

US Offshore Wind CONFEX

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Icebreaker Wind Farm Moves Closer to Reality

The Lake Erie project has reached an agreement with Ohio Power Siting Board (OPSB) on May 15th regarding the construction and operation of its Icebreaker Wind energy project.

This innovative project is to place six turbines in the waters of one of the Great Lakes, eight miles from Cleveland, Ohio's lakeside. This will be the first US freshwater offshore wind project, generating 20.7 MW, implemented in a location with good grid connections and a need for more energy as older, polluting power plants are retired. The Great Lakes hold enough energy potential to power the entire country. The winds of Lake Erie alone could meet over 10% of the United States' electricity needs by 2030.

The project is called "Icebreaker" because of the significant amount of ice that forms in winter on Lake Erie. This means that the turbines' design and siting will have to take into account this parameter, which is different to North Sea wind farms which have little icing to contend with.

The Icebreaker Wind Farm is a partnership between the non-profit [Lake Erie Energy Development Corporation \(LEEDCo\)](#) and Fred Olsen Renewables. The project has already earned approvals from thirteen local, state and federal regulatory agencies on a host of environmental and other requirements.

“While there is more work to be done before we can formally proceed, this is a significant milestone for us,” said LEEDCo President Dr. Lorry Wagner. “This new agreement details the extensive regulations that will govern this project and confirms the Ohio Department of Natural Resources important, ongoing oversight role. We appreciate the agency’s mission to protect wildlife and we look forward to winning approval of the final permit we need in order to construct Icebreaker and thus position Cleveland to becoming a leader in the booming clean energy economy.”

Project Already Has Relevant Approvals

The project still needs final approval from the [OPSB](#), and if that happens on schedule, construction should start in 2021. The project has previously secured approvals from agencies including the U.S. Army Corps of Engineers, the U.S. Coast Guard, the U.S. Department of Energy, the Ohio Environmental Protection Agency, the Federal Aviation Administration and the U.S. Department of State. There is local support from public officials, environmental groups such as the Sierra Club, the Environmental Defense Fund and the Ohio Environmental Council.

There is some minor local opposition to the wind farm. This is supported by a coal-mining company, Murray Energy Corporation, from South Ohio. Given that Ohio has the largest wind energy manufacturing base of any state in the U.S. according to the American Wind Energy Association, it would seem to be an excellent location for both the project and the nascent US offshore wind sector.

“Icebreaker is a gateway to helping Ohio grow the industry,” Wagner said. “This project allows us to compete with the East Coast in the multi-billion dollar offshore wind industry. The clean energy jobs related to Icebreaker Wind will be a boon for our region and the state.”

Miranda Leppla, Lead Energy Counsel of the Ohio Environmental Council (OEC) said extensive scrutiny of the project’s environmental impact led her organization to support the project. “The OEC is pleased to join in the revised agreement today which also includes the Ohio Power Siting

Board Staff,” she said. “The agreement contains important protective and precautionary measures for wildlife and Lake Erie, and allows this innovative project to move forward in the siting process.”

In addition to the data collection required by various regulatory agencies, monitoring and collaboration agreements have been signed with the Cleveland Water Department as well as the Cooperative Institute for Great Lakes Research, a 23-partner university and research consortium dedicated to protecting the waters of the Great Lakes.

The Project’s Technology

The turbines are to be 6 MHI Vestas V126 3.45MW turbines, totalling 20.7 MW of capacity. The export cable will run about 8 miles to a substation on Cleveland’s dockside, built and run by Cleveland Public Power, who will be purchasing some of the farms generated electricity.

Innovative Foundations

Universal Foundation will provide a “mono bucket” (MB) foundation to the project. The innovative MB combines the benefits of a gravity base, a monopile, and a suction bucket. This Suction Installed Caisson is comprised of three sections: a steel bucket embedded in the lake bed, a lid/transition section between the bucket and shaft, and a shaft that resembles a standard offshore wind monopile from the mudline to the turbine interface platform above the water level. In essence, it is an “all-in-one” steel foundation system designed to support offshore wind turbines.

This state-of-the-art structure has been used for decades in the offshore oil and gas industry, and deployed in the offshore wind industry (since 2002) at numerous locations in the North Sea. It has proven to be a significant material innovation over earlier foundation alternatives, simplifying installation, eliminating pile driving, reducing materials requirements, and minimizing environmental impacts. The benefits of using the MB are significant and include:

- reduced installation time and costs
- lower noise during installation (eliminates pile-driving)
- reduced environmental impacts (avoids drilling and dredging)

The Role of the Supply Chain

LEEDCo predicts that the industry and supply chain in Northeast Ohio will create 8,000 new decently-paying jobs and pump nearly \$14 Billion into the local economy by 2030, with the potential for creating tens of thousands of jobs as the industry grows there. This region has a strong legacy of heavy manufacturing, fabrication, engineering, and maritime activities, all of which are needed to build an entire offshore wind industry manufacturing and supply chain.

Icebreaker Wind alone will create over 500 jobs in Northeast Ohio and is projected to have a \$168 million local economic impact over the project’s 25 year life. Local labour and manufacturing will be used wherever possible.

Supply Chain Opportunities in Icebreaker Wind

Link to Ohio Supply Chain Presentation: <http://www.leedco.org/files/2016.12.08-Supply-Chain-Open-House-R0.pptx>

Register your interest in Supply Chain Opportunities for this project [here](#).

About LEEDCo

[LEEDCo](#) is a non-profit regional economic development public-private partnership whose members

include the City of Cleveland, Cleveland Foundation, Port of Cleveland and Cuyahoga, Lake, Ashtabula and Lorain counties and Erie County in Pennsylvania. Icebreaker Windpower Inc. is owned by [Fred.Olsen Renewables USA](#).

By [Julian Jackson](#)

All this and more will be discuss at the 4th Annual US Offshore Wind Conference, June 10-11, 2019 in Boston. **Find out more [here](#).**

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