

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 second 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. On December 4, 2008, the Commission issued an order in Case No. U-15899, creating the WERZ Board. 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

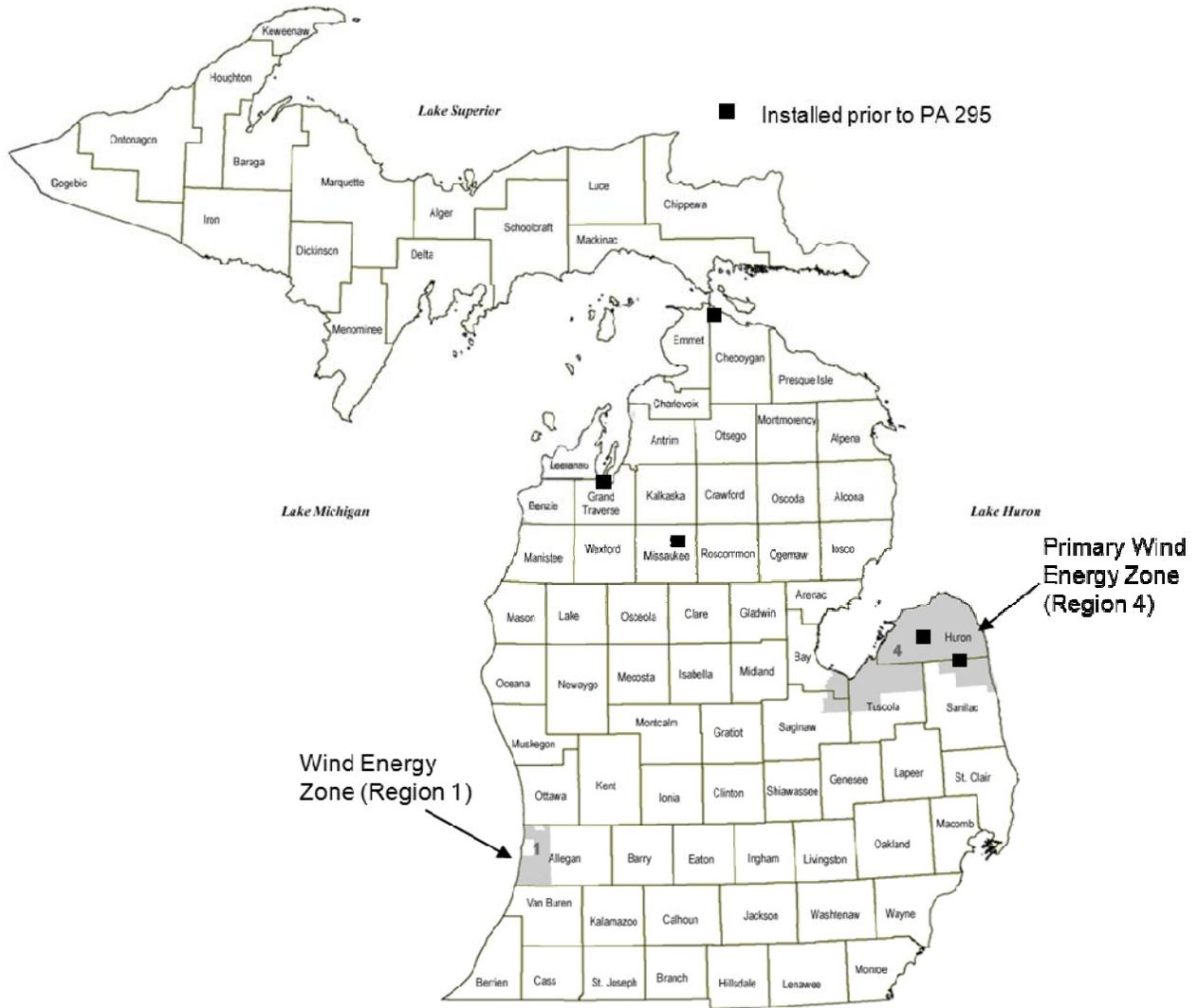
Section 147 of PA 295 states the Commission “shall, through a final order designate the area of this state likely to be most productive of wind energy as the primary wind energy resource zone and may designate additional wind energy resource zones.” On January 27, 2010, the Commission formally accepted the WERZ Board’s Final Report and through a final order²

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

² <http://efile.mpdc.state.mi.us/efile/docs/15899/0089.pdf>.

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**.

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 is occurring in the primary wind energy resource zone. To date, there has been no wind development in the additional wind energy resource zone.

During the WERZ Board process, ITC Transmission reported that its transmission system is already operating at its full capacity in the primary wind energy resource zone. As discussed in the **Estimates for Future Wind Generation within Wind Zones** section of this report, there are over 4,000 MW of wind generation projects in the Midwest Independent System Operator (MISO) queue for Michigan, and approximately half of those projects are located in the primary wind energy resource zone.

In order to accommodate this quantity of wind development in the primary wind energy resource zone, significant transmission upgrades are necessary. The expedited transmission line siting provision in Part 4 of the Act establishes a process to enable the necessary transmission upgrades to serve the primary wind energy resource zone.

Expedited Transmission Line Siting Applications

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.

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 proposed 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 schedule for the contested case was greatly compressed in order for the Commission to meet the 180 day statutory timing requirement to either grant or deny the expedited siting certificate. As part of the contested case hearing process, intervenors representing Michigan utilities, wind generation development, affected landowners, and electric customers participated.

The Commission determined ITC met all statutory requirements set forth in PA 295. The Commission issued its order⁴ on February 25, 2011, granting an expedited siting certificate in accordance with the timeline required by the Act. In March 2011, 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 appellants also filed motions to stay the Commission order pending the outcome of the appeal.

On April 12, 2011, the Commission issued an order denying the appellant's motions to stay the February 25, 2011 order. As of the date of this report, the appeal is still pending.

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

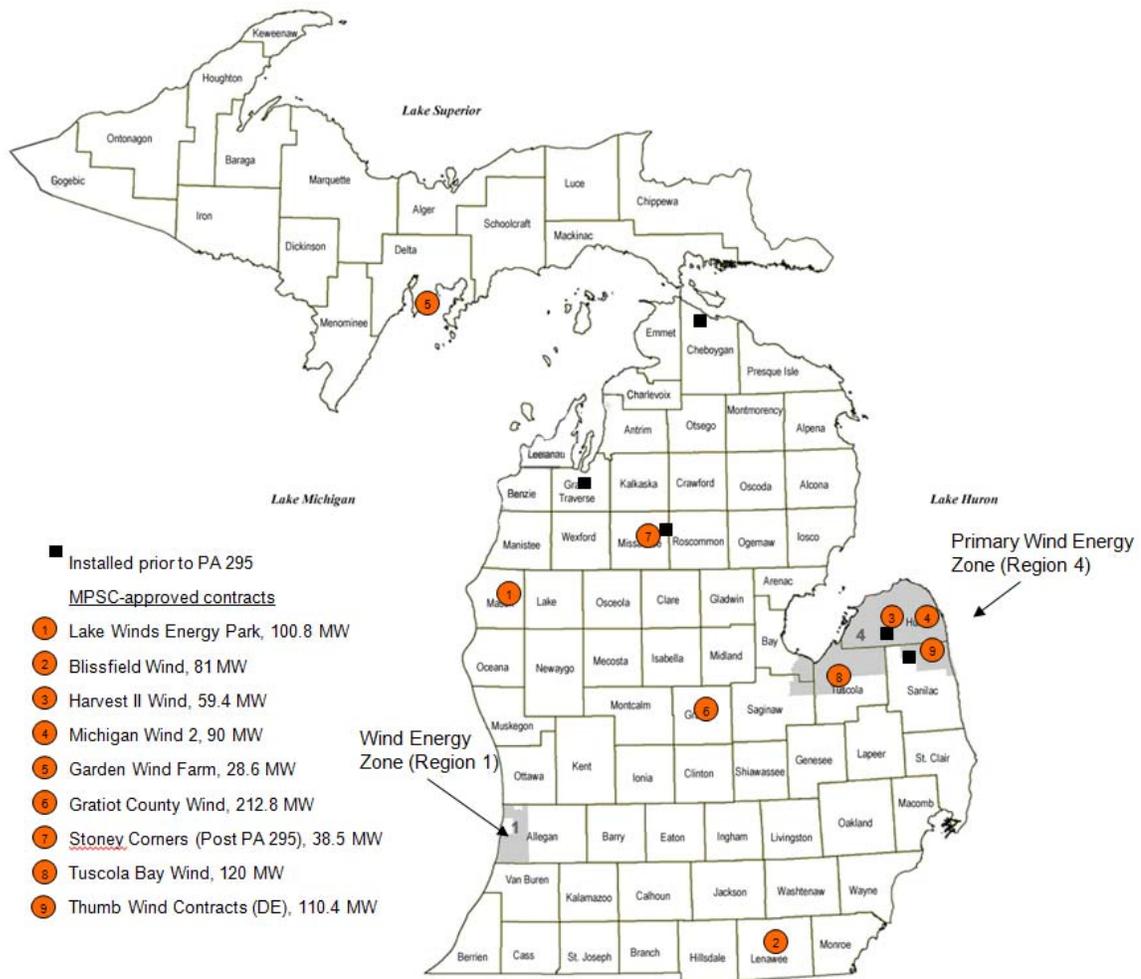
⁴ <http://efile.mpsc.state.mi.us/efile/docs/16200/0258.pdf>.

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, 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 over 840 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**. Approximately 380 MW out of the total 840 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) in the primary wind energy resource zone is 502 MW. There are 212 MW out of the 502 MW that are commercially operational at this time.

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



Additional wind generation projects have been announced that are under early stages of development as evidenced by activity in the MISO interconnection queue. Some of these projects may also be reflected in the wind contracts approved by the Commission and discussed above. As of January 2012, the total Michigan wind generation that is in service, under construction, or in development with ‘active’ status in the MISO interconnection queue is 4,891 MW. **Figure 3** shows the MW of wind generation per county that is currently listed as under

⁵ Includes contracts for wind energy approved by the Commission on or before January 6, 2012.

‘parked’ projects are required to make a decision as to whether to proceed forward in the interconnection process or withdraw from the queue within the year that they are allowed to be ‘parked.’

While it appears that some wind generation in the queue still has several milestones to be reached before being considered firm, there is also 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 certain projects to move forward quickly. Michigan currently has over 3,700 MW of wind generation capacity that is either in service, under construction, or in the later stages of the MISO queue such as DPP or the facilities study phase. It is likely that a significant amount of wind generation in the MISO interconnection queue will complete the interconnection process and become operational.

Figure 3 lends some insight regarding the effect of the declaration of wind energy resource zones on wind energy development. The primary wind energy resource zone in the Thumb is the location for approximately half of the wind generation capacity in the MISO interconnection queue for the state of Michigan. Over the last year, the total amount of wind generation capacity shown in the queue for Michigan has grown by 514 MW from 4,377 MW one year ago to 4,891 MW. Just over 60 percent of the 514 MW growth in the last year is in the counties that comprise the primary wind resource zone in the Thumb. The wind zone process has helped spur wind development in the Thumb Region, but **Figure 3** also illustrates that there are noteworthy amounts of wind generation development in other areas of the State as well.

As described earlier in the **Expedited Transmission Line Siting Applications** section of the report, the need for additional transmission is being addressed.⁶ Indications are that the establishment of a primary wind energy resource zone will have a positive impact on the development of wind due to the expedited transmission siting provisions in the Act.

Although the MISO interconnection queue continues to show significant wind development in Michigan, local issues regarding the siting and zoning for wind in Michigan have impacted development in some areas. Some wind energy developments in Michigan have experienced schedule delays, or have been relocated or canceled with local siting and zoning issues being one of the factors.⁷ On the opposite side of the spectrum, some local areas in Michigan have proactively developed local wind siting and zoning ordinances that enable wind development and has led to projects moving forward without the delays experienced in other areas.

Huron County (a county within the primary wind energy resource zone) has adopted provisions within its Wind Energy Conversion Facility Overlay Zoning Ordinance⁸ applicable to county-zoned townships. The ordinance provides for the creation of wind energy overlay districts by the Huron County Board of Commissioners based upon receiving a recommendation from the Planning Commission. In 2010, Huron County Commissioners approved ballot language for the November general election allowing voters to determine the fate of two proposed wind overlay districts in the county for wind farms proposed by Detroit Edison. Both

⁶ See ITC Thumb Loop Project Schedule & Major Milestones in February 2012 Thumb Loop Newsletter at http://itctransco.com/images/itc-michigan/projects/201202_NL_ThumbLoop.pdf.

⁷ Consumers Energy's LakeWinds Energy Park experienced schedule delays while the special land use permit granted by the Mason County Planning Commission was appealed. The Blissfield wind project will be relocated from Lenawee County to another county in Michigan based upon a zoning ordinance adopted by Riga Township in Lenawee County in 2011. Duke Energy recently announced the cancellation of its Gail Windpower project in Benzie and Manistee Counties with siting and zoning issues cited as one factor in its decision.

⁸ http://www.co.huron.mi.us/documents/WindEnergyOverlayZoningOrdinance_000.pdf.

proposals were affirmed in the election, resulting in the creation of wind overlay districts for Detroit Edison's planned wind farms.

Although wind development has increased since the enactment of PA 295, issues stemming from the local siting and zoning of wind farms have started to impact the development of wind projects in Michigan. Future wind growth in Michigan will continue to be dependent on local support for projects..

Recommendations for Program Enhancements or Expansion

There is significant 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 will continue to monitor the impact of establishing wind energy resource zones and will provide any recommendations identified for program enhancements or expansion in future annual reports.

APPENDIX A – PA 295 Wind Zone Process

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 report⁹ 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**:

⁹ 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 A1¹⁰

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.¹¹ A summary of the potential transmission upgrades for the primary and additional wind energy resource zones is provided in *Appendix B*.

¹⁰ http://www.dleg.state.mi.us/mpsc/renewables/windboard/werzb_final_report.pdf, Exhibit 3, p. 9.

¹¹ <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=15899>, Document Nos. 25, 26, 27, and 28.

On January 27, 2010, the Commission formally accepted the WERZ Board's Final Report and through a final order¹² 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.

¹² <http://efile.mp.sc.state.mi.us/efile/docs/15899/0089.pdf>.

Appendix B -- Summary of Transmission Upgrades

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.