

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

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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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Background

Section 155 of Public Act 295 of 2008 (PA 295 or the Act) requires the 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 third 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, 2009.¹ Details regarding the analysis and results reported by the WERZ Board are included in *Appendix A*.

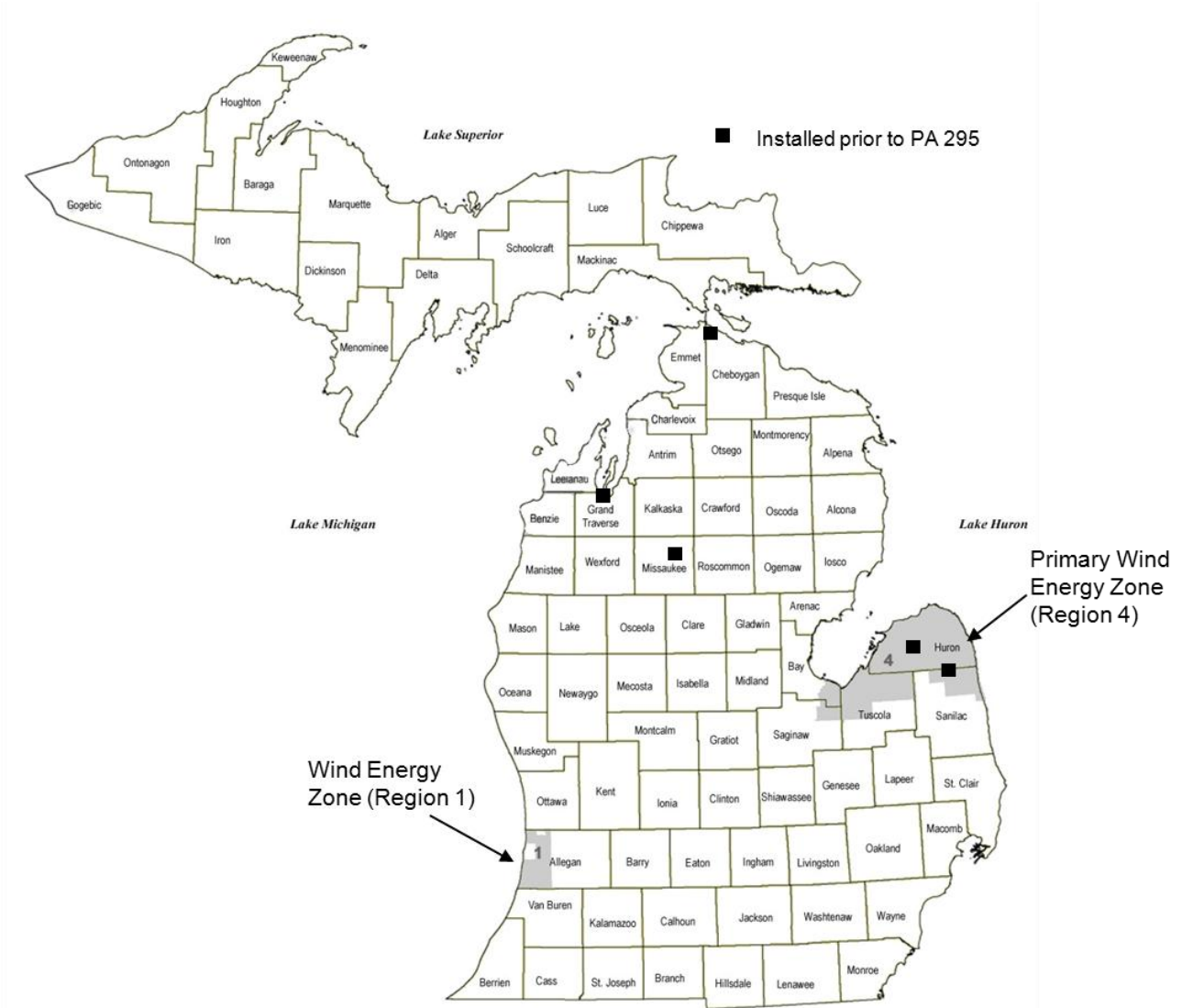
Commission Order Declaring Wind Zones

On January 27, 2010, the Commission formally accepted the WERZ Board’s Final Report and through a final order² 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. Wind energy development has occurred and is continuing to occur in the primary wind energy resource zone. To date, there has been no wind development in the additional wind energy resource zone. Following the declaration of wind energy resource zones by the

Commission, the Commission received one application for the expedited siting of a transmission line under PA 295.

Expedited Transmission Line Siting Applications

On August 30, 2010, ITC submitted its application in Case No. U-16200³ 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, consisting of 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.

In March 2011, the Association of 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 appellate decision was issued on November 6, 2012.⁴ It upheld the Commission's order in Case No. U-16200, but held that future transmission projects brought forth under the Act 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.

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

³ <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200>.

⁴ <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200>.

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 Midwest Independent System Operator (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.

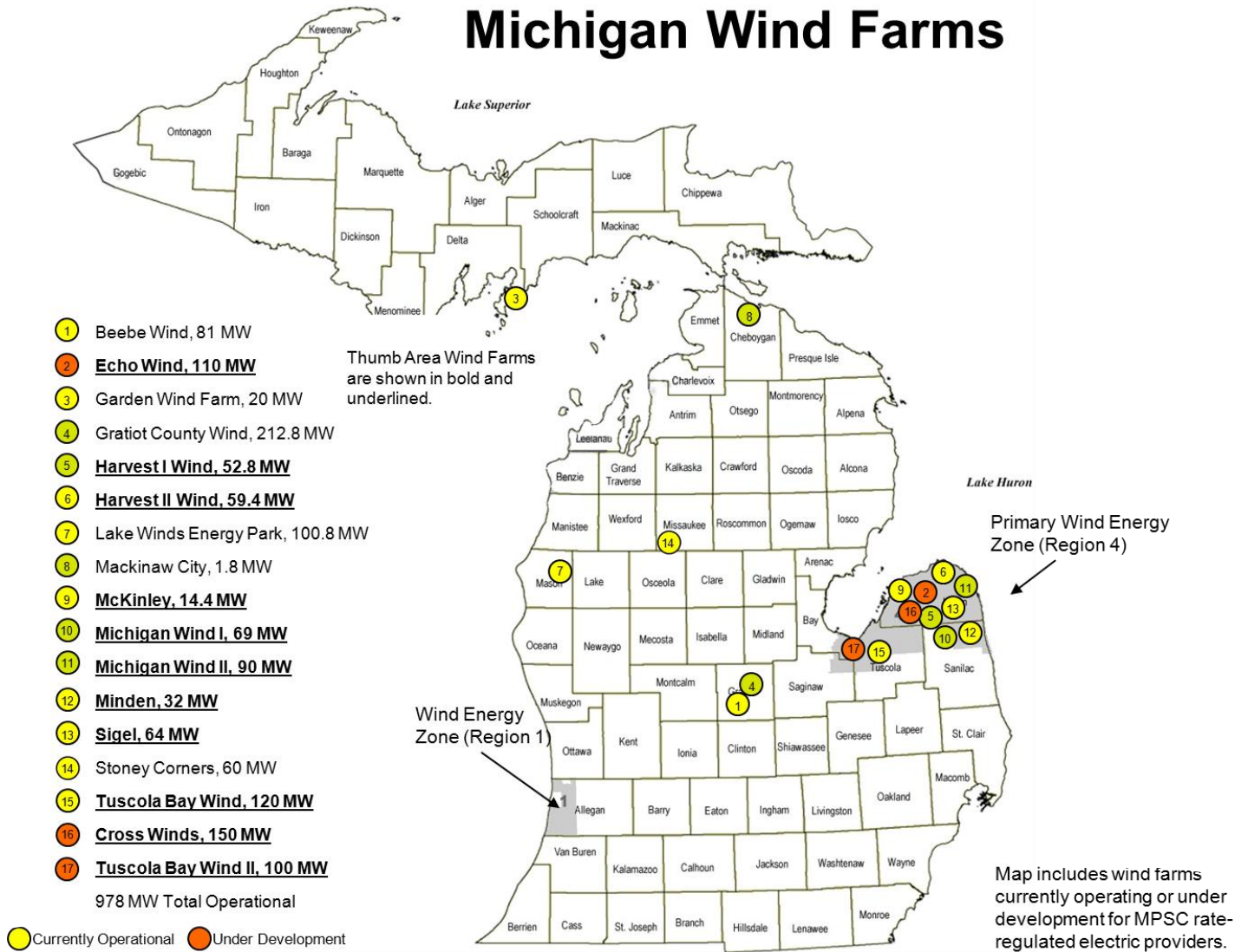
Following the enactment of PA 295, wind generation development in Michigan started increasing, both inside and outside of the declared wind energy resource zones. The renewable energy standard under the Act has resulted in 1,051 MW of Act 295 renewable energy contracts for new wind projects located in Michigan receiving Commission approval. The locations of wind projects are shown in **Figure 2**.

In 2012, 815 MW of new wind capacity became commercially operational in Michigan. Michigan has now reached a total of 978 MW of operational wind generation. Details about each wind farm are included in *Appendix B*.

Approximately 590 MW out of the total 1,051 MW of approved new Michigan wind contracts and 122 MW of pre-Act wind generation are located in the primary wind energy resource zone. Consumers Energy is planning to develop the 150 MW Cross Winds Energy Park in the Thumb Area by the end of 2015. Cross Winds is not included in the totals discussed here because Act 295 contracts have not yet been filed for Commission approval. The total wind generation (pre-Act and Act 295 contracts), planned and/or operational, in the primary wind

energy resource zone is 712 MW (862 MW including Cross Winds). Currently, 502 MW out of the 712 MW is commercially operational in the Thumb Area.

Figure 2: Pre-PA 295 Wind Installed and Commission-Approved Wind Contracts⁵



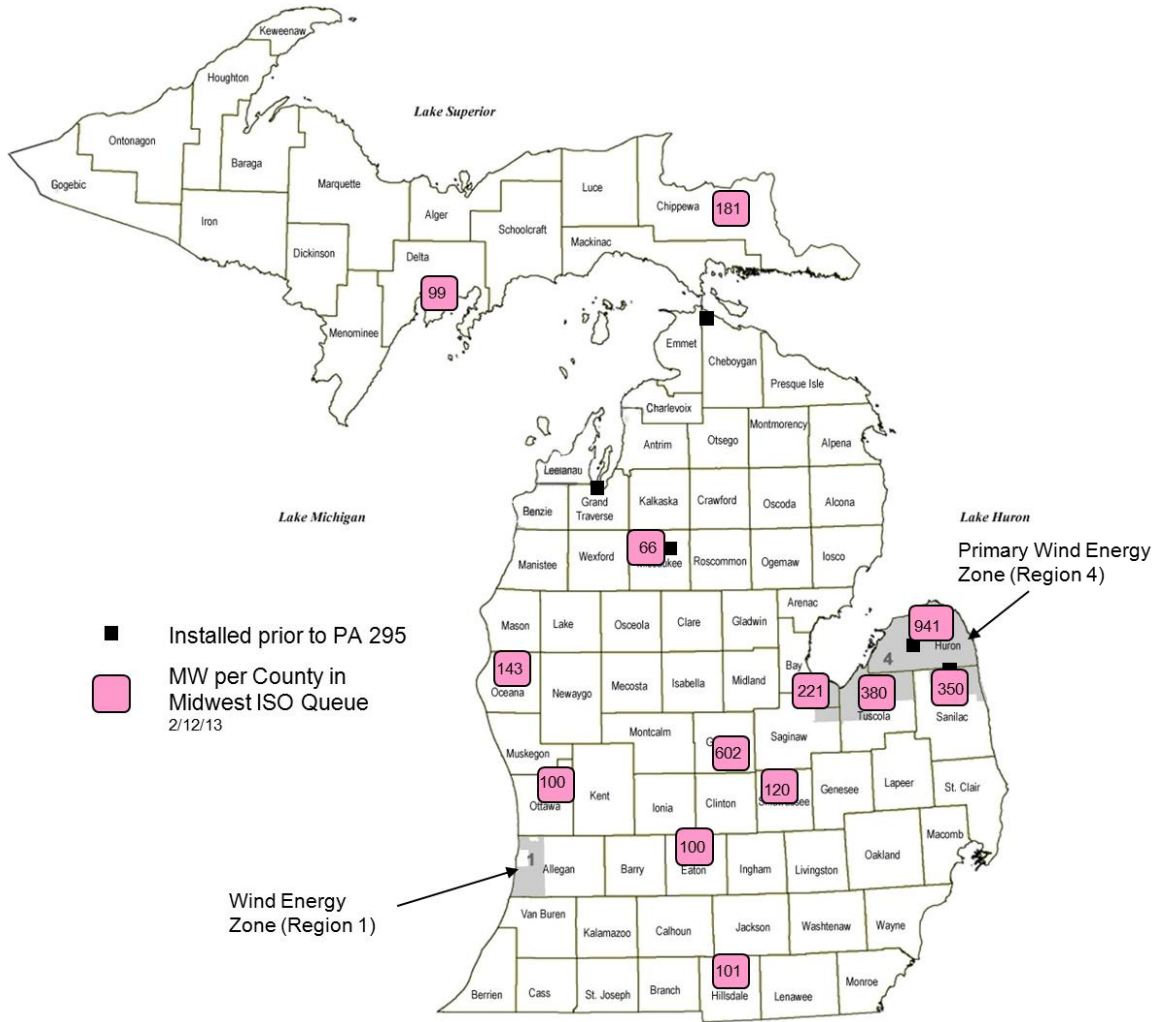
⁵ Includes contracts for wind energy approved by the Commission on or before February 20, 2013.

With compliance with the current renewable energy standard required by 2015, wind development over the next few years is not expected to continue at the 2012 pace. Factors that could impact Michigan's rate of wind development include the federal production tax credit availability and possible changes to Michigan's renewable energy standard. The Governor's November 2012 [Special Message](#) on Energy and the Environment established a process for the public and policymakers to gather information to ready Michigan to make good energy decisions including future decisions regarding renewable energy. This process includes a [website](#) that was launched to gather written information as well as a series of Michigan Energy Public Forums for local participation. Information related to renewable energy in Michigan is being gathered in that process to provide guidance to policymakers on renewables in Michigan post-2015.

Potential wind generation projects in Michigan can also be assessed by review of activity in the Queue. As of February 2013, the total Michigan wind generation that is in service, under construction, or in development with 'active' status in the Queue⁶ is 3,403 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 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.

⁶ See: <https://www.midwestiso.org/PLANNING/GENERATORINTERCONNECTION/Pages/InterconnectionQueue.aspx>.

Figure 3: Wind Generation – MISO Interconnection Queue



While it appears that some wind generation in the Queue still has 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’ to allow completion. Michigan currently has over 1,900 MW of 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. It is likely that a significant amount of wind generation in these later stages will become operational.

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 although recently extended, requires wind projects to be five percent complete by December 2013 in order to qualify.⁷

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 program has been successful and is a contributing factor in the development of wind energy where Michigan's highest wind energy potential exists. The Commission intends to continue to monitor and participate in the 2013 public process for informing Michigan's energy future and subsequent report preparation related to renewable energy as outlined in the Governor's [Special Message](#) on Energy and the Environment in November 2012. A website has been launched to gather written feedback, and a series of Michigan Energy Public Forums will be held to help Michigan energy policy makers identify and gather information to enable them to make good energy decisions. The Commission looks forward to the results of this process. Given that development of wind energy within the primary wind energy zone has been successful, it is recommended that this report either be discontinued,

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

repurposed, or relevant information be folded into the renewable energy annual report as 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 report⁸ 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 A1⁹

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.mpdc.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 order¹¹ 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.

Summary of 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>.

To support the wind generation potential in the primary wind energy resource zone and the additional wind energy resource zone, the following transmission upgrades were identified.

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 their 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.