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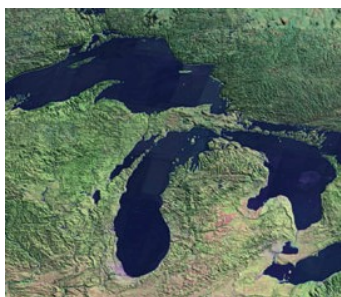
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Status of Offshore Wind Energy in Michigan's Great Lakes - Fact Sheet

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Grand Valley State University and the Great Lakes Commission

Status of Offshore Wind Energy in Michigan's Great Lakes

Erik Nordman, Ph.D.

Introduction

Sailors have known for generations that Michigan's Great Lakes have strong and consistent winds. Could these winds be harnessed to generate electricity, and if so, what policies must be in place to enable offshore wind development?

Technological innovations have enabled electricity-generating wind turbines to be constructed in marine and freshwater environments in 10 European countries, China, and Japan. No offshore wind farms have been constructed in North America, though some are in development. This fact sheet summarizes the technical and policy aspects of wind energy development in Michigan's Great Lakes.

The Michigan Great Lakes Wind Council

Governor Granholm created the Great Lakes Wind (GLOW) Council in 2009 to investigate the electricity-generating potential of Michigan's Great Lakes, examine the constraints to development, and make policy recommendations. The 29-member council's first report¹ made the following observations and recommendations:

- Michigan's 38,000 square miles of Great Lakes bottomlands offer uniquely attractive wind resources that could be developed in a prudent and thoughtful manner.
- Other Great Lakes states and provinces are preparing for potential wind energy developments in their jurisdictions.
- Identify the regions of Michigan's Great Lakes that are most favorable for offshore wind energy development, those that are categorically excluded, and conditional areas.
- Michigan had no process for approving or denying the use of Michigan's Great Lakes bottomlands for wind energy development. The council recommended establishing a clear permitting process by passing a package of laws and rules.

Michigan's Offshore Potential

Michigan State University's Land Policy Institute estimated the potential electricity-generating capacity of Michigan's Great Lakes. Using a six-mile shoreline buffer, a minimum depth of about 100 feet, and 3.6 MW turbines, the researchers found that almost 9,500 of wind power capacity could be installed in Michigan's Great Lakes waters—enough to power nearly 3 million homes².

For more information about the Michigan Great Lakes Wind (GLOW) Council, visit the website at www.michianglowcouncil.org/

Offshore Wind Energy Outreach Project

Web site: www.gvsu.edu/marec/offshore-wind-info-83

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Engaging the Public

Michigan has extensive offshore wind energy resources, but the lake bottomlands are held in trust for the benefit of the people of Michigan. Public perceptions are an integral aspect of the Council's prudent and thoughtful approach to exploring the issue. In their follow-up work, the Michigan GLOW Council hosted five public information events at locations throughout Michigan during the summer of 2010. More than 500 people attended the events, participated in polling exercises, and expressed their thoughts and concerns about offshore wind energy development.

65% of people attending GLOW Council meetings support offshore wind energy.

For more on public perceptions, see the other project fact sheets :

Citizen views on offshore wind

Public perceptions in Michigan's UP



Shipwrecks and other cultural resources were included in the mapping criteria.

Credit: Ethan Meleg / All Canada Photos / Corbis

About two-thirds (65%) of meeting attendees expressed general support for offshore wind farms in Michigan's Great Lakes and 26% opposed such projects. When shown visualizations of wind farms at various distances, 53% of attendees expressed support for a project at six miles from shore (closest distance shown). Support increased to 71% for a wind farm 13 miles from shore. Meeting attendees are not a random sample of the general public, so the results cannot be extrapolated to a statewide population³. The results do suggest that offshore wind development has both strong support and opposition and members of those groups are active and engaged in the policy discussions.

Mapping criteria and policy recommendations

The GLOW Council expanded and refined the work of the MSU Land Policy Institute to determine suitable areas for offshore wind energy development. Using criteria such as a six-mile shoreline buffer, depth, shipping lanes, parks and preserves, airports and shipwrecks, the GLOW Council identified five regions that are most favorable for offshore wind energy development: Delta, Central Superior, Central Huron, Sanilac, and Berrien³ (Figure 1).

The Michigan GLOW Council recommended that the legislature establish a clear permitting process, methods of leasing the publicly-owned bottomlands, structures for receiving royalty payments from wind farm developers, and guidelines for public input in the permitting process³.

Conclusions

Michigan's Great Lakes have world-class winds. Citizens have strong opinions both supporting and opposing offshore wind energy development. The Michigan GLOW Council explored the potential for prudent and thoughtful wind energy development, identified most favorable areas, and recommended policies to permit offshore wind development in Michigan.

References

1. Michigan Great Lakes Wind Council. 2009. Report of the Great Lakes Wind Council. Prepared and submitted by Mikinetics Consulting LLC and Public Sector Consultants Inc. 80 pp. Available at <http://www.michiganglowcouncil.org/>.
2. Adelaja, S. and C. McKeown. 2008. Michigan's offshore wind potential. Hannah Professor Research Program at the MSU Land Policy Institute. Available at <http://www.landpolicy.msu.edu>.
3. Michigan Great Lakes Wind Council. 2010. Report of the Michigan Great Lakes Wind Council. Prepared and submitted by Mikinetics Consulting LLC and Public Sector Consultants Inc. 41 pp. Available at <http://www.michiganglowcouncil.org/>.

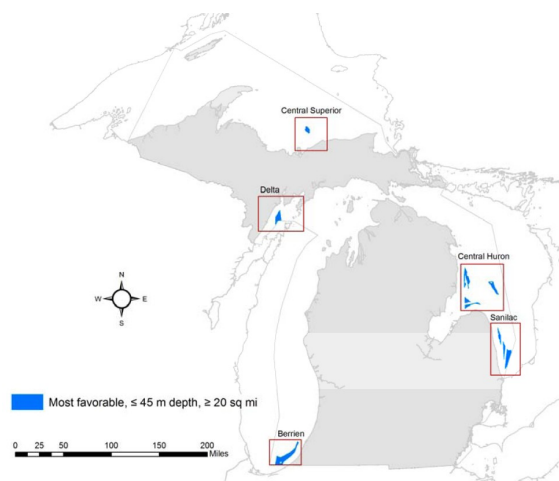


Figure 1. The five “most favorable” areas are located in lakes Michigan, Superior, and Huron.

Please visit our project web site for more information about the benefits and challenges of offshore wind energy in Michigan's Great Lakes.

Web site:
www.gvsu.edu/marec/offshore-wind-info-83