
Proposed Report of the Michigan Wind Energy Resource Zone Board

August 24, 2009, 11:00 AM
Huron County Expo Center
170 West Soper Road
Bad Axe, MI 48413

Public Hearing on Proposed Report

- Wind Energy Resource Zone (WERZ) Board must hold public hearing on its proposed report
 - Purpose of today's public hearing:
 - Opportunity for anyone, including local governments and the public, to comment on proposed report
 - Board's role is to listen and gather comments today
 - All input, including written and verbal comments, will be considered as board prepares final report
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Background

- 2008 PA 295 called for creation of WERZ Board
 - 11 board members
 - Represent different sectors as required by PA 295
 - Appointed by Michigan Public Service Commission (MPSC) but operate independently
 - Board met 14 times to date
 - Proposed report issued on June 2, 2009
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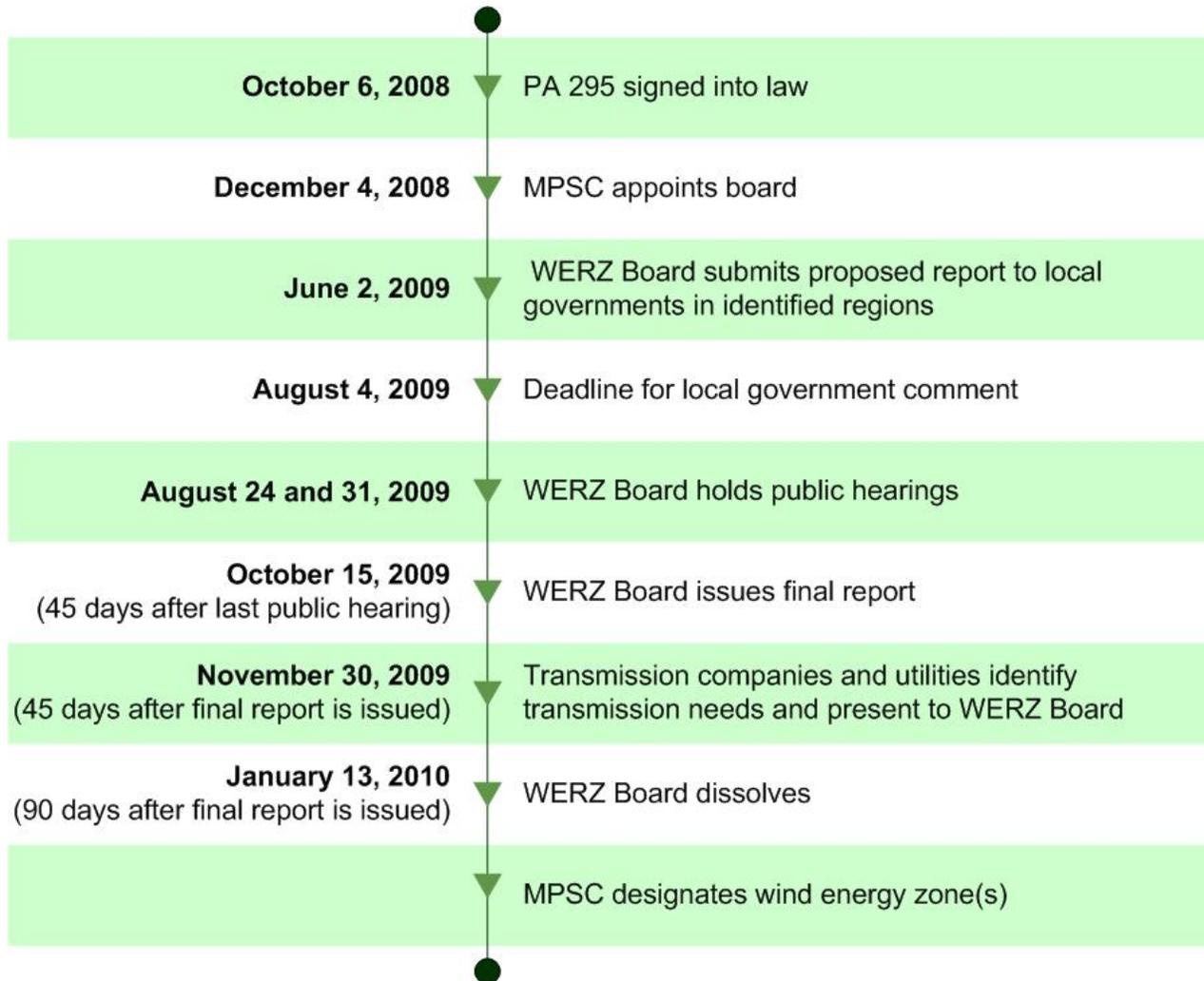
Board Representation per PA 295

- MPSC
 - Electric utility industry (2)
 - Alternative electric suppliers
 - Attorney General's office
 - Renewable energy industry
 - Cities and villages
 - Townships
 - Independent transmission companies
 - Statewide environmental organization
 - Public at large
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Board's Charge

- Study wind energy production potential and land availability in the state
 - Develop list of regions with highest wind energy potential
 - Estimate maximum and minimum wind energy potential for each region
 - Conduct modeling and other studies on:
 - Existing and proposed wind energy systems
 - Wind speeds
 - Viability of wind as a source of commercial energy
 - Issue final report to MPSC after accepting comments from local governments and the public
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Timeline



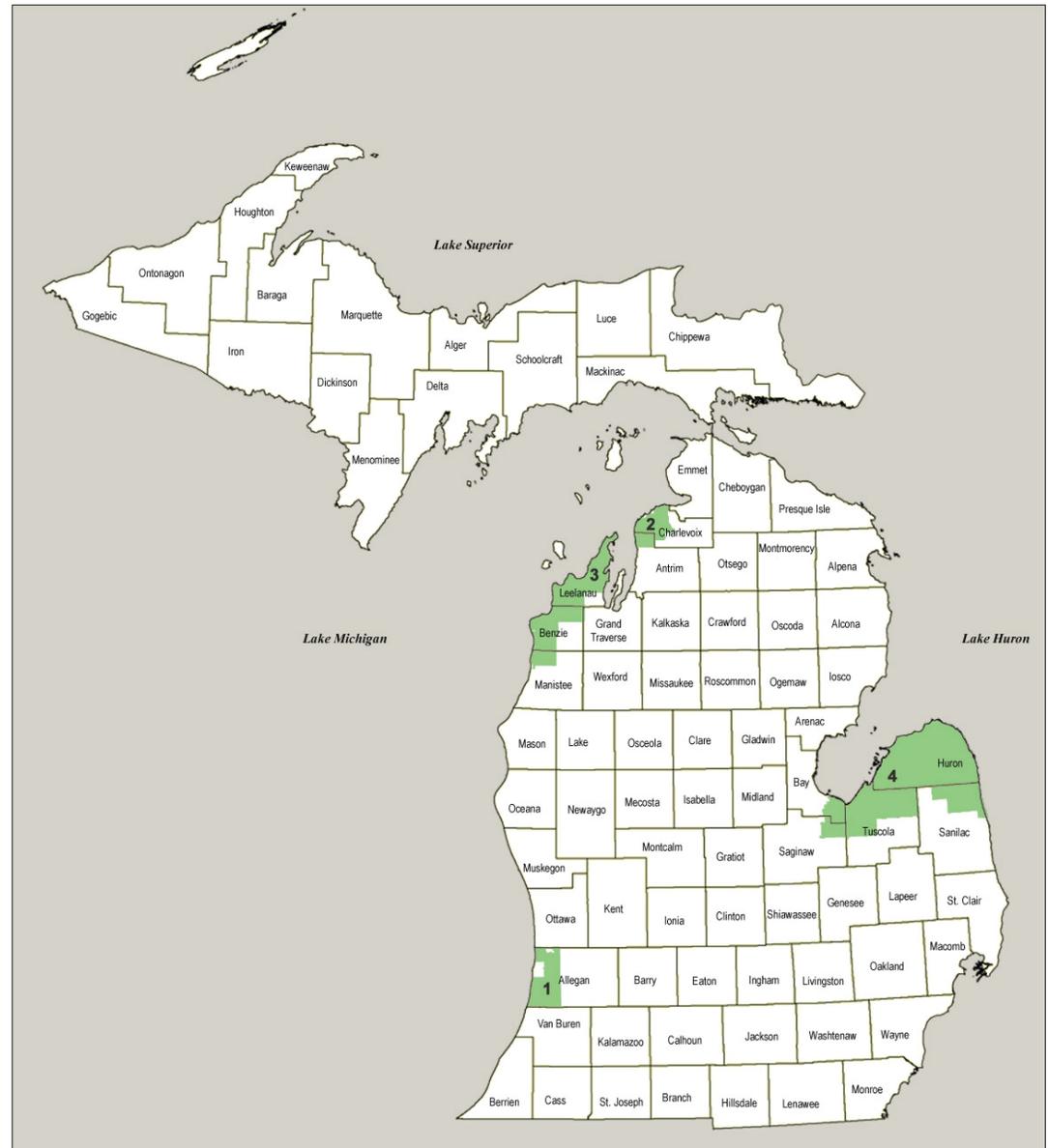
Board Consultant Team

- Consultants assisted the board in technical analysis and report writing
 - **Michigan State University's Land Policy Institute**—Technical analysis
 - **Public Sector Consultants**—Report writing and management of comment process
 - Selected through competitive bidding process
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Summary of Proposed Report

- Identified four regions with highest wind energy potential (not in order of any magnitude or priority)
 - **Region 1**—West Michigan (portions of Allegan County)
 - **Region 2**—Upper Northwest Lower Peninsula (portions of Antrim and Charlevoix Counties)
 - **Region 3**—Northwest Lower Peninsula (portions of Benzie, Leelanau, and Manistee Counties)
 - **Region 4**—Thumb Area (Huron County and portions of Bay, Saginaw, Sanilac, and Tuscola Counties)
 - Analyzed existing and proposed wind energy systems
 - Determined that wind energy is a viable source of commercial energy generation in the state
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Four Regions Identified by Board



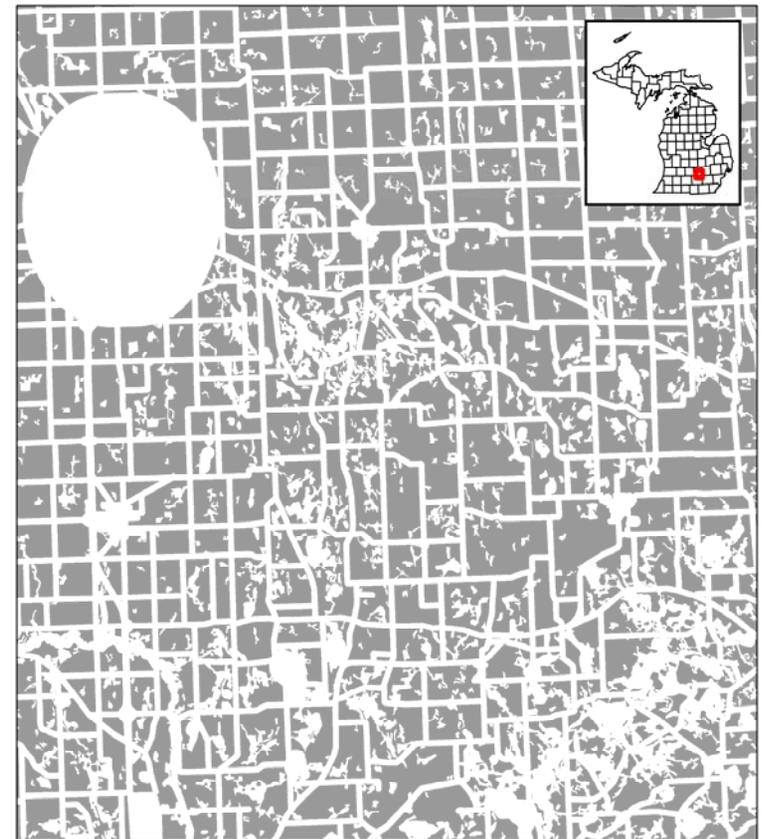
Methodology Overview

- Start with statewide map
 - Determine land available after application of exclusion criteria
 - Considered several scenarios based on different setbacks for roads, water, etc.
 - Overlay theoretical grid of wind turbines
 - Calculate wind energy production potential
 - Identify regions with highest potential
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Exclusion Criteria

- Great Lakes shoreline setback
 - Areas not defined as “open space”
 - Airport setback
 - Wetlands, lakes, and rivers
 - Public road setbacks
 - Slope
 - Urban areas
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Application of Exclusion Criteria



Example Map of Exclusions Used in Analysis

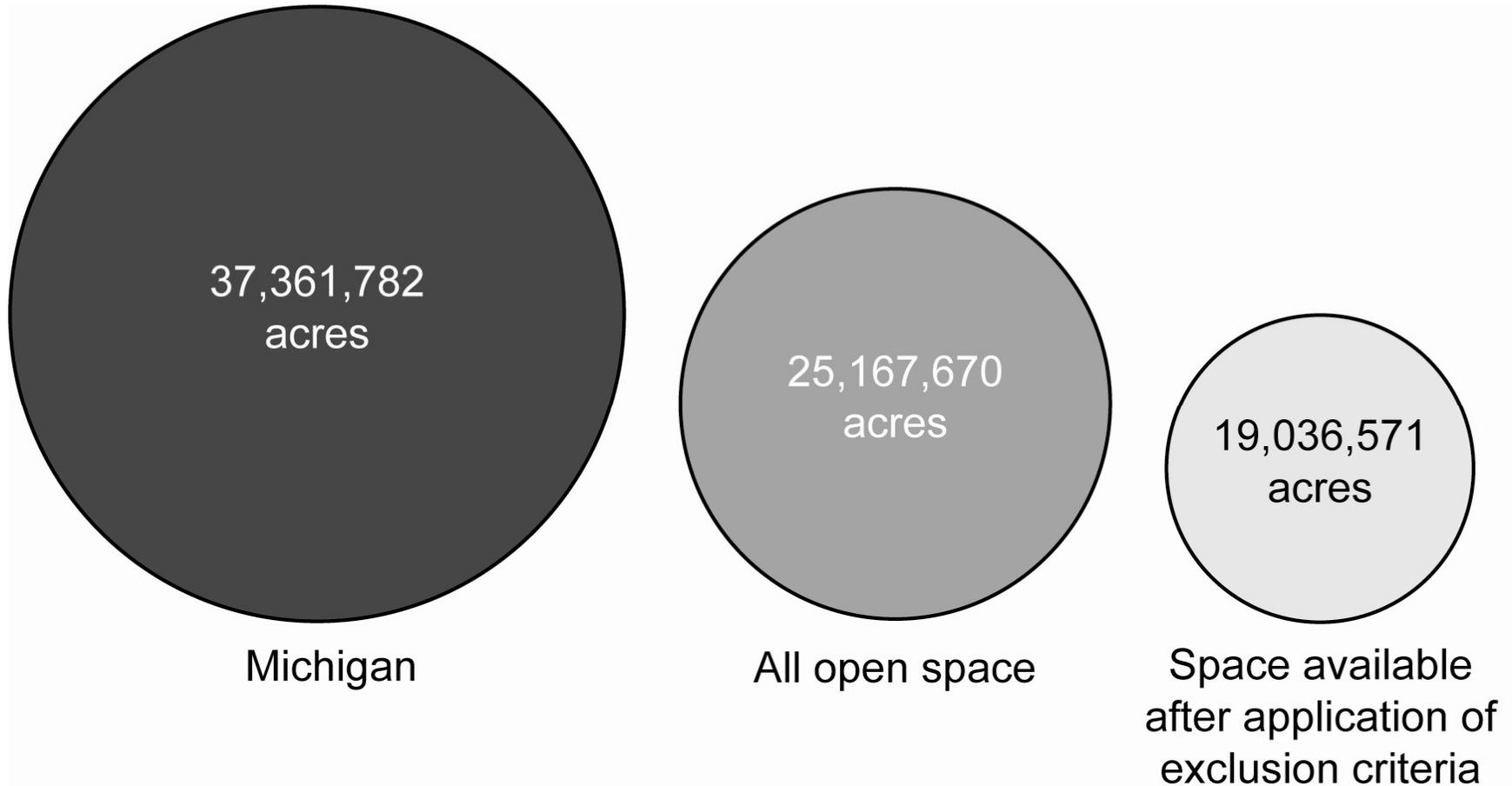


0 1.25 2.5 5 7.5 Miles

Map Produced by Land Policy Research at the Land Policy Institute, Michigan State University, 2009.



Application of Exclusion Criteria (cont.)



Wind Speeds (Class 3 or Higher – 50 Meters)

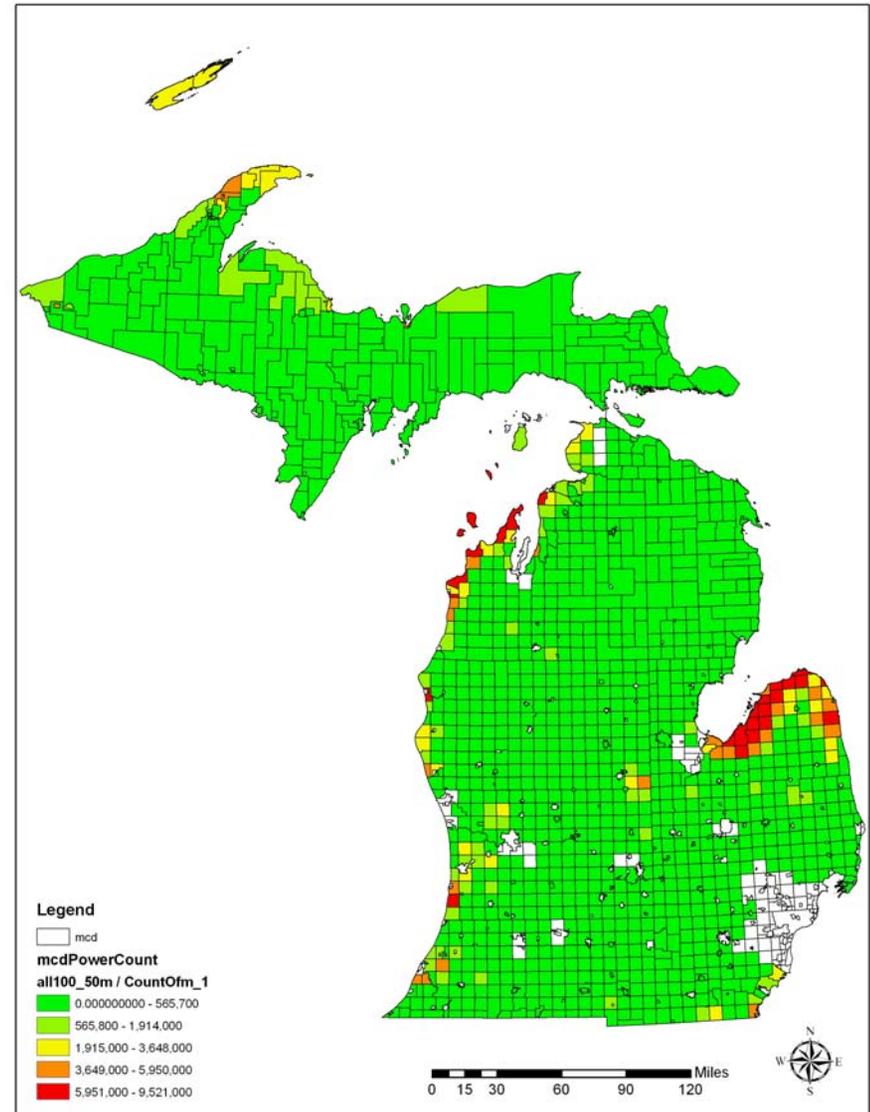


Power Production Potential Estimates

- Theoretical estimates of wind potential based on hypothetical placement of turbines
 - Using wind speed data, turbine power output specifications, and other factors, wind energy potential and capacity calculated for each turbine
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Selection of Regions

- Townships classified into tiers using statistical method
- Based on estimates of energy production potential (Megawatt hours [MWh] per turbine and total MWh) by township
- Selected townships in highest tier out of five (red) to form building block of region
- Also included in region are adjacent townships in second tier and additional ring of adjacent townships



Setbacks for Homes and Other Structures

- After regions identified, placement of turbines further limited based on setback for homes and other buildings to account for potential noise impacts
 - Excluded areas within 200 meters of built areas, as defined by National Oceanic and Atmospheric Administration
 - Beyond that distance, noise from turbine falls below level in state guidelines
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Reductions to Theoretical Estimates

- Theoretical estimates not realistic
 - Many social, economic, and environmental factors affect placement of wind turbines
 - For each region, board reduced theoretical estimates of capacity and energy potential to account for various factors affecting turbine placement
 - Maximum estimates - 66 percent reduction
 - Minimum estimates - 81 percent reduction
 - Similar approaches used in other studies of wind energy potential
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Reductions to Theoretical Estimates

(cont.)

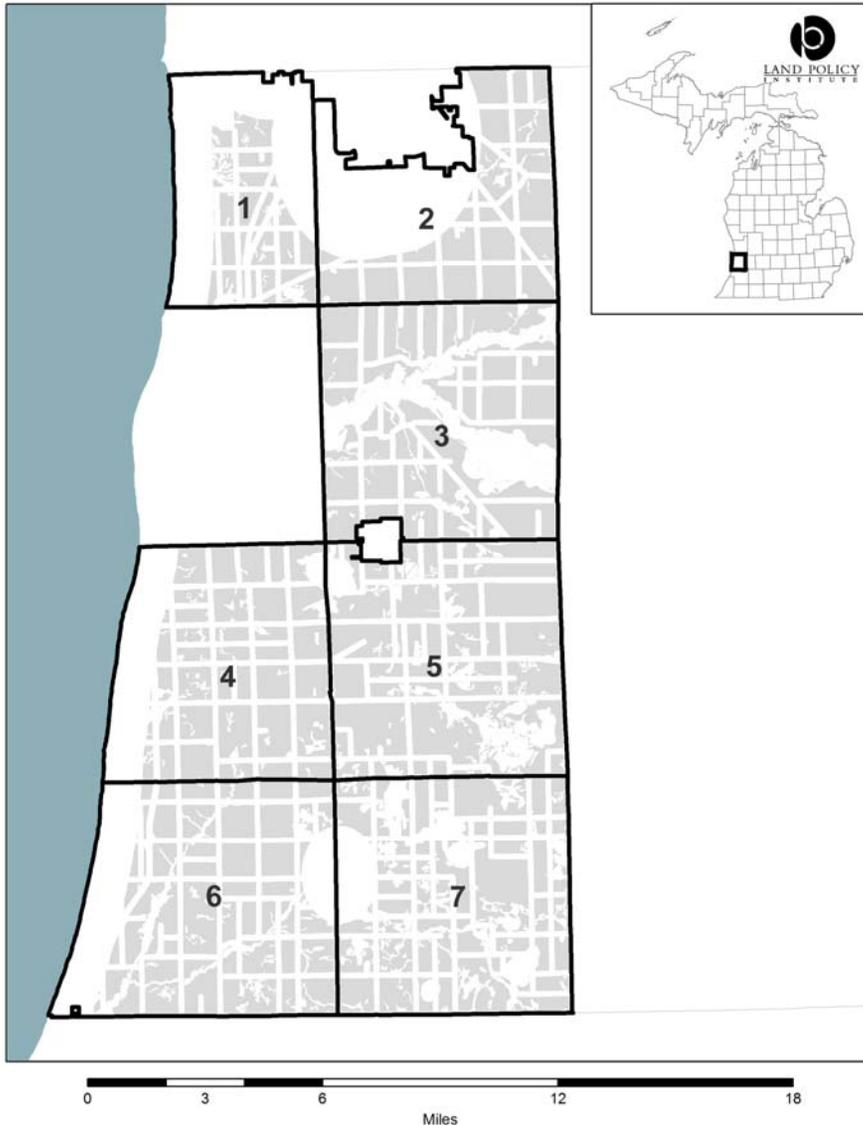
- Reductions based on information and general trends related to:
 - Land leases or easements
 - Land fragmentation
 - Local zoning restrictions
 - Competing land uses (development for other purposes)
 - Sensitive areas
 - Residential zoning
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Wind Energy Production Potential

Total for Four Regions Identified by Board

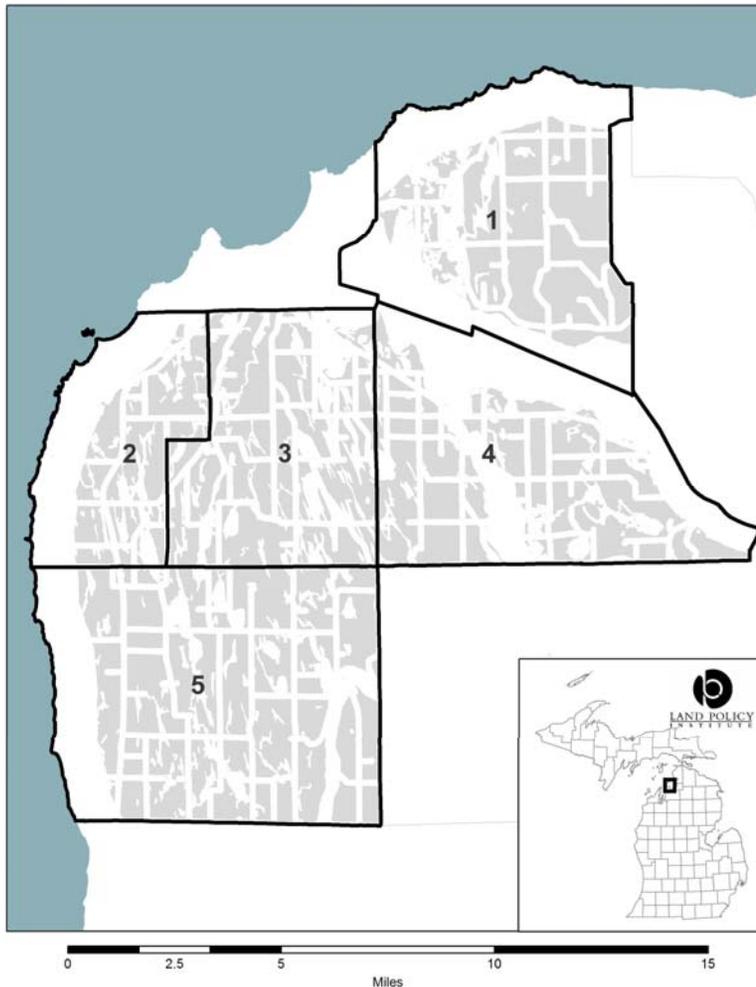
	Minimum	Maximum
Estimated number of turbines	2,287	4,093
Estimated capacity (MW)	3,431	6,140
Estimated annual energy production (MWh)	9,933,151	17,775,113

Region 1 – West Michigan



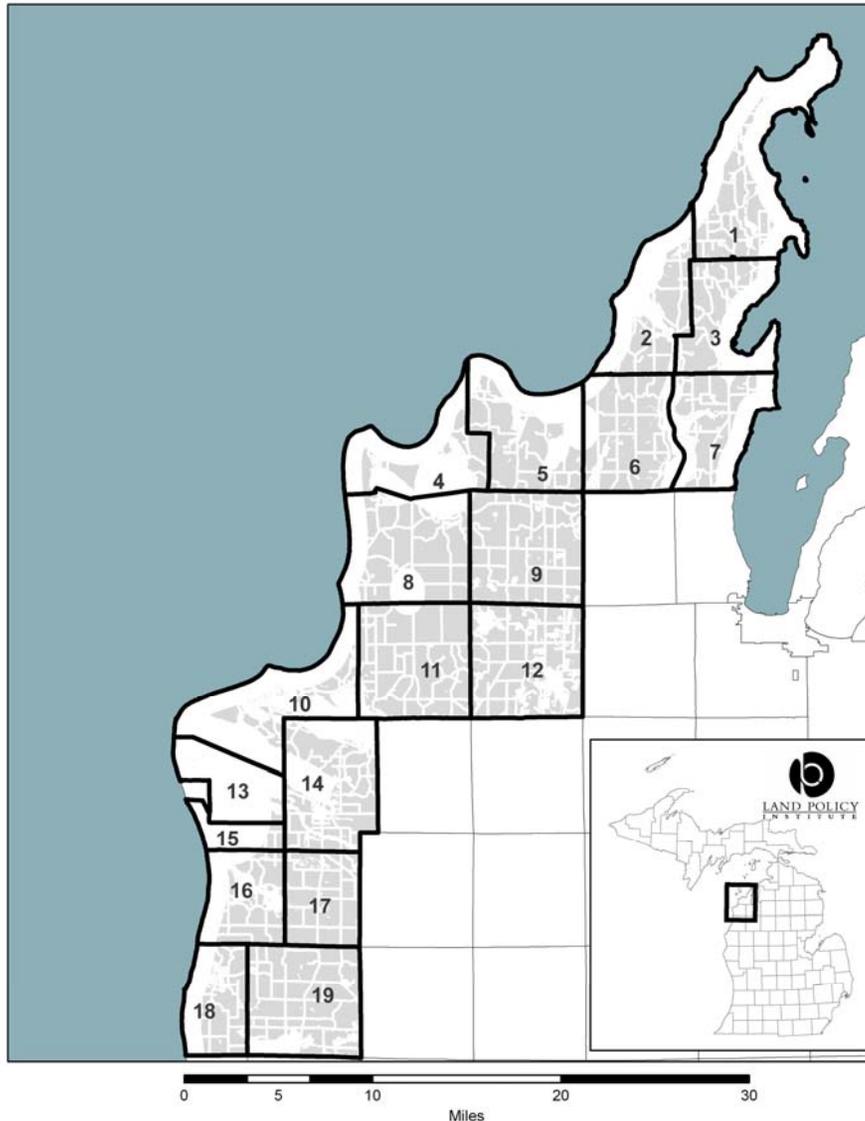
- County – Allegan
- Townships –
 - Casco (6)
 - Clyde (5)
 - Fillmore (2)
 - Ganges (4)
 - Laketown (1)
 - Lee (7)
 - Manlius (3)
- Exclusion areas, including cities and villages and Saugatuck Township, part of region but no turbines modeled

Region 2 – Upper Northwest Lower Peninsula



- Counties – Antrim, Charlevoix
- Townships
 - Banks (5)
 - Eveline (4)
 - Hayes (1)
 - Marion (3)
 - Norwood (2)
- Exclusion areas, including cities and villages and Charlevoix Township, part of region but no turbines modeled

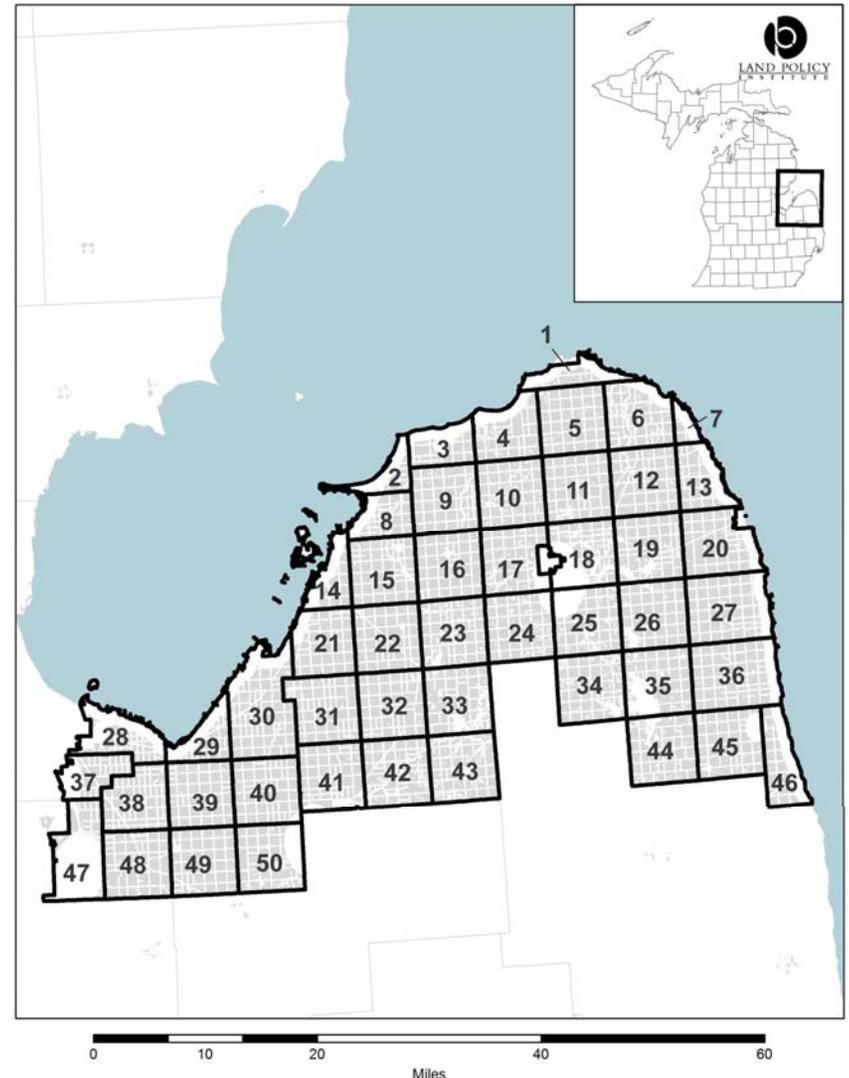
Region 3 – Northwest Lower Peninsula



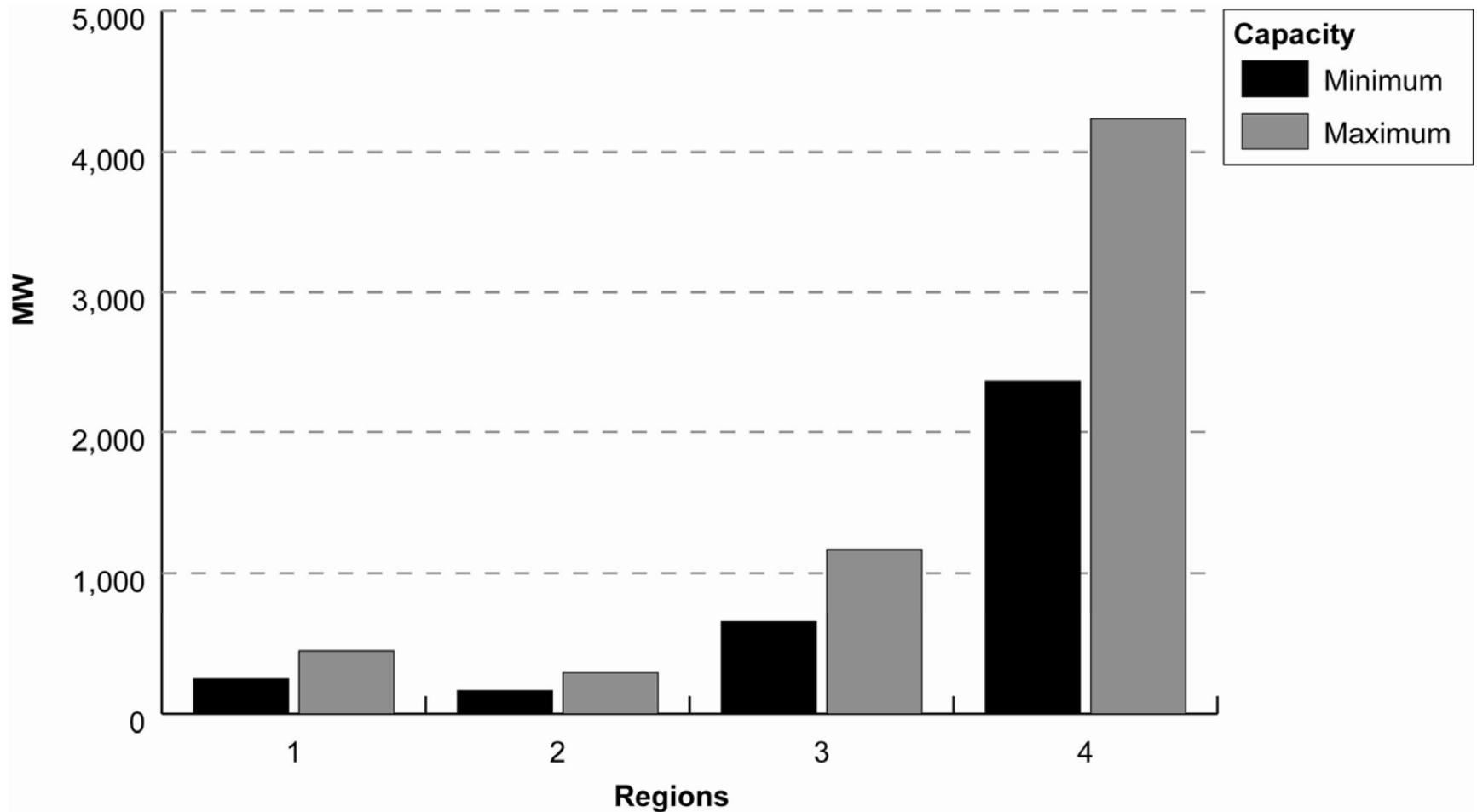
- Counties – Benzie, Leelanau, Manistee
- Townships - Arcadia (18), Almira (12), Benzonia (14), Bingham (7), Blaine (16), Centerville (6), Cleveland (5), Crystal Lake (13), Empire (8), Gilmore (15), Glen Arbor (4), Joyfield (17), Kasson (9), Lake (10), Leelanau (1), Leland (2), Platte (11), Pleasanton (19), Suttons Bay (3)
- Exclusion areas, including cities and villages, part of region but no turbines modeled

Region 4 – Thumb Area

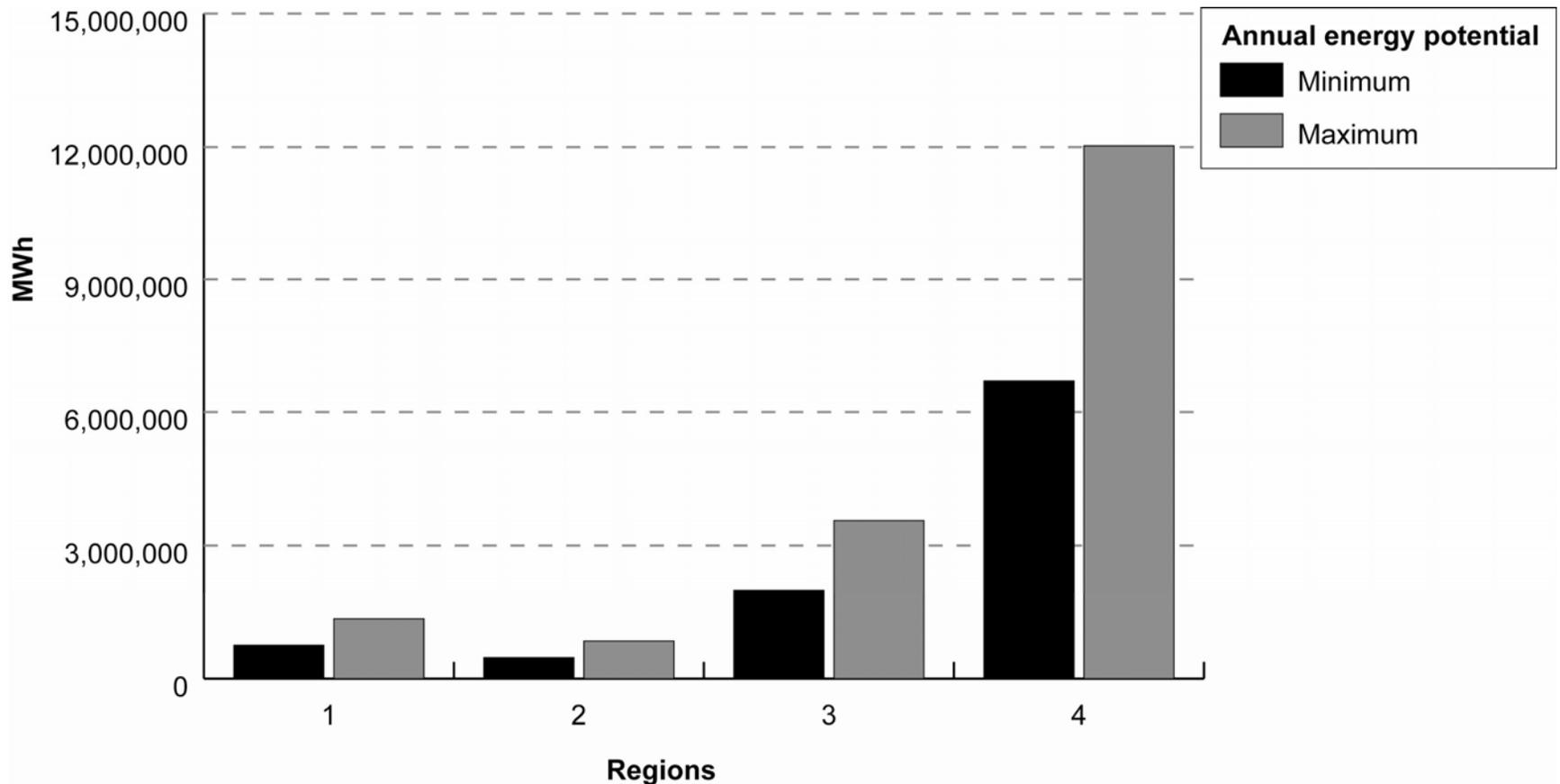
- Counties – Bay, Huron, Saginaw, Sanilac, Tuscola
- 50 townships (listed in proposed report)
- Exclusion areas, including cities and villages, part of region but no turbines modeled



Estimated Capacity (MW), by Region



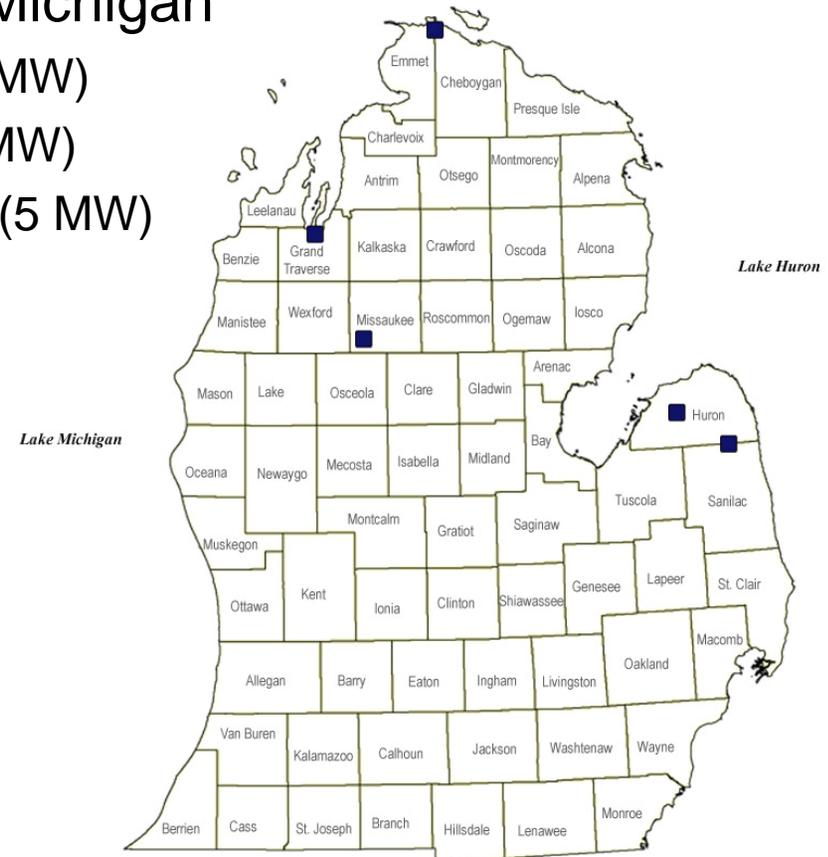
Estimated Annual Energy (MWh) Production, by Region



Wind Generation Currently in Service (April 2009)

- Five wind systems operating in Michigan
 - Michigan Wind I, Huron County (69 MW)
 - Harvest Wind, Huron County (52.8 MW)
 - Stoney Corners, Missaukee County (5 MW)
 - Mackinac City (1.8 MW)
 - Traverse City (0.6 MW)
- Total nearly 130 MW of installed capacity
- Almost all placed into service during 2008

■ In service



Proposed Commercial Wind Systems

- Formal applications under review for 24 proposed wind energy projects
 - Nearly 2,700 MW of capacity
 - Does not mean that projects will be constructed
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Board's Analysis

- High-level statewide assessment of areas with highest wind energy potential
 - Focuses on commercial-scale wind systems
 - Does not:
 - Analyze specific sites or zoning requirements
 - Account for community acceptance
 - Development may occur outside or inside of identified regions
 - First step in more forward-looking planning process for both wind energy and transmission systems
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Next Steps

- Board reviews comments on proposed report
 - Online comment form
 - Public hearings August 24 and 31
 - Board issues final report October 15
 - Transmission companies study transmission system needs; submit report to board November 30
 - Board dissolves January 13, 2010
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Next Steps – MPSC Zone Designation

- After board dissolves, MPSC designates one or more wind energy “zones” based on requirements in law; considers:
 - Board’s final report
 - Transmission studies
 - Additional input and information
 - MPSC conducts public hearings and issues report regarding setbacks and other requirements related to wind energy
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Next Steps – MPSC Transmission Certification

- MPSC may issue expedited certificate for transmission line to deliver power from wind zone if certain requirements met
 - MPSC to issue decision within 180 days instead of one year
 - Affected municipalities and landowners have right to intervene
 - Same due process rights as other MPSC cases (present testimony, right to appeal, etc.)
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For more information:

- See www.michigan.gov/windboard
 - Presentations given to board and meeting minutes
 - Copy of proposed report
 - Form to submit comments on proposed report
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Comments

- Provide in writing or verbally today

OR

- Submit online:

<https://janus.pscinc.com/WindEnergyResourceZone/>

OR

- Mail to Michigan Public Service Commission
(see agenda for address)
 - Comments must be received by **September 8.**
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