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## Offshore potential

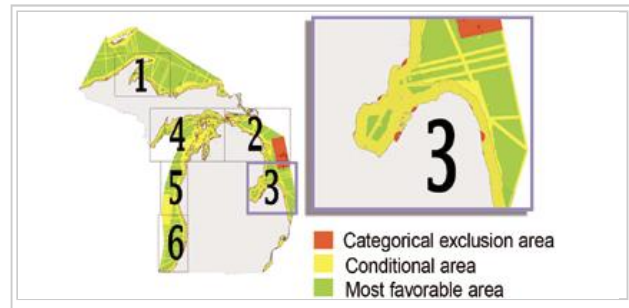
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### *Report identifies Saginaw Bay as favorable for wind turbine development*

By Kate Hessling, Tribune Staff Writer

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**UPPER THUMB** — In a new report, the Michigan Great Lakes Wind Council recommends Lansing adopt legislation permitting the placement of wind turbines six miles or more offshore of most of the state's shoreline.



The council's report, which was submitted to Gov. Jennifer Granholm Tuesday and issued Wednesday by the Department of Energy, Labor and Economic Growth (DELEG), is intended to provide a roadmap for the sustainable development of offshore wind energy resources in Michigan's Great Lakes.

The council — which was established in efforts to, among other things, identify and map the least and most favorable areas for offshore wind development — found 20 percent, or 7,874 square miles, of the 38,000 square miles of state-owned Great Lakes bottom lands has a depth of 30 meters or less, which is the ideal/practical depth for offshore wind development. The report states the majority of Great Lakes bottomlands found suitable for offshore wind development are categorized as being conditionally favorable, meaning turbines could be placed there, but additional study or mitigation is needed.

The report notes the conditional and most favorable areas combined at 30 meters or shallower have a maximum total generating capacity potential ranging from 13,157 megawatts to 18,795 megawatts, and an annual energy production potential ranging from 113 million megawatt hours to 165 million megawatt hours.

For comparison, the report states the total electricity consumption across all sectors in Michigan in 2007 was 109,297 million megawatt hours.

"The application of these ranges assumes for simplicity that turbines would be located across all of the conditional and most favorable areas," the report states. "That is not expected to happen, nor is it recommended by the council. The actual placement of turbines is complicated and would require analyses of wind characteristics, environmental features, interconnection requirements and other site-specific conditions that will affect turbine placement and spacing."

Regarding how the areas were identified on the map, the council reports buffer zones were used, including a 6-mile buffer from the shoreline, 5-mile buffer for habitats of threatened or endangered species, 1-mile buffer for recreational fish spawning sites and refuges and 13-mile buffer for national park lakeshore.

"Other areas incompatible with offshore wind development, such as navigation channels, airport setbacks and military operation areas, are categorically excluded," the report adds.

### **Report: Saginaw Bay a 'most favorable area'**

Areas the report identifies as the most favorable and most practical for wind turbines total 537 square miles, and primarily are located in Saginaw Bay and northern Lake Michigan. However, it's unlikely there will be offshore wind turbines in northwest Michigan anywhere near the coastlines or islands, said Stanley Pruss, Great Lakes Wind Council chairman and DELEG director, in an interview with the Traverse City Record-Eagle. He told the Traverse City newspaper that is partly because the region lacks adequate infrastructure to bear heavy transmission loads.

As for the Saginaw Bay area, transmitting power from an offshore development in the local area may not prove to be as much of a challenge, as the wind council's report notes the Michigan Public Service Commission has collaborated with transmission companies and other stakeholders to examine transmission system improvements that would accommodate different amounts of wind generation in the state. One of the improvements studied includes 500 additional megawatts in Saginaw Bay.

While the report states the area has the potential for offshore wind development, future development still may be far away from ever happening, as there is a variety of factors that need to be addressed, the council reports.

One barrier the state faces is there is no process or criteria specifically addressing offshore wind developments. Therefore, the council recommends the state create legislation that identifies the most and least desirable areas for development, and creates a clear process for permitting and leasing and related public engagement to ensure that future development of offshore wind is predictable and balanced.

But, even if the Legislature creates laws facilitating the permitting, leasing, constructing and monitoring of offshore wind developments, economics will drive the pace and nature of any offshore wind developments, the report states.

The council cites a 2008 U.S. Department of Energy report that found the installed capital cost of offshore projects is estimated at between \$2,400 and \$5,000 per kilowatt, compared to the cost of land-based wind energy projects, which is between roughly \$1,500 and \$2,500 per kilowatt.

Moreover, the report notes the turbine cost for offshore projects represents only one-third of the total installed cost, where as on land, the turbine cost represents more than half of the total installed cost.

Because offshore wind developments cost so much more than their land-based counterparts, the wind council's report recommends the state offer developers incentives, such as direct subsidies, tax credits and feed-in tariffs. This would allow electricity generators to sell renewable energy at a fixed tariff price, including a return, for a determined period of time to foster early development of offshore wind energy.

### **More study required**

The wind council's report states additional work is needed over the next six months to narrow target areas that would be most favorable to offshore wind energy development. This would be the equivalent to how the Michigan Wind Energy Resource Zone Board identified four areas on land around Michigan that are most suitable for wind energy development.

The offshore wind council's report proposes having the board spend the next six months identifying specific areas that are the most favorable for offshore wind development; soliciting feedback from the public on the identified locations; developing lease and solicitation documents; providing a scope and process for a baseline environmental study in targeted locations; and reviewing drafts of legislation that would guide the development of offshore wind energy in Michigan.

The report recommends that within the next year, the DELEG should work with the Michigan Public Service Commission to convene a forum on offshore wind costs and benefits, as well as model incentive structures and leasing revenue potential under different scenarios.

Finally, another avenue that needs to be explored is that of public opinion, as the report states it is unclear how stakeholders and the public will react to offshore wind proposals in Michigan.

The report cites reactions from offshore wind proposals on the East Coast and elsewhere that show public acceptance and opposition can vary significantly by area and are often site specific.

"For example, surveys reveal that Delaware residents, even those living near the ocean or with an ocean view, are considerably more supportive of offshore wind farm development than are Cape Cod residents," the report states. "There was also a contrast in the level of public acceptance between two projects in Denmark."

Reasons cited for opposition are not uniform across areas, but aesthetic impacts and perceived negative alterations to the existing landscape tend to be dominant factors, the report notes. Other reasons include, but are not limited to, negative effects on property values, tourism or fishing and wildlife/environmental impacts.

"Some researchers have argued that there is limited empirical support for the so-called 'not in my backyard' or NIMBY hypothesis — i.e. people may approve of something in theory, but don't want it located near them," the report adds. "Others have suggested the term simply labels the opposition without identifying an explanation."

Without additional research, the report states it is difficult to know how specific communities and the general public in Michigan will respond to offshore wind proposals and

what factors will influence public opinion, including the types and sources of information. The council's report states Michigan should expect a range of positions in response to proposed developments, and the state will benefit from a proactive and transparent process that considers all interests from the planning stages to implementation.

"The implementation of the council's recommendations in this report and additional efforts in the coming months may eliminate or diminish some barriers to the development of offshore wind, reduce risks inherent in these activities and identify a path toward development," the report concludes.

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