2,039	4,078	Yes	0.25
City of Petoskey	U-15877	U-16628	108,181	3Y	0	2,164	3,570	5,409	10,818	Yes	2.92
City of Portland	U-15878	U-16629	35,844	3Y	1,746	2,114	2,353	2,665	3,584	Yes	0.92
City of Sebewaing	U-15879	U-16630	39,645	3Y	0	793	1,308	1,982	3,965	Yes	0.87
City of South Haven	U-15880	U-16631	131,206	3Y	0	2,624	4,330	6,560	13,121	Yes	0.00
City of St. Louis	U-15881	U-16632	37,771	3Y	680	1,299	1,702	2,229	3,777	Yes	1.29
City of Stephenson	U-15882	U-16633	7,135	3Y	0	143	235	357	714	Yes	0.00
City of Sturgis	U-15883	U-16634	221,535	3Y	11,232	13,416	14,836	16,693	22,154	Yes	0.00
Traverse City Light & Power	U-15884	U-16635	318,994	3Y	778	7,002	11,048	16,339	31,899	Yes	0.00
Union City Electric Department	U-15885	U-16636	15,064	3Y	1,625	1,506	1,506	1,506	1,506	Yes	0.00
City of Wakefield (from 2009 Annual Report)	U-15886	U-16637	13,038	3Y	0	261	430	652	1,304	Yes	0.35
Wyandotte Dept. of Municipal Service	U-15887	U-16638	282,339	3Y	0	5,647	9,317	14,117	28,234	Yes	1.32
Zeeland Board of Public Works	U-15888	U-16639	301,329	3Y	0	6,027	9,944	15,066	30,133	Yes	0.00
Total			103,542,219			4,061,559	5,071,019	6,391,084	10,273,625		
Estimated Renewable Energy %						3.9%	4.9%	6.2%	9.9%		

¹ 3Y = 3 Year Average W = Weather Normalized

*Sales Forecast from Annual Report

SURCHARGES

(continued from Sheet No. D-4.01)

<u>Rate Schedule</u>	<u>Renewable Energy Surcharge Effective January 2012 Bill Month</u>	<u>Energy Optimization Surcharge Effective January 2012 Bill Month</u>
Residential	\$0.24/meter/month	\$0.00272/kWh
General Service	\$2.47/meter/month	\$2.76/meter/month
Standard Power	\$3.95/meter/month	\$39.86/meter/month
Large Power (less than 13,200 volts)	\$3.95/meter/month	\$316.82/meter/month
Large Power (13,200 volts or higher)	\$28.00/meter/month	\$316.82/meter/month
Large Industrial (13,200 volts or lower)	\$28.00/meter/month	\$1,168.92/meter/month
Large Industrial (higher than 13,200 volts)	\$28.00/meter/month	\$282.00/meter/month
Alternative Energy Economic Development	\$28.00/meter/month	\$102.25/meter/month
Outdoor Protective Lighting (100 watt)	\$0.10/light/month	\$0.24/light/month
Outdoor Protective Lighting (250 watt)	\$0.27/light/month	\$0.41/light/month
Street & Highway Lighting	\$0.10/light/month	\$0.19/light/month
Special Power Contracts	\$28.00/meter/month	\$359.42/meter/month

Issued December 21, 2011 by
Ann K. Burton, President
Alpena, MI 49707



Effective for services rendered on
and after January 1, 2012

Issued under authority of the
Michigan Public Service Commission
dated September 13, 2011, in Case
No. U-16669 and Case No. U-16580
dated August 25, 2011.

SURCHARGES

Rate Schedule	Renewable Energy Plan Surcharge (Case Nos. U-15805 and U-16543) Effective beginning the September 2009 Bill Month	Energy Optimization Electric Program Surcharge Case Nos. U-15805, U-16412 and U-16302) Effective beginning the June 2009 Bill Month	Energy Optimization Self-Directed Customer Surcharge (Case Nos. U-15805, U-16412 and U-16302) Effective beginning the June 2009 Bill Month⁽²⁾
Residential Rates	\$ 0.65 /billing meter	\$0.002054/kWh	NA
Rate GS and GSD ⁽¹⁾			
Tier 1: 0 – 1,250 kWh/mo.	\$ 1.00 /billing meter	\$ 1.20/billing meter	\$ 0.05/billing meter
Tier 2: 1,251 – 5,000 kWh/mo.	\$ 4.00 /billing meter	\$ 6.82/billing meter	\$ 0.26/billing meter
Tier 3: 5,001 – 30,000 kWh/mo.	\$ 8.00/ billing meter	\$ 40.89/billing meter	\$ 1.58/billing meter
Tier 4: 30,001 – 50,000 kWh/mo.	\$ 12.00/ billing meter	\$ 40.89/billing meter	\$ 1.58/billing meter
Tier 5: > 50,000 kWh/mo.	\$ 16.00 /billing meter	\$ 40.89/billing meter	\$ 1.58/billing meter
Rate GP and GPD ⁽¹⁾			
Tier 1: 0 – 5,000 kWh/mo.	\$ 4.00 /billing meter	\$ 3.38/billing meter	\$ 0.13/billing meter
Tier 2: 5,001 – 10,000 kWh/mo.	\$ 12.00 /billing meter	\$ 25.66/billing meter	\$ 0.98/billing meter
Tier 3: 10,001 – 30,000 kWh/mo.	\$ 20.00 /billing meter	\$ 64.99/billing meter	\$ 2.51/billing meter
Tier 4: 30,001 – 50,000 kWh/mo.	\$ 40.00 /billing meter	\$140.92/billing meter	\$ 5.43/billing meter
Tier 5: > 50,000 kWh/mo.	\$ 100.00 /billing meter	\$655.64/billing meter	\$26.18/billing meter
Rate E-1	NA	NA	NA
Rate GSG-1, GSG-2	NA	NA	NA
Rate GML			
Tier 1: 0 – 1,250 kWh/mo.	\$ 1.00 /billing meter	NA	NA
Tier 2: 1,251 – 5,000 kWh/mo.	\$ 2.00 /billing meter	NA	NA
Tier 3: >5,000 kWh/mo.	\$ 3.00 /billing meter	NA	NA
Rate GUL	\$ 0.30 /luminaire	NA	NA
Rate GU-XL	\$ 0.30 /luminaire	NA	NA
Rate GU			
Tier 1: 0 – 1,250 kWh/mo.	\$ 0.25 /billed account	NA	NA
Tier 2: 1,251 – 5,000 kWh/mo.	\$ 1.00 /billed account	NA	NA
Tier 3: >5,000 kWh/mo.	\$ 1.75 /billed account	NA	NA
Rate PA	NA	NA	NA
Rate ROA-R, ROA-S, ROA-P	NA	As in Delivery Rate Schedule	As in Delivery Rate Schedule

All Surcharges shall be applied on a monthly basis. The customer's consumption will be reviewed annually in the January bill month. Following the annual review, the customer may be subsequently moved to the Surcharge level for their applicable rate for the next billing period based on the customer's average consumption for the previous year. In situations where no historical consumption is available, the monthly Surcharge level will be based on the lowest consumption category for the secondary rate schedules or the lowest consumption category for primary rate schedules. No retroactive adjustment will be made due to the application of the REP or EO Surcharges associated with increases or decreases in consumption.

⁽¹⁾ Customers taking the Municipal Pumping Service Provision shall be excluded from the Renewable Energy Plan Surcharge.

⁽²⁾ An eligible customer who files and implements a self-directed plan in compliance with Rule C12 is required to pay the Energy Optimization Self-Directed Program Surcharge.

Issued August 19, 2011 by
J. G. Russell,
President and Chief Executive Officer,
Jackson, Michigan



Effective for bills rendered on and after
the Company's September 2011 Billing Month

Issued under authority of the
Michigan Public Service Commission
dated May 26, 2011
in Case No. U-16543

Continued from [Sheet No. C-71.00](#)**C8 SURCHARGES AND CREDITS APPLICABLE TO POWER SUPPLY SERVICE (CONTD)****C8.2 HOLD FOR FUTURE USE****C8.3 Enhanced Security Cost Surcharge (ESCS)**

On April 3, 2007 the MPSC issued an order in Case No. U-15160 authorizing the ESCS. This surcharge is to recover costs for enhanced security measures incurred at electric generating facilities before January 1, 2006 pursuant to federal or state regulatory security requirements issued after September 11, 2001. *The authorized amount has been recovered and the ESCS will terminate on a bills rendered basis effective January 1, 2012.*

C8.4 Renewable Energy Plan Surcharge (REPS)

On June 2, 2009, in Case No. U-15806, the MPSC authorized the implementation of the Renewable Energy Plan Surcharge (REPS) in accordance with the Clean, Renewable, and Energy Efficiency Act, 2008 PA295. The REPS is a 20-year levelized surcharge to recover the incremental cost of compliance of the Company's Renewable Energy Plan under 2008 PA295. For all full-service metered customers the REPS is a per meter per month charge which is based on monthly energy consumption as shown in the schedule below. See Sheet C-73.00 for unmetered service. The REPS is effective for bills rendered on and after September 1, 2009.

Residential Rate Schedule:

Metered Service	\$3.00 per meter per month
-----------------	----------------------------

Commercial Secondary and Governmental Rate Schedules:

Metered Service

Monthly Consumption	Customer Surcharge
0 – 400 kWh per month	\$4.00 per meter per month
401 – 850 kWh per month	\$8.00 per meter per month
851 – 1,650 kWh per month	\$12.00 per meter per month
Above 1,650 kWh per month	\$16.58 per meter per month

Primary & Industrial Rate Schedules:

Metered Service

Monthly Consumption	Customer Surcharge
0 – 11,500 kWh per month	\$16.58 per meter per month
11,501 – 41,500 kWh per month	\$140.00 per meter per month
Above 41,500 kWh per month	\$187.50 per meter per month

Notes:

- (1) The REPS does not apply to Secondary Pumping Rate E5.
- (2) The REPS will not be applied to additional meters at a single site that were installed specifically to support interruptible air conditioning, interruptible water heating, net metering, or time-of-day tariffs.

(Continued on [Sheet No. C-72.01](#))

Issued December 14, 2011
D. G. Brudzynski
Vice President
Regulatory Affairs
Detroit, Michigan



Effective for bills rendered on
and after January 1, 2012

Issued under authority of the
Michigan Public Service Commission
Dated April 3, 2007
In Case No. U-15160

(Continued from [Sheet No. C-72.00](#))

C8 SURCHARGES AND CREDITS APPLICABLE TO POWER SUPPLY SERVICE (CONTD)

C8.4 Renewable Energy Plan Surcharge (REPS) (Contd)

Residential Rate Schedule:

Metered Service \$3.00 per meter per month

Commercial Secondary and Governmental Rate Schedules:

Metered Service

Monthly Consumption	Customer Surcharge
0 – 400 kWh per month	\$4.00 per meter per month
401 – 850 kWh per month	\$8.00 per meter per month
851 – 1,650 kWh per month	\$12.00 per meter per month
Above 1,650 kWh per month	\$16.58 per meter per month

Primary & Industrial Rate Schedules:

Metered Service

Monthly Consumption	Customer Surcharge
0 – 11,500 kWh per month	\$16.58 per meter per month
11,501 – 41,500 kWh per month	\$140.00 per meter per month
Above 41,500 kWh per month	\$187.50 per meter per month

Notes:

- (1) The REPS does not apply to Secondary Pumping Rate E5.
- (2) The REPS will not be applied to additional meters at a single site that were installed specifically to support interruptible air conditioning, interruptible water heating, net metering, or time-of-day tariffs.

C8.4.5 2010 CHOICE INCENTIVE MECHANISM (2010 CIM)

On December 6, 2011 in Case No. U-16756, the MPSC authorized the implementation of the 2010 Choice Incentive Mechanism. The 2010 CIM is effective for a 12 month period beginning with service rendered on and after January 1, 2012.

(Continued on [Sheet No. C-73.00](#))

Issued December 14, 2011
D. G. Brudzynski
Vice President
Regulatory Affairs
Detroit, Michigan



Effective for service rendered on
and after January 1, 2012

Issued under authority of the
Michigan Public Service Commission
dated December 6, 2011
In Case No. U-16756

Appendix B

M.P.S.C. No. 3 – Electric
Wisconsin Electric Power Company
(Rate Case - Final)

Third Revised Sheet No. D-5.03
Replaces *Second* Revised Sheet No. D-5.03

RENEWABLE ENERGY SURCHARGE

The following rate schedules shall receive a Power Supply Renewable Energy Surcharge per meter*, per day, as indicated below.

<u>RATE SCHEDULE</u>	<u>RATE</u>
Rg 1	\$0.09863
Rg 2	\$0.09863
Cg 1	\$0.54509
Cg 2	\$0.54509
Cg 3	\$0.54509
Cg3C	\$0.54509
Cg 5	\$0.54509
Cp 1	\$6.16438
Cp 2	\$6.16438
Cp 3	\$6.16438
Cp 4	\$6.16438
A	\$6.16438
Cp LC	\$6.16438

* Company assumes one meter per service.

The following rate schedules shall receive a Renewable Energy Surcharge as indicated above consistent with the rate schedule under which the customer is served. The Renewable Energy Surcharge is not prorated based on the level of participation selected under rate schedules ERER1, ERER2 or ERER3.

RATE SCHEDULE

ERER1
ERER2
ERER3
Ds1

CGS Category 1 (only when a net purchaser from the Company)

Issued *July 1, 2010*
R.A. Draba
Vice-President,
Milwaukee, Wisconsin



Effective for service rendered on and
after *July 2, 2010*

Issued under authority of the
Michigan Public Service Commission
dated *July 1, 2010*
in Case No. *U-15981*

Appendix C - ELECTRIC PROVIDER RENEWABLE ENERGY ANNUAL REPORT DATA SUMMARY
Prepared by Michigan Public Service Commission Staff

2010 Calendar Year

Company Name	Retail Sales Projected 2011 Weather Normalized or Projected 2009 - 2011 Average (MWh)	Total Available RECs Estimate (RECs)	2009 Generated or Aquired (RECs)	2010 Generated or Aquired (RECs)	2010 Generated or Acquired (ACECs)	2009 Actual Expenditures	2010 Actual Expenditures	2011 Anticipated Expenditures
Investor Owned Utilities:								
Alpena Power Company	323,620	12,325	12,325	0	0	279,000	836,994	836,994
Consumers Energy Company	33,275,578	3,096,045	1,529,610	1,566,435	0	2,220,000	7,297,002	31,300,000
Detroit Edison Company	41,684,855	2,223,870	1,094,930	1,119,211	117,159	2,788,600	8,698,714	39,332,956
Indiana Michigan Power Company	3,650,987	67,981	54,907	67,981	0	0	0	0
Northern States Power Company	138,567	28,639	12,428	16,211	6,645	0	0	0
Upper Peninsula Power Company	815,641	112,372	41,970	70,402	0	0	0	0
Wisconsin Public Service Corporation	269,411	37,569	15,117	22,452	0	0	0	0
Wisconsin Electric Power Co	2,527,957	154,660	63,403	91,257	0	0	79,240	93,484
	82,686,616	5,733,461	2,824,690	2,953,949	123,804	5,287,600	16,911,950	71,563,434
Cooperatives:								
Cloverland Electric Cooperative***	805,969	600,373	315,085	285,288	0	0	0	0
Great Lakes Energy Cooperative	1,337,306	87,174	18,035	69,139	0	0	0	0
Midwest Energy Cooperative	603,111	0	0	0	0	0	0	0
Ontonagon County Rural Electricification Association	24,575	4,715	2,608	2,107	0	0	0	0
Presque Isle Electric and Gas Co-op	239,934	15,620	3,215	12,405	0	0	0	0
Thumb Electric Cooperative	166,167	3,101	1,775	1,326	0	0	0	0
	3,177,062	710,983	340,718	370,265	0	0	0	0
Member Regulated Electric Cooperatives:								
Alger Delta Cooperative Electric Association*	59,985	29,921	7,336	22,585	0	0	0	0
Bayfield Electric Cooperative	186	406	220	186	0	0	0	0
Cherryland Electric Cooperative	362,995	23,682	4,915	18,767	0	0	0	0
Homeworks Tri-County Electric Cooperative	311,629	20,391	4,280	16,111	0	0	0	0
	734,795	74,400	16,751	57,649	0	0	0	0

Appendix C - ELECTRIC PROVIDER RENEWABLE ENERGY ANNUAL REPORT DATA SUMMARY
Prepared by Michigan Public Service Commission Staff

2010 Calendar Year

Company Name	Retail Sales Projected 2011 Weather Normalized or Projected 2009 - 2011 Average (MWh)	Total Available RECs Estimate (RECs)	2009 Generated or Acquired (RECs)	2010 Generated or Acquired (RECs)	2010 Generated or Acquired (ACECs)	2009 Actual Expenditures	2010 Actual Expenditures	2011 Anticipated Expenditures
Municipally-Owned Electric Utilities:								
City of Bay City	323,971	2,081	0	2,080	0	0	105,950	276,786
City of Charlevoix	60,343	416	0	416	0	0	21,190	55,357
City of Crystal Falls	16,164	11,891	5,721	6,170	0	0	0	0
City of Dowagiac	65,140	0	0	0	0	7,146	0	0
City of Eaton Rapids	85,599	6868	2458	4,389	0	0	6,608	27,679
City of Escanaba	140,273	0	0	0	0	0	0	0
City of Gladstone*	32,154	33,159	16,486	16,673	0	0	0	0
City of Harbor Springs	36,655	417	0	417	0	0	21,190	55,357
City of Hart Hydro	39,429	2,320	1,066	1,255	0	0	10,595	27,679
City of Norway	29,333	58,170	26,983	31,187	0	0	0	0
City of Petoskey	108,181	832	0	832	0	0	42,380	110,714
City of Portland	35,844	2,791	1,166	1,625	0	0	6,357	16,607
City of Sebawaing	39,645	0	0	0	0	0	0	0
City of South Haven	131,206	0	0	0	0	7,719	0	0
City of St. Louis	37,771	1,596	708	888	0	0	6,301	16,607
City of Stephenson	7,135	1,014	414	600	0	0	0	0
City of Sturgis	221,535	11,519	0	11,519	0	12,051	0	0
City of Wakefield (data from 2009 Annual Report)	13,038	1,146	1,146	0	0	0	0	0
Chelsea Dept of Electric & Water	90,509	249	0	249	0	0	12,714	33,214
Coldwater Board of Public Utilities**	283,739	0	1,861	1,812	0	0	0	0
Croswell Municipal Light & Power Dept	37,283	0	0	0	0	0	0	0
Daggett Electric Dept	1,418	203	83	120	0	0	0	0
Detroit Public Lighting Dep	502,459	0	0	0	0	13,927	9,671	17,111
Grand Haven Board of Light & Power	266,675	1,665	0	1,665	0	0	54,211	145,183
Hillsdale Board of Public Utilities**	122,323	0	889	782	0	0	0	0
Holland Board of Public Works*****	935,639	62,685	18,977	44,709	0	969,743	3,251,071	3,661,277
Lansing Board of Water & Light	2,156,794	187,008	81,127	99,192	0	1,325,052	1,148,564	2,407,909
Lowell Light & Power	62,300	584	0	584	0	0	29,666	77,500
Marquette Board of Light & Power	329,333	15,473	6,763	8,674	0	0	0	0
Marshall Electric Dept**	105,883	3,508	705	677	0	0	0	0
Negaunee Dept of Public Works*	22,074	46,652	11,684	11,643	0	0	0	0
Newberry Water & Light Board	19,640	10,418	5,236	5,182	0	0	0	0
Niles Utility Dept	128,749	0	0	0	0	7,529	0	0
Traverse City Light & Power	318,994	11,918	484	11,434	0	0	0	0
Union City Electric Dept**	15,064	3,696	99	90	0	0	0	0
Wyandotte Dept of Municipal Service	282,339	833	0	832	0	0	32,737	75,063
Village of Baraga*	18,942	43,128	10,850	10,714	0	0	0	0
Village of Clinton	22,319	0	145	144	0	0	0	0
Village of L'Anse*	13,533	30,795	7,673	7,725	0	0	0	0
Village of Paw Paw	40,784	0	0	0	0	2,505	0	0
Zeeland Board of Public Works	301,329	11,646	1,660	9,920	0	0	0	0
	7,501,538	564,680	204,383	294,198	0	2,345,672	4,759,205	7,004,043

Appendix C - ELECTRIC PROVIDER RENEWABLE ENERGY ANNUAL REPORT DATA SUMMARY
Prepared by Michigan Public Service Commission Staff

2010 Calendar Year

Company Name	Retail Sales Projected 2011 Weather Normalized or Projected 2009 - 2011 Average (MWh)	Total Available RECs Estimate (RECs)	2009 Generated or Aquired (RECs)	2010 Generated or Aquired (RECs)	2010 Generated or Aquired (ACECs)	2009 Actual Expenditures	2010 Actual Expenditures	2011 Anticipated Expenditures
Alternative Electric Suppliers (AES):								
CMS ERM Michigan LLC	196,192	0	0	0	0	0	0	0
Commerce Energy Inc	19,516	0	0	0	0	0	0	0
Constellation NewEnergy Inc*****	3,000,736	0	0	0	0	0	0	0
Direct Energy Business LLC	356,201	0	0	0	0	0	0	0
FirstEnergy Solutions Corp	1,417,279	0	0	0	0	0	0	0
Glacial Energy of Illinois, Inc.	509,442	0	0	0	0	0	0	0
Integrus Energy Services Inc								
Quest Energy LLC	747,261	0	0	0	0	0	0	0
Midamerican Energy Company	73,093	0	0	0	0	0	0	0
Noble Americas Energy Solutions LLC f/k/a Sempra Energy Solutions LLC	1,951,857	0	0	0	0	0	0	0
Spartan Renewable Energy Inc	60,991	34,500		34,500	0	0	0	0
UP Power Marketing LLC	19,055	0	0	0	0	0	0	0
Wolverine Power Marketing Cooperative Inc	1,090,586	35,391		35,391	0	0	0	0
	9,442,209	69,891	0	69,891	0	0	0	0
Totals Not Including AESs	94,100,011	7,083,524	3,386,542	3,676,061				
Totals:	103,542,220	7,153,415	3,386,542	3,745,952	123,804			
			Total Expenditures:			7,633,272	21,671,155	78,567,477
			Michigan Estimated Energy % including AESs:		3.27%	3.62%		
			Michigan Estimated Energy % not including AESs:		3.60%	3.91%		
* REC quantities do not include Michigan Incentive RECs								
**A single, combined REC quantity was provided for Clinton, Coldwater, Hillsdale, Marshall & Union City. MPSC Staff allocated RECs to each individual municipal based on retail sales.								
***MPSC Staff calculated retail sales from 2009 plan case filing								
****Detroit Public Lighting data is 2008 retail sales								
*****Costs provided included more than incremental compliance costs								
*****Constellation retail sales data is from 2009 as the company filed 2010 data as confidential								
Source: PA 295 Annual Reports and Renewable Energy Plans: http://www.michigan.gov/mpsc/0,1607,7-159-16393_53570---,00.html								

Appendix D- Experimental Advanced Renewable Program (EARP) and SolarCurrents Program

Consumers Energy's original EARP was a two-year pilot program for solar PV projects. Under the original program, customers received a firm price (residential: \$0.65 - \$0.525/kWh and commercial: \$0.45 - \$0.375/kWh) for each kWh generated by the customer's solar generation system over a 12 year period. The total program size was 2 MW (2,000 kW) where 1,500 kW of the total program size was reserved for commercial projects and the remaining 500 kW was allotted to residential projects. In June of 2011 the Company announced the program was fully subscribed after completing 102 contracts.

After seeing the significant amount of interest in the original program the Company expanded the program by an additional 3 MW which is split equally between residential and non-residential customers. The Commission approved the expanded program in July of 2011. The price range is set between \$0.20/kWh and \$0.26/ kWh and the Company will offer a bonus of \$0.001/kWh for systems constructed using both Michigan labor and Michigan materials. System size will be limited to the customer's annual electricity use similar to the net-metering program. The program will continue to add new participants for three more years and contracts will be for a 15 year period or until the end of the Renewable Energy Plan period in 2029, whichever comes first.

Detroit Edison's SolarCurrents pilot program was comprised of a 5 MW customer-owned program and a 15 MW company-owned program. In May 2011, Detroit Edison announced that the customer-owned program was fully subscribed. The customer-owned SolarCurrents program provided an up-front REC payment equal to \$2.40/Watt of installed solar PV which is approximately half of the total system cost. The company purchases the remaining RECs through a monthly payment/on-bill credit equal to \$0.11/kWh for 20 years.

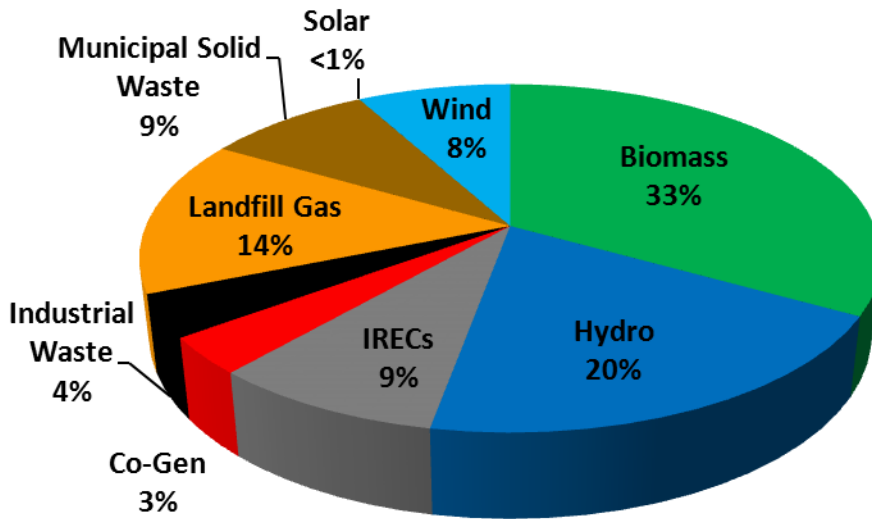
Detroit Edison's company-owned SolarCurrents program includes larger (100 kW – 500 kW) solar PV projects that are either located on Detroit Edison or customer premises. Customers selected to host a solar PV project will receive a one-time, upfront construction payment to cover any inconvenience during installation and an annual easement payment. Currently, six projects are complete totaling more than 2 MW of solar PV capacity. It is anticipated that an additional seven projects will be online by the end of 2012 for a total of 4.6 MW of capacity. Pursuant to two separate competitive solicitations the Company contracted with Nova Consultants to construct all 15 MW of solar PV. The panels will be provided by McNaughton-McKay Electric Company and Inovatus Solar, LLC.

Appendix E

MIRECS Energy Credit Summary

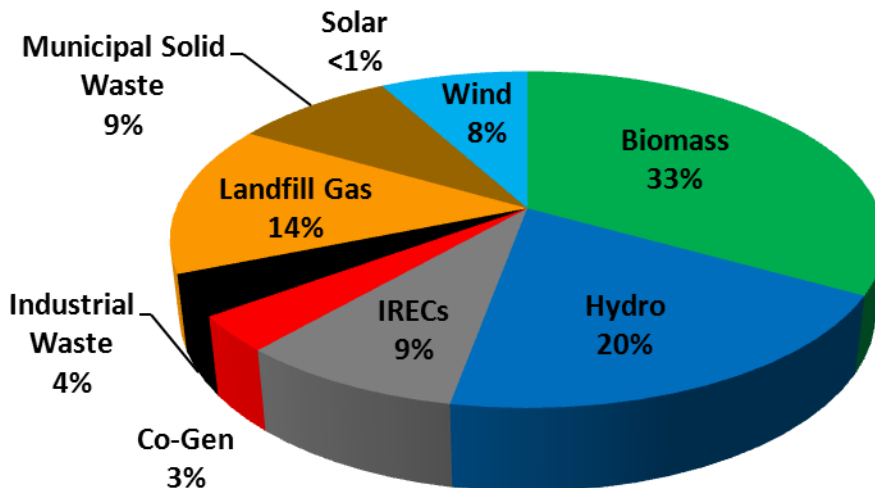
MIRECS 2009 Vintage Energy Credits

4,249,902 Total Credits



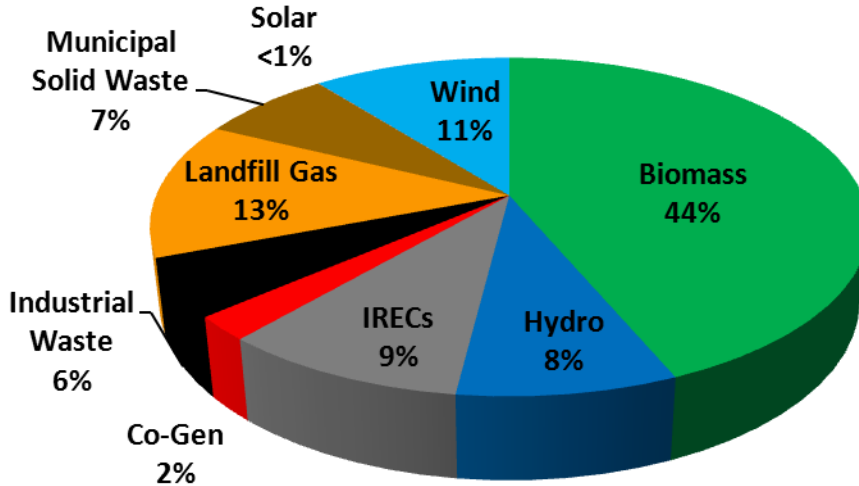
MIRECS 2010 Vintage Energy Credits

3,933,742 Total Credits

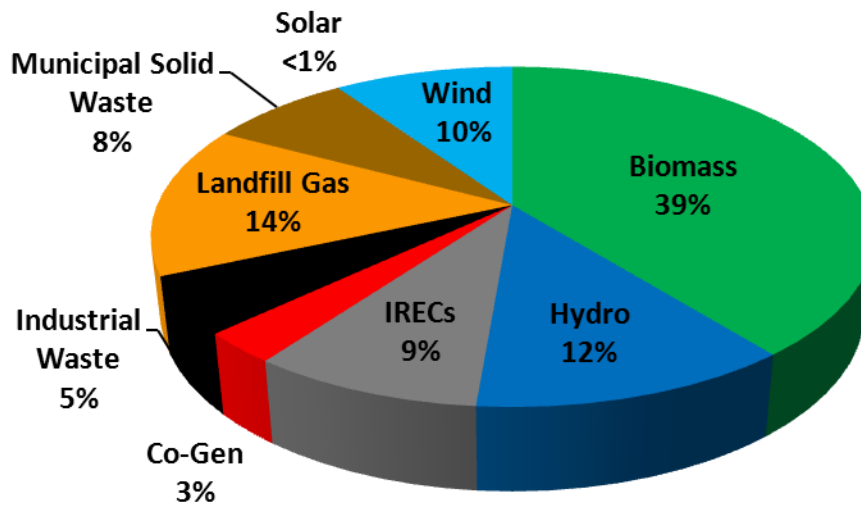


Appendix E

MIRECS 2011 Vintage Energy Credits
3,059,046 Total Credits

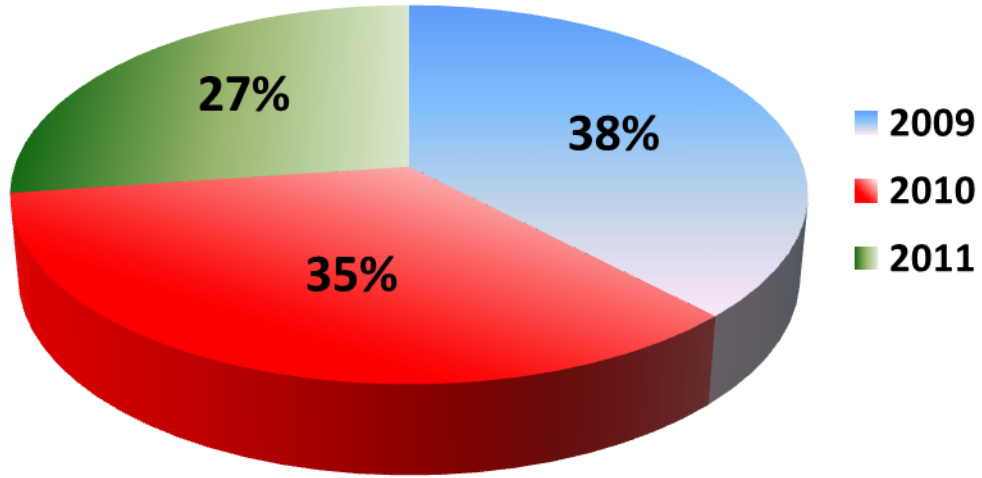


MIRECS 2009 - 2011 Vintage Energy Credits
11,242,690 Total Credits



Appendix E

MIRECS Yearly Summary
11,242,690 Total Credits



Appendix F – Renewable Energy Contract Summary

Map	Consumers Energy : Contracts							
	Seller	Quantity	Cost*	Term	Renewable Energy Type	Request for Proposal	Commission Approval	Commercial Operation Date
28	Blissfield Wind	Unchanged from original contract	Unchanged from original contract	20 Years	Wind	Amendment	01/26/2012	12/31/2012
2,3	Heritage Garden Wind Farm I	20 MW	Unchanged from original contract	20 Years	Wind	Amendment	01/26/2012	12/31/2012
3	Heritage Stoney Corners Wind Farm II	Unchanged from original contract	Unchanged from original contract	20 Years	Wind	Amendment	01/26/2012	1/1/2012
3	Heritage Stoney Corners Wind Farm I (Phase 3)	8.35 MW	\$106.20 MWh	20 Years	Wind	Result of Amendments	01/26/2012	1/1/2012
4	Experimental Advanced Renewable Program	987.7 KW	Commercial \$0.375/KWh Residential \$0.525/KWh	12 Years	Solar	Unsolicited	05/10/2011	5/1/2011
1	Vestas-American Wind Technology	56 V100 1.8 MW Turbines	\$110.00/MWh	Company Owned	Wind	1/15/2010	12/2/2010	12/31/2012
	White Construction, Inc. U-15805 edocket files # 251-256	Installation and construction				7/23/2010		
	GE Prolec Transformers, Inc.	2-125 KV transformers				7/27/2009		
2	Heritage Garden Wind Farm I	28.6 MW	\$106.20 MWh	20 Years	Wind	Unsolicited	11/19/2010	1/1/2012
3	Heritage Stoney Corners Wind Farm II	12.3 MW	\$98.50 MWh	20 Years	Wind	Unsolicited	11/19/2010	1/1/2012
4	Experimental Advanced Renewable Program	Commercial 836.6 KW Residential 200.1 KW	Commercial \$0.45/KWh Residential \$0.65/KWh	12 Years	Solar	Unsolicited	12/21/2010	5/1/2010
5	Scenic View Dairy**	0.35 MW	\$83.07/MWh	63 Months	Anaerobic	Unsolicited	10/26/2010	7/29/2010
6	Blissfield Wind	81 MW	\$100.88/MWh	20 Years	Wind	5/7/2009	7/27/2010	12/31/2012
7	Harvest II Wind	59.4 MW	\$98.38/MWh	20 Years	Wind	5/7/2009	7/27/2010	12/31/2012
8	Michigan Wind 2	90 MW	\$94.00/MWh	20 Years	Wind	5/7/2009	7/27/2010	6/30/2012
9	WM Renewable Energy - Pine Tree Acres	12.8 MW	\$98.75/MWh	20 Years	Landfill Gas	5/7/2009	7/27/2010	6/30/2012
10	WM Renewable Energy - Northern Oaks Landfill	1.6 MW	\$122.39/MWh	20 Years	Landfill Gas	1/29/2009	10/13/2009	11/11/2010
11	NANR – Lennon	1.6 MW	\$137.27/MWh	20 Years	Landfill Gas	1/29/2009	10/13/2009	12/31/2010
12	Elk Rapids Hydro Electric**	0.7 MW	\$121.31/MWh	10 Years	Hydro	1/29/2009	10/13/2009	7/11/2009
13	Zeeland**	1.6 MW	\$122.20/MWh	7 Years	Landfill Gas	1/29/2009	10/13/2009	7/11/2009
14	Freemont Community Digester	3.1 MW	\$139.35/MWh	20 Years	Anaerobic	1/29/2009	10/13/2009	11/11/2012
15	Scenic View Dairy**	0.82 MW	\$138.17/MWh	7 Years	Anaerobic	1/29/2009	10/13/2009	7/11/2009
	Total	397 MW						

* Per MWh prices represent levelized costs.

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** Pre-existing projects prior to 2008 PA 295 - The commercial operation date would refer to the effective date of the contract.

Appendix F – Renewable Energy Contract Summary

Detroit Edison Company : Contracts								
	Seller	Quantity	Cost*	Term	Renewable Energy Type	Request for Proposal	Commission Approval	Commercial Operation Date
24	Michigan Waste Energy, Inc.	Up to 65,000 RECs/Year	\$7.00/REC	13 Years	Incinerator	Unsolicited	12/6/2012	1991
16	Nova Consultants, Inc.	Solar EPC	Up to \$48 Million	Company Owned	Solar	2/28/2011	11/10/2011	12/31/2015
16	McNaughton-McKay Electric Company	Supply up to 12 MW of Modules	Up to \$24 Million			3/24/2011		
16	Inovatus Solar, LLC	Supply up to 12MW						
27	General Electric Company	Up to 69 1.6MW-100 Turbines	\$61-\$64/MWh	Company Owned	Wind	3/9/2011	9/13/2011	12/31/2012
		Barton Malow Company				Installation and construction		
25	Tuscola Bay Wind, LLC	120 MW	Up to \$60.90/MWh	20 Years	Wind	11/18/2010	8/25/2011	10/31/2012
20	L'Anse Warden Electric Company	110,374 RECs	\$11.98 (Average of 4 REC/ACEC Contracts)	Amendment Acquiring Vintage RECs	Biomass	8/18/2009	8/25/2011	7/1/2010
18	Gratiot County Wind	12.8 MW additional	Unchanged from original contract	Company Owned	Wind	Amendment	5/10/2011	12/31/2012
16	Nova Consultants	Unchanged from original contract	Unchanged from original contract	Company Owned	Solar	Extension	12/21/2010	12/31/2011
17	Blue Water Renewables - Smiths Creek Landfill	3.2 MW	\$99.00/MWh	20 Years	Landfill	Unsolicited	1/20/2011	12/31/2011
18	Gratiot County Wind	110.4 MW 89.6 MW Company Owned	Up to \$94.43/MWh Price not available	20 Years Company Owned	Wind	8/18/2009	9/14/2010	05/1/2012 03/31/2012
19	WM Renewable Energy - Eagle Valley Landfill	3.2 MW		20 years	Landfill	8/18/2009	8/10/2010	6/1/2011
20	L'Anse Warden Electric Company	17 MW	Combined average price of \$98.94/MWh	20 years	Biomass	8/18/2009	8/10/2010	7/1/2010
21	Boyce Hydro**	Firm 210,000 RECs w/additional 112,000 RECs dependent on generation	\$7.75/ REC	7 Years	Hydro	12/23/2009	4/27/2010	3/16/2010
16	Nova Consultants	Up to 3 MW	Up to \$18 Million	Company Owned	Solar	11/23/2009	3/2/2010	12/31/2010
22	Heritage Sustainable Energy Stoney Corners Wind Farm	12.2 MW	Unchanged from original contract	20 Years	Wind	Unsolicited	12/1/2009	1/1/2011
23	UPPCO**	Firm 500,000 RECs		7 Years	Hydro	12/23/2009	12/1/2009	10/1/2009
Not Shown	Sterling Planet**	Firm 2,500,000 RECs	Combined average price of \$12.46/REC	10 Years	MISC	12/23/2009	12/1/2009	10/1/2009
22	Heritage Sustainable Energy Stoney Corners Wind Farm	14 MW	\$115.00/MWh	20 Years	Wind	Unsolicited	4/30/2009	12/21/2009
	Total	507.8MW						

* Per MWh prices represent levelized costs.

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** Pre-existing projects prior to 2008 PA 295 - The commercial operation date would refer to the effective date of the contract.

Appendix F – Renewable Energy Contract Summary

Alpena Power Company : Contracts								
	Seller	Quantity	Cost	Term	Renewable Energy Type	Request for Proposal	Commission Approval	Commercial Operation Date
26	Consumers Energy	"Bulk of RECs needed to meet the RPS"	\$30.37/REC (estimated)	20 Years	MISC	Unsolicited	9/15/2009	8/4/2009
AEP/Indiana Michigan : Contracts								
	Seller	Quantity	Cost	Term	Renewable Energy Type	Request for Proposal	Commission Approval	Commercial Operation Date
	Fowler Ridge Wind Farm II	50 MW	Redacted	20 Years	Wind	Unsolicited	9/15/2009	2/15/2010
	Wildcat I Wind Farm, LLC	100 MW	Redacted	20 years	Wind	Competitive Solicitation	8/25/2011	12/31/12

Appendix G - Requests for Proposal (RFP) Summary

Consumers Energy : Request for Proposals/Requests for Information/Pre-Qualifications						
Issue Date	Type	Description	Requested Capacity	Company Owned	Applicable Technology*	Responses
7/23/2010	RFP	Requested bids for the Installation of a Utility Owned Wind Farm	100 MW by 2012	Yes	Wind	7 Proposals
1/15/2010	RFP	Requested bids for Utility Owned Wind Turbines				11 Proposals/ 4 Suppliers
7/27/2009	RFP	Requested Substation Transformer Bids for Utility Owned Wind Farm				4 Proposals
2/19/2010	RFQ	Request for Qualifications for the Installation of a 100 MW Utility Owned Wind Farm	N/A	Yes	Wind	8 Recipients
7/14/2010	RFQ	Request for Qualifications for 100 MWs of Utility Owned Wind Turbines	N/A	Yes	Wind	8 Recipients
5/7/2009	RFP	Requested CEREC**	100 MW by 2012 / 150 MW by 2014	No	All	80 Proposals
1/29/2009	RFP	Requested CEREC**	17.4 MW	No	All	12 Proposals/ 11 Suppliers

* All=Any Renewable Energy Resource defined by 2008 PA 295; REC=Renewable Energy Credit; ACEC=Advanced Cleaner Energy Credit

** CEREC=Capacity, Energy, and Renewable Energy Attributes

Appendix G - Requests for Proposal (RFP) Summary

Detroit Edison Company : Request for Proposals/Requests for Information/Pre-Qualifications						
Issue Date	Type	Description	Requested Capacity	Company Owned	Applicable Technology*	Responses
12/7/2011	Auction	Requested RECs* Without the Associated Energy	2009 and 2010 Vintage	No	All	In progress
10/12/2011	RFP	110 MW of Utility Owned Wind Turbines	110 MW by 12/31/2013 - 12/31/2014	Yes	Wind	In progress
5/6/2011	RFP	EPC	N/A	Yes	Wind	6 proposals / 6 suppliers
3/24/2011	RFP	Solar Panels	12 MW	Yes	Solar	38 proposals, 24 companies
3/10/2011	RFP	Wind Ownership Option	50 MW by 12/31/2014	Yes	All	38 proposals / 15 suppliers
3/9/2011	RFP	109 MW of Utility Owned Wind Turbines	109 MW by 12/31/2012	Yes	Wind	17 proposals / 7 suppliers
2/28/2011	RFP	Requested bids for the Installation of Utility Owned Solar	N/A	Yes	Solar	27 companies, 27 proposals
2/10/2011	RFP	O&M Services	N/A	Yes	Wind	5 proposals / 5 suppliers
11/18/2010	RFP	Requested CEREC**	245 MW by 12/31/2014	No	All	146 proposals / 46 Suppliers
7/26/2010	Pre-Q	Pre-qualification for 100-200 MW of Utility Owned Wind Turbines	N/A	Yes	Wind	27 proposals / 17 Suppliers
3/29/2010	SOI	Solicitation of Interest to Host Utility Owned Solar at the Customers Location	N/A	Yes	Solar	10 Responses
11/23/2009	RFP	Requested bids for the Installation of Utility Owned Solar	3 MW	Yes	Solar	11 Proposals
10/23/2009	Pre-Q	Pre-Qualification for the Installation of 3 MW of Utility Owned Solar	N/A	Yes	Solar	30 Responses
8/18/2009	RFP	Joint Development for Utility Owned Wind	75 MW by 12/31/2011	Yes	Wind	12 Proposals/ 9 Suppliers
8/18/2009	RFP	Requested CEREC**	106 MW by 12/31/2011	No	All	35 Proposals/ 21 Suppliers
5/22/2009	RFI	Request for Information for the Joint Development of Wind Farms	N/A	Yes	Wind	155 Registered 27 Responses
12/23/2008	RFP	Requested RECs* and ACECs* Without the Associated Energy	250,000 RECs*/Year	No	All	43 Proposals/ 11 Suppliers

* All=Any Renewable Energy Resource defined by 2008 PA 295; REC=Renewable Energy Credit; ACEC=Advanced Cleaner Energy Credit

** CEREC=Capacity, Energy, and Renewable Energy Attributes