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## Studies Lift Hopes for Great Lakes Wind Turbine Farms

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CHICAGO -- Picture 100,000 wind turbines rising from the Great Lakes off Michigan's shores, casting spinning shadows on the water and producing electricity for the entire Upper Midwest.

This surreal image is conjured by a study released last Tuesday by the Michigan State University Land Policy Institute. It analyzed wind potential in the Great Lakes and found that 100,000 turbines off Michigan's coasts could produce 321,000 megawatts of energy.

That scenario, however, is highly unlikely because of the cost and environmental and other considerations. But wind power advocates hope it is a starting point for development of the world's first freshwater, offshore wind farms -- in the Great Lakes.

Although Michigan borders four Great Lakes and has the most offshore wind potential, Cuyahoga County, Ohio, is likely to beat it to the punch with a proposed wind farm in Lake Erie several miles from Cleveland.

Last week a task force chaired by the Cuyahoga County prosecutor released an installment in an ongoing \$1 million feasibility study giving the project a green light on geologic and wind-potential grounds. If the study continues to yield positive findings, construction of two to 10 wind turbines and a research station could start in about two years.

"We believe we are in a race to be first in the Great Lakes, and by doing so, the pilot project will blaze a trail for economic opportunities for the area," said Ryan Miday, spokesman for the task force. "This is about making this area a hub for wind energy that brings in other supply-chain component manufacturers. It's a vision of creating a new industry in this area centered around wind."

Meanwhile, Wisconsin is exploring three offshore wind projects, with public comment periods in progress, according to the state Public Service Commission.

Offshore wind projects have been developed in European countries such as Germany, Denmark and Great Britain.

Although U.S. projects are in development in the Gulf of Mexico and the Atlantic, none are operating. The proposed 130-turbine Cape Wind project in Nantucket Sound has drawn heated opposition from residents who say it will mar views and harm birds.

The proposed Great Lakes offshore wind projects have not drawn significant opposition, although even proponents acknowledge they could affect views, lake ecology and recreation.

The Ohio project proposes sinking foundations for 260-foot-tall wind turbines into bedrock and laying electrical cable below the Great Lakes floor. The construction could have ramifications for fish breeding and lake-floor ecology in general, including the effects of electromagnetism, noise and

vibrations. But the Ohio study says that in Europe, wind turbine foundations on the sea floor have become habitats for fish.

"Anytime you're trying to put something in the water, it raises a whole host of questions that I don't think any state has adequately examined," said Joel Brammeier, vice president for policy at the Alliance for the Great Lakes. "We're certainly not at the point we should be permitting projects. We're at the point those questions should be asked in a public forum and responded to -- everything from aesthetics to actual impacts on the bottom and fish habitat. What we don't want is the Cape Wind of the Midwest."

The production estimate of 321,000 megawatts cited in the Michigan State study includes turbines at all depths. Existing offshore wind turbines are in water 197 feet deep or less. At that depth, the study says, 103,000 megawatts could be generated with 33,861 turbines. Concerns about environmental impacts and opposition from residents would significantly reduce that potential. But, said study co-author Soji Adelaja, that still means a lot of potential wind power.

"Just announcing potential doesn't really mean anything, but hopefully this will start deliberations about how to do it," he said. "Michigan has these old abandoned industrial facilities used for automobile parts. If wind energy picks up, those could be redirected to making wind components."

The state has not actively pursued offshore wind energy but expects it may get proposals from private firms, said John Sarver, supervisor of technical assistance in the Michigan Energy Office and chairman of the Michigan Wind Working Group. Such proposals would go primarily through the Department of Environmental Quality.

"Tomorrow someone could knock on the DEQ's door and say they want to do something, and of course the state will have to respond," Sarver said. "Or another possibility is down the road sometime the state would issue a request for proposal. We haven't had a chance to look over all the issues yet, so it would be a learning curve for everybody."

The areas in Michigan most conducive to offshore turbines might be the state's northeast coast in Lake Huron and the coasts of the Upper Peninsula, because they are relatively unpopulated, Adelaja said. But wind farms should ideally be located near the market for energy.

Tom Alisankus, chairman of a committee studying a proposed land-based wind farm in central Wisconsin, said offshore projects are far more palatable to people like him who have negative views of land-based wind power.

"Those have a lot more efficacy than land-based projects as far as actually generating energy and not interfering with people's lives," he said. "But people have to remember this is not free energy; there's a ton of expense in making these things, and they still have a huge carbon footprint in the manufacturing."

While not endorsing offshore wind, Brammeier of the Alliance for the Great Lakes said its negative impacts must be balanced against the long-term environmental benefits of clean energy.

"The states who own the lake bottom are empowered and required to secure it for the public interest," he said. "When you're talking about something like a pipeline through the lakes that binds us to a 19th-century way of thinking about energy, versus the development of wind resources, which is completely forward-looking, you're certainly looking at a different measure of whether that's serving

the public interest."

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