

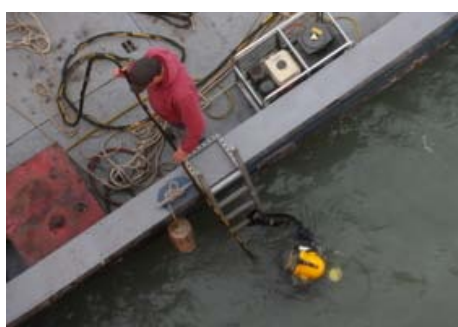
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## Great Lakes may beat Atlantic to offshore wind

Jeff St. Clair Jun. 23, 2011



(NPR/Jeff St. Clair)

Chad Stephens helps diver Tom Warvell to recover an ice sensor from the bottom of Lake Erie. The two are part of a company (specializing in underwater recovery) working with engineers studying how ice floes during the winter would affect the foundation of a lake-based wind turbine.

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States along the Atlantic Coast are racing to be first in the country to put wind turbines offshore. But a group in Ohio says the first offshore wind farm in America isn't likely to be in the Atlantic, but in the fresh waters of Lake Erie about seven miles off the Cleveland coast.

A dull gray salvage boat chugs out of the Port of Cleveland on a calm spring morning; it's part of the early stages of what some hope will become a major industry in Ohio. But today, the prospect of dozens of massive wind turbines sprouting from the lake floor seems remote.

Right now, there's only one structure on the water — a century-old, iron-clad water intake "crib" that juts 30 feet out of the water. A helmeted diver tethered to a nearby boat sinks into the murky water. His job is to recover an ice sensor sitting 50 feet down on the lake bottom.

Meanwhile three engineers climb the metal steps to the crib's roof where storm-battered instruments are gathering wind data. One of them, Aaron Godwin, says the numbers demonstrate the lake's energy potential.

"Actually this would be a good example of a day where we would be generating some pretty decent power," Godwin says. "You'll see that the instruments are spinning faster as you go up in elevation; again, one of the reasons you come out here is because it's unobstructed; it's clean wind."

### Lakes May Beat Atlantic to Offshore Wind

Promoters of clean wind say, in the next decade, hundreds of turbines in Lake Erie could produce 1,000 megawatts of power — enough for 200,000 homes.

The plan is to start next year with a five-turbine pilot project within sight of downtown Cleveland. Its \$100 million cost would be raised from investors and loans.

Chris Wissemann, the project's developer, says that with turbine supplier General Electric, engineering giant Bechtel, and Texas-based Cavallo Energy on board, his company, Freshwater Wind, will likely win the nation's offshore wind race.

"The Great Lakes will really be home to offshore wind long before we see it in the Atlantic," Wissemann says.

### Expensive Start-Up

But first engineers need to solve a problem that most ocean wind farms don't have — massive floes of shifting ice each winter.

Data from the ice sensor recovered from the lake bottom will help engineers like Dave Mattheisen design foundations that can withstand those icy pressures, without "over-engineering" them. Each turbine will cost more than \$20 million — so much money that it could take decades to recoup the investment.

But Wissemann insists the high costs of the pilot project will be outweighed by the long-term benefits.

"What we're talking about here now is a project that maybe produces high-priced power, but the trade-off is to get jobs," he says.

### 'The Math Doesn't Work'

But not everyone believes it's worth it.

Cleveland industrialist Dan Moore has stakes in a dozen businesses, including one that builds turbine blades. But he says the numbers Wissemann is throwing around just don't add up.

"The concept of building windmills in Lake Erie is nonsense. \$100 million for 3.4 megawatts it doesn't even come

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close to making sense," Moore says. "It's *Alice in Wonderland*." (Moore is referring to his projections of production for a pilot project to test the proposed wind farm.)

Moore thinks high-priced wind energy won't work in a region that needs electricity to power heavy industry.

"The math doesn't work, you're off by a decimal point," he says.

Some other Great Lakes players are backing away from offshore wind turbine development because of environmental concerns. In Michigan, lawmakers and residents are concerned about disturbing the lake's natural beauty. Meanwhile in Canada, all of Ontario's offshore power projects have been put on hold.

### Political, Economic Challenges

But backers in Ohio say they've looked at the realities, and they're still optimistic. Lorry Wagner, head of the non-profit Lake Erie Energy Development Corp., says he understands the challenges.

"We know we have to get [the cost] down to approximately half of what it is today and that's an immense challenge, we don't have any illusions about how difficult this is going to be," Wagner says.

The world's first freshwater wind farm went online last year in Lake Vanern, Sweden. Engineers in Cleveland are hoping to benefit from lessons learned there. And they say the project's engineering problems are actually the easiest to solve — it's the political and economic challenges that are likely to remain the thorniest.

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