REPORT ON THE IMPLEMENTATION OF P.A. 295 WIND ENERGY RESOURCE ZONES

John D. Quackenbush, Chairman
Greg R. White, Commissioner
Sally A. Talberg, Commissioner

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

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Background

Section 155 of Public Act 295 of 2008 (PA 295 or the Act) requires the Michigan Public Service Commission (Commission or MPSC) to submit an annual report "summarizing the impact of establishing wind energy resource zones, expedited transmission line siting applications, estimates for future wind generation within wind zones, and recommendations for program enhancements or expansion." The report is to be submitted to the Governor and the Legislature on or before the first Monday of March of each year. This is the fourth annual report submitted pursuant to Section 155.

PA 295 Wind Zone Process

Part 4 of PA 295 directs the Commission to create an independent Wind Energy Resource Zone (WERZ) Board and identifies the process for the Commission to designate a primary wind zone and perhaps multiple zones. The WERZ Board issued its findings in a final report on October 15, 2009, and dissolved thereafter pursuant to PA 295.[1] Details regarding the analysis and results reported by the WERZ Board are included in ***Appendix A***.

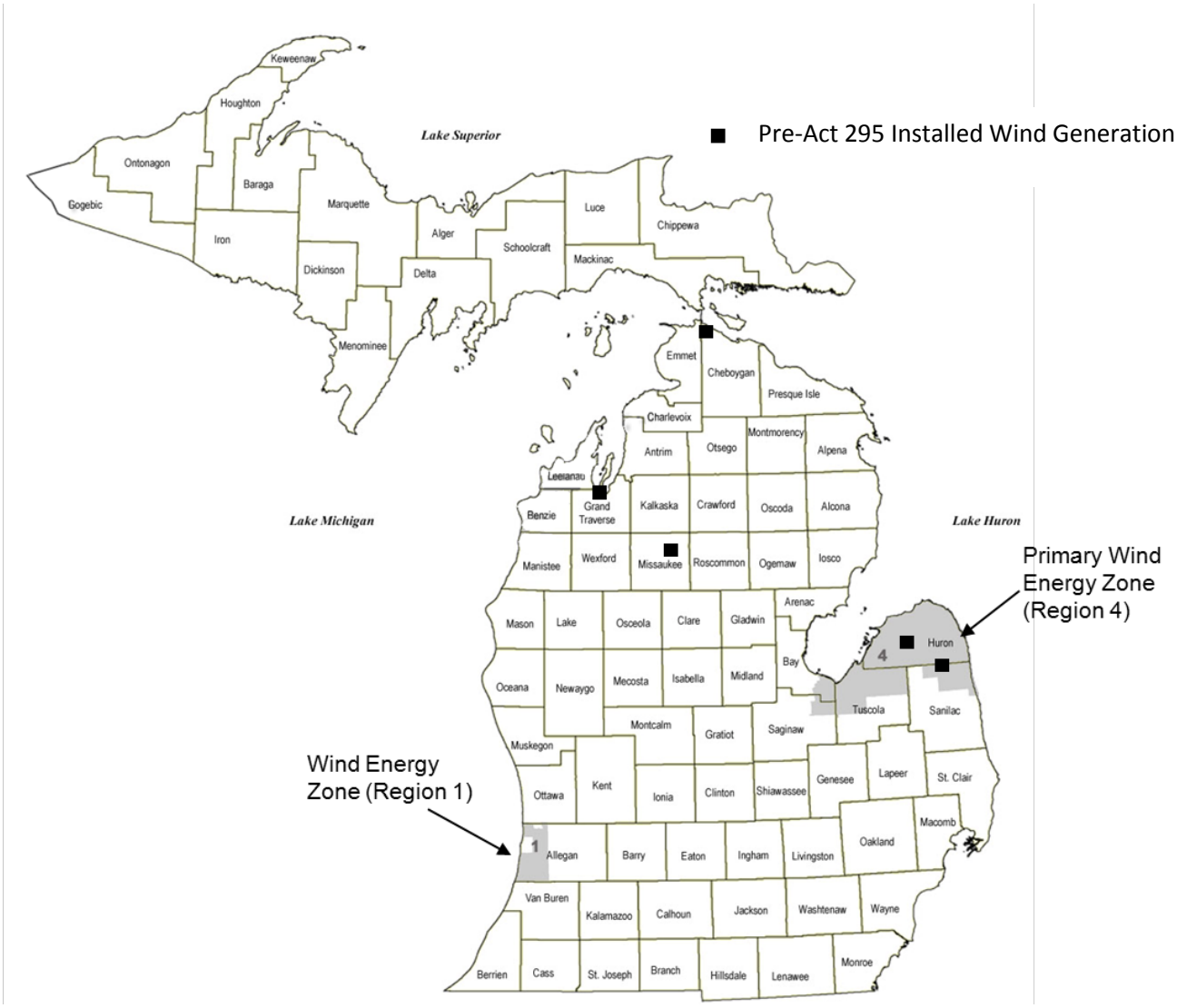
Commission Order Declaring Wind Zones

On January 27, 2010, the Commission formally accepted the WERZ Board's Final Report and through a final order[2] designated Region 4 as the primary wind energy resource zone and Region 1 as an additional wind energy resource zone. The wind energy resource zones are shown in **Figure 1**.

[1] http://www.dleg.state.mi.us/mpsc/renewables/windboard/werzb_final_report.pdf.

[2] http://efile.mpsc.state.mi.us/efile/docs/15899/0089.pdf.

Figure 1: Location of Wind Energy Resource Zones



Summary of the Impact of Establishing Wind Energy Resource Zones

Since enactment of PA 295, wind energy has continued to grow within the State of Michigan. Following the declaration of wind energy resource zones by the Commission, development has occurred in the primary wind energy resource zone as summarized further below. To date, there has been no wind development in the additional wind energy resource zone.

Expedited Transmission Line Siting Applications

On August 30, 2010, ITC submitted its application in Case No. U-16200[3] to build a transmission line to serve the primary wind energy resource zone (Region 4). The transmission line (Thumb Loop) is a 345kV double-circuit configuration approximately 140 miles in length, running through 26 townships, with four new substations and capable of meeting the WERZ Board's estimated wind generation potential for the primary wind energy resource zone. The Commission granted ITC's application on February 25, 2011 pursuant to the expedited siting process set forth in PA 295.

In March 2011, the Association for Businesses Advocating Tariff Equity (ABATE), the Michigan Public Power Agency (MPPA), and the Michigan Municipal Electric Association (MMEA) appealed the Commission's February 25, 2011 order at the Michigan Court of Appeals. The Court's decision was issued on November 6, 2012.[4] The Court held that the Commission properly issued the siting certificate, but also held that the Commission's conclusion that construction is permitted by the certificate was erroneous. The Court further held that because it was mindful of the effects of its holding, it limited its holding to prospective application only. Therefore, any future transmission projects brought forth under the 2008 PA 295 expedited siting process had to comply with the 1995 PA 30 requirements prior to construction. In December 2012, ABATE, MPPA and the MMEA requested leave to appeal the decision at the Michigan Supreme Court. On March 27, 2013 the Michigan Supreme Court reversed in part the holding of the Court of Appeals, and held that 2008 PA 295, Part 4, is a

[3] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200.
[4] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200; 298 Mich App 338 (2012).

comprehensive legislative scheme for issuing expedited siting certificates, and clearly intended construction of approved transmission lines.

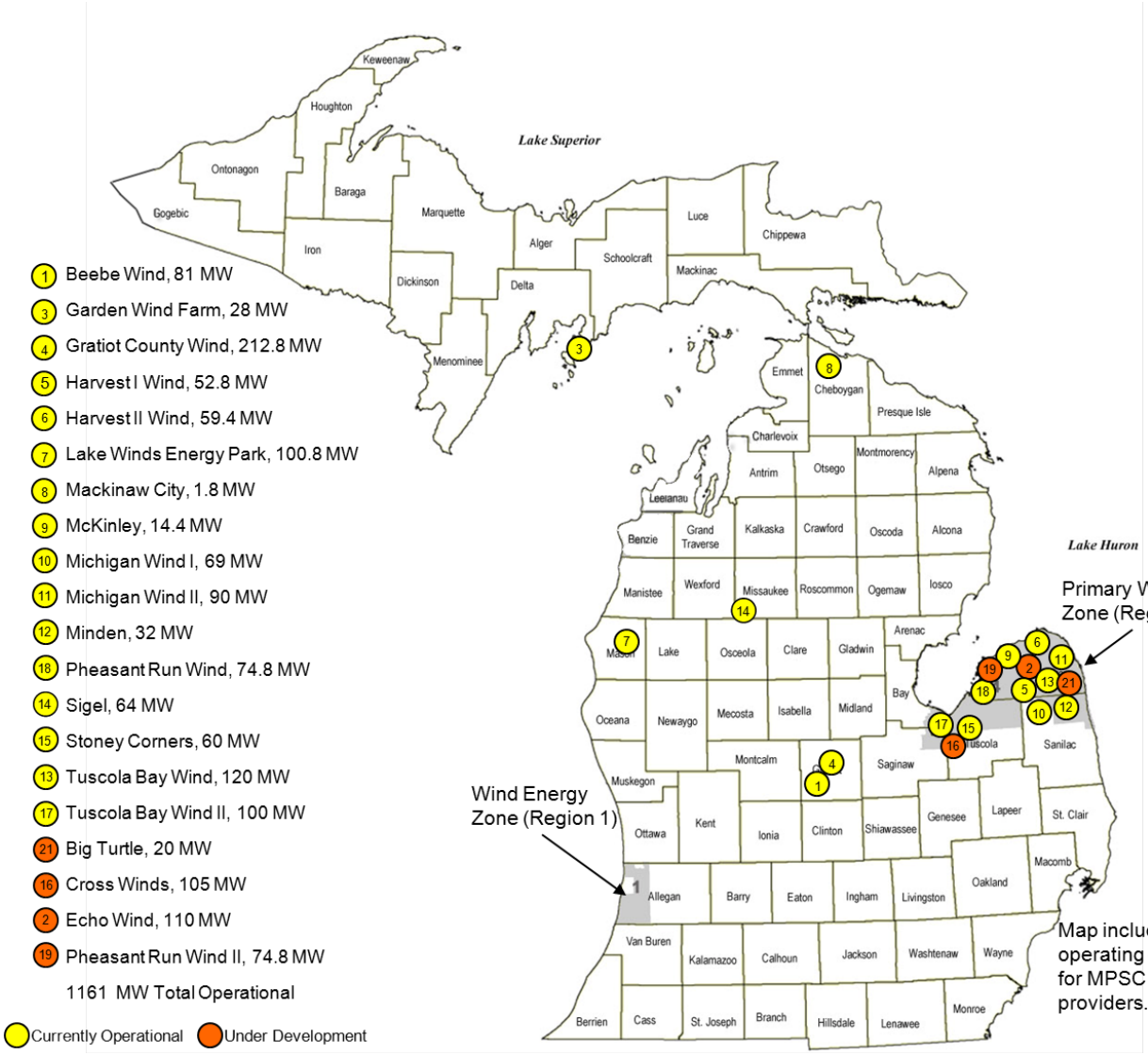
During the last year, an individual landowner has taken issue with variances in the siting of the Thumb Loop. On July 29, 2013, the Commission issued an order stating that the modifications are within the scope of minor adjustments allowed in the February 25, 2011 order. This decision is being contested at the Michigan Court of Appeals.

Estimates for Future Wind Generation within Wind Zones

In determining the estimate of future wind generation within wind zones, the Commission considered several key factors that may influence wind generation development including the quality of the wind resource, electric provider interest in entering into Act 295 contracts or building projects, developer activity as indicated by the MISO interconnection queue (Queue), transmission availability and wind siting and zoning issues. In designating wind energy resource zones, the Commission considered and relied on the WERZ Board's analysis and findings. The WERZ Board identified the area now designated as the primary wind energy resource zone as the region with the highest wind potential in the state. As described in Appendix A, the WERZ Board estimated a minimum wind generation capacity of 2,367 MW and a maximum of 4,236 MW for the primary wind energy resource zone.

Following the enactment of PA 295, wind generation development in Michigan started increasing, both inside and outside of the declared wind energy resource zones. The renewable energy standard under the Act has resulted in 1,337 MW of Act 295 renewable energy contracts for new wind projects located in Michigan receiving Commission approval. The locations of known wind projects are shown in **Figure 2.**

Figure 2: Wind Project Locations



In 2013, 175 MW of new wind capacity became commercially operational in Michigan. Michigan has now reached a total of 1,161 MW of operational wind generation. Details about each wind farm are included in Appendix B.

Approximately 867 MW out of the total 1,337 MW of approved new Michigan wind contracts and 122 MW of pre-Act wind generation are located in the primary wind energy resource zone. The total wind generation (pre-Act and Act 295 contracts), planned and

operational, in the primary wind energy resource zone is 989 MW. Out of the 989 MW, a total of 677 MW is commercially operational in the Thumb Area at this time.

With achievement of the current renewable energy standard in sight, future wind development has continued with 175 MW of new wind becoming operational in 2013 and 312 MW expected in 2014. Wind development beyond 2014 is expected to be limited based on renewable energy plans filed with the Commission. Factors that could impact Michigan's rate of wind development beyond 2014 include availability of the federal production tax credit and possible changes to Michigan's renewable energy standard.

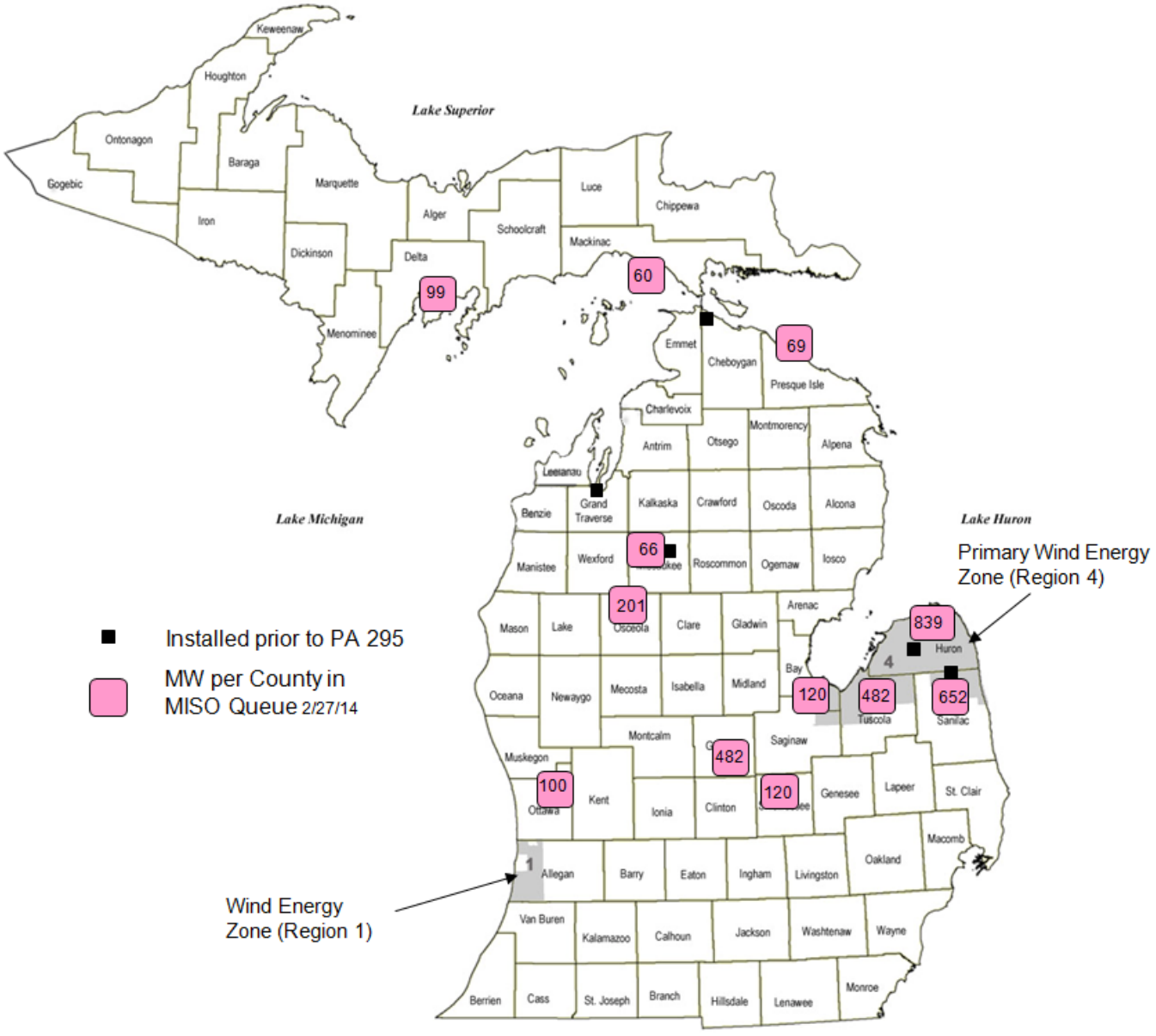
The Governor's November 2012 Special Message on Energy and the Environment established a series of Michigan Energy Public Forums and reports to help Michigan energy policy makers identify and gather information to enable them to make good energy decisions. The final report, Readying Michigan to Make Good Energy Decisions: Renewable Energy,[5] was released on November 4, 2013. On December 19, 2013, the Governor held a media roundtable to discuss plans for a no-regrets energy policy for Michigan[6] where Governor Snyder outlined goals that included an increase by 2025 in Michigan's renewable portfolio based on relative cost, reliability, and environmental benefits.

Potential wind generation projects in Michigan can also be assessed by review of activity in the Queue. As of February 2014, the total Michigan wind generation that is in service, under construction, or in development with 'active' status in the Queue is 3,291 MW. **Figure 3** shows the MW of wind generation per county that is currently listed as under construction, in service or as 'active' in the Queue. The locations shown in **Figure 3** are not representative of actual

[5] http://www.michigan.gov/documents/energy/renewable_final_438952_7.pdf.
[6] http://www.michigan.gov/snyder/0,4668,7-277--318423--,00.html.

interconnection points because the precise locations of the proposed interconnections are not listed within the Queue, and individual wind generation proposals have been summed to provide a total capacity per county.

Figure 3: Wind Generation – MISO Interconnection Queue



While it appears that some wind generation projects in the Queue still have several milestones to be reached before being considered firm, there is a significant portion of MW in the definitive planning phase (DPP). Within the MISO interconnection process, the DPP has been referred to as a 'fast lane' towards completion. Adjusting the Queue total to reflect wind generation capacity that is either in service, under construction, or in the later stages of the MISO process such as DPP or the facilities study phase results in a total of approximately 1,864 MW. Subtracting the 1,471 MW of wind that is in service or under development as a result of Act 295 contracts from the adjusted Queue data shows the near-term potential for an additional 393 MW of wind in Michigan that is already in later stages of development. Outside the 'fast lane' process, the Queue indicates the potential for approximately 1,427 MW of additional wind.

Indications are that the establishment of a primary wind energy resource zone has had a positive impact on the development of wind due to the expedited transmission siting provisions in the Act. Although the Queue continues to show additional wind development in Michigan, it is likely that, based on the current renewable energy standard, development has peaked. One potential reason for this is that almost all the projects expected to be necessary for Act 295 compliance in 2015 are already under development and hence, included in the Queue. Another reason is the continuing uncertainty surrounding the federal Production Tax Credit (PTC), which requires wind projects to be five percent complete by December 2013 in order to qualify.[7] Projects which were not five percent complete by December 2013 will have no PTC unless Congress acts to extend the credits again.

[7] *See* http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=US13F&re=1&ee=1.

Recommendations for Program Enhancements or Expansion

There is continued development of wind generation in Michigan's primary wind energy resource zone. The wind energy resource zone process was successful and is a contributing factor in the development of wind energy where Michigan's highest wind energy potential exists. Given that development of wind energy within the primary wind energy zone has occurred, it is recommended that this report either be discontinued or the relevant information be consolidated into the renewable energy annual report that is required in Section 51 of the Act.

APPENDIX A – PA 295 Wind Zone Process

On December 4, 2008, the Commission issued an order in Case No. U-15899, creating the WERZ Board. The WERZ Board consisted of 11 members with various backgrounds who were appointed by the Commission. Acting independently of the Commission, the WERZ Board studied, evaluated, and analyzed the wind energy production potential in the State of Michigan.

Based on the information gathered, the WERZ Board issued its final report[8] on October 15, 2009. The report included details regarding the study methodology and the assumptions used, as well as details regarding the regions in Michigan with the greatest wind potential. The areas within the state of Michigan found to have the greatest wind energy production potential by the WERZ Board are identified as Region 1, Region 2, Region 3 and Region 4 and are shown in the shaded gray areas in **Figure A1**:

[8] http://www.dleg.state.mi.us/mpsc/renewables/windboard/werzb_final_report.pdf.

Figure A1

The WERZ Board reported details for each of the top four identified regions within the state including an estimate of the minimum and maximum number of wind turbines that could be installed within each region, an estimate of the minimum and maximum potential wind generation capacity for each region and an estimate of the minimum and maximum annual wind energy production potential within each region. These estimates are shown in **Table A1.**

Table A1[9]

Estimated Minimum and Maximum Number of Turbines, Capacity, and Annual Energy Production, by Identified Region

Region	Counties	Minimum			Maximum		
		Number of turbines	Capacity (MW)	Annual energy potential (MWh)	Number of turbines	Capacity (MW)	Annual energy potential (MWh)
1	Allegan	166	249	747,938	296	445	1,338,415
2	Antrim Charlevoix	102	153	439,555	183	274	786,572
3	Benzie Leelanau Manistee	435	652	1,991,679	778	1,167	3,564,058
4	Huron Bay Saginaw Sanilac Tuscola	1,578	2,367	6,723,472	2,824	4,236	12,031,477
TOTAL		**2,281**	**3,421**	**9,902,644**	**4,081**	**6,122**	**17,720,522**

SOURCE: Research and findings from Michigan State University Land Policy Institute, 2009, prepared for WERZ Board.
NOTE: These estimates are based on the board's base-case analysis described in the Methodology section and assume a 1.5-megawatt (MW) wind turbine with a hub height of 80 meters. The MW capacity is calculated by multiplying the nameplate capacity of the wind turbine times the number of estimated turbines. The annual energy production in megawatt hours (MWh) is the amount of energy that these turbines are expected to produce over the year, taking into account variability in wind speeds and other factors.

As shown in **Table A1**, the Thumb Region of Michigan (Region 4), consisting of Huron county and parts of Bay, Saginaw, Sanilac and Tuscola counties, was identified in the WERZ Board report to be the region within the state of Michigan having the highest wind potential.

On November 30, 2009, ITC Holdings, through its subsidiaries ITC *Transmission* (ITC) and the Michigan Electric Transmission Company, LLC (METC), along with Wolverine Power Supply Cooperative Inc. (Wolverine) and Indiana Michigan Power (I&M) reported transmission infrastructure upgrades necessary to support the wind energy production potential for each of the four regions.[10]

[9] http://www.dleg.state.mi.us/mpsc/renewables/windboard/werzb_final_report.pdf, Exhibit 3, p. 9.
[10] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=15899, Document Nos. 25, 26, 27, and 28.

Section 147 of PA 295 states the Commission "shall, through a final order designate the area of this state likely to be most productive of wind energy as the primary wind energy resource zone and may designate additional wind energy resource zones." On January 27, 2010, the Commission formally accepted the WERZ Board's Final Report and through a final order[11] designated Region 4 as the primary wind energy resource zone and Region 1 as an additional wind energy resource zone. The designation of the two regions as wind energy resource zones makes them eligible for expedited transmission siting, as provided for in Part 4 of PA 295.

Expedited Siting and Transmission Upgrades

Section 149 of PA 295 provides the option for an electric utility, affiliated transmission company, or independent transmission company to submit an application to the Commission for an expedited siting certificate to facilitate the transmission of electricity generated by wind energy conversion systems located in a wind energy resource zone.

Upon receiving an application for an expedited siting certificate, the Commission will conduct a contested case proceeding. The expedited siting certificate shall be granted by the Commission, within 180 days of the application, if the following requirements are met:

(a) The proposed transmission line will facilitate transmission of electricity generated by wind energy conversion systems located in a wind energy resource zone.
(b) The proposed transmission line has received federal approval.
(c) The proposed transmission line does not represent an unreasonable threat to the public convenience, health, and safety.
(d) The proposed transmission line will be of appropriate capability to enable the wind potential of the wind energy resource zone to be realized.
(e) The proposed or alternate route to be authorized by the expedited siting certificate is feasible and reasonable.

[11] http://efile.mpsc.state.mi.us/efile/docs/15899/0089.pdf.

For the additional wind energy resource zone (Region 1), ITC reported that upgrades to the transmission system in its territory would not be required to meet the minimum or maximum wind energy potential identified by the WERZ Board. However, closely situated Indiana Michigan Power reported that the minimum wind energy potential for Region 1 could not be supported without investing in the transmission infrastructure in its territory.

In the primary wind energy resource zone (Region 4), ITC reported that its transmission system is already operating at its full capacity. ITC reported that the existing 120 kV backbone running through the Thumb Region would need to be upgraded to six 230 kV circuits or four 345 kV circuits in order to meet the minimum wind energy potential reported by the WERZ Board. The 345 kV proposal would also meet the maximum wind energy potential, and was the least expensive alternative reported by ITC to meet the minimum or maximum wind energy potential of the region at $510 million. Detroit Edison also reported that many miles of its distribution system in Region 4 may need to be upgraded in order to support additional wind generation. The actual amounts and locations of interconnecting generation in Region 4 would drive those upgrades and the scope of work required for the distribution system will not be known until those amounts and locations of wind generation are certain. The upgrades described for Region 4 resulted in the Thumb Loop transmission line filing discussed in this report.

Appendix B - Michigan Utility Scale Wind Farms

Michigan Utility Scale Wind Farms*

Project Name	County	Capacity (MW)	Turbine Size (MW)	Number of Turbines	Turbine Manufacturer	Developer	Power Purchaser	Commercial Operation Date
Beebe	**Gratiot**	**81**	**2.4**	**34**	**Nordex**	**Exelon & Great Lakes Wind**	**Consumers Energy**	**December 2012**
Big Turtle	Huron	20	2.0	10	Gamesa	Heritage Sustainable Energy	DTE	Expected 2014
Cross Winds	Tuscola	105.4	1.7	62	GE Energy	Consumers Energy	N/A	Expected 2014
Echo	Huron	112	1.6	70	GE Energy	DTE	N/A	Expected 2014
Garden I	**Delta**	**28**	**2.0**	**14**	**Gamesa**	**Heritage Sustainable Energy**	**Consumers Energy & DTE**	**September 2012**
Gratiot County	**Gratiot**	**212.8**	**1.6**	**133**	**GE Energy**	**Invenergy & DTE**	**DTE**	**June 2012**
Harvest	**Huron**	**52.8**	**1.65**	**32**	**Vestas**	**Exelon**	**Wolverine Power Cooperative**	**2008**
Harvest II	**Huron**	**59.4**	**1.8**	**33**	**Vestas**	**Exelon**	**Consumers Energy**	**November 2012**
Lake Winds	**Mason**	**100.8**	**1.8**	**56**	**Vestas**	**Consumers Energy**	**N/A**	**November 2012**
McKinley	**Huron**	**14.4**	**1.6**	**9**	**GE Energy**	**DTE**	**N/A**	**December 2012**
Mackinaw City	**Emmet**	**1.8**	**0.9**	**2**	**NEG Micon**	**Mackinaw Power**	**Consumers Energy**	**2001**
Michigan Wind I	**Huron**	**69**	**1.5**	**46**	**GE Energy**	**Exelon**	**Consumers Energy**	**2008**
Michigan Wind II	**Sanilac**	**90**	**1.8**	**50**	**Vestas**	**Exelon**	**Consumers Energy**	**January 2012**
Minden	**Sanilac**	**32**	**1.6**	**20**	**GE Energy**	**DTE**	**N/A**	**December 2012**
Pheasant Run Wind	**Huron**	**74.8**	**1.7**	**44**	**GE Energy**	**NextEra Energy**	**DTE**	**December 2013**
Pheasant Run Wind II	Huron	74.8	1.7	44	GE Energy	NextEra Energy	DTE	Expected 2014
Sigel	**Huron**	**64**	**1.6**	**40**	**GE Energy**	**Detroit Edison**	**N/A**	**December 2012**
Stoney Corners	**Missaukee & Osceola**	**60**	**2 - 2.5**	**29**	**Repower, Fuhrlander, Northern Power Systems**	**Heritage Sustainable Energy**	**Consumers Energy, DTE, Traverse City Light & Power**	**October 2012**
Tuscola Bay Wind	**Tuscola, Bay & Saginaw**	**120**	**1.6**	**75**	**GE Energy**	**NextEra Energy**	**DTE**	**December 2012**
Tuscola Wind II	**Tuscola & Bay**	**100.3**	**1.7**	**59**	**GE Energy**	**NextEra Energy**	**DTE Electric**	**November 2013**
Totals		**1,473.3**	**MW**	**862**	**Turbines**			
Operational Totals		**1,161.1**	**MW**	**746**	**Turbines**			

Bold text indicates the wind farm is operational.

* Prepared by MPSC Staff and includes all wind farms operational, planned or under contract with an MPSC-rate-regulated electric provider.

APPENDIX B