

Icebreaker Wind FAQs

Q. What is Icebreaker Windpower?

A. The Lake Erie Energy Development Corporation, or LEEDCo, is a non-profit corporation formed in 2009 that plans to construct the **first freshwater offshore wind project in North America**. Icebreaker Wind, located 8 miles off the coast of Cleveland in Lake Erie, is a small 6-turbine 21-megawatt demonstration wind farm that will produce enough electricity to power approximately 7,000 homes. In May of 2016, LEEDCo won a \$40 million grant from the U.S. Department of Energy for permitting and construction of this project. LEEDCo will be using the Mono Bucket foundation to support the turbines, an innovative technology that is environmentally friendly and doesn't require any kind of pile driving. LEEDCo is partnering with Fred. Olsen Renewables (FOR) who created FORUSA in Cleveland, Ohio as its U.S. headquarters. FORUSA has been **investing in the northern Ohio** to advance the development of Icebreaker for the past several years.

Q. Why wind power?

A. Clean air, new jobs, and a boost for the economy. Wind power is a clean, abundant, and renewable source and Icebreaker will reduce the dirty air pollution linked to asthma attacks, heart attacks, and premature deaths. Icebreaker alone will create approximately **500 jobs** in Ohio and is projected to have a **\$253 million local economic impact** over its 25 year life - \$85.5 million during construction and \$167.5 million during operations ([Reference 7: "Socioeconomic Report", sheet 19 of the pdf document](#)). LEEDCo is committed to using local labor and manufacturing wherever possible. These benefits are very similar to those that Block Island Wind Farm (off of Rhode Island), the first offshore wind farm in the U.S., created. The offshore wind industry is one of the fastest growing energy industries in the world and Ohio will benefit from the manufacturing, engineering, and operations and maintenance jobs in this new industry.

Q. Why here, in Lake Erie?

A. Ohio generates over 50% of its electricity from fossil fuels and has some of the nation's dirtiest air, with Northeast Ohio ranked as one of the top ten dirtiest regions in the country. Offshore wind provides a local source of clean energy that will have immediate **health benefits to the regional population**. Wind over Lake Erie blows stronger and more consistently than over land. This demonstration project site was selected through an exhaustive analysis throughout the regulatory process that excluded numerous areas due to potential conflicts with existing uses of the Lake.

Q. How will the wind turbines impact birds and bats?

A. First of all, the site of Icebreaker has been selected to minimize impact on birds and bats. The U.S. Dept. of Energy, in cooperation with the U.S. Army Corps of Engineers and the U.S. Coast Guard, after a two-year Environmental Assessment, determined that **Icebreaker would have no significant impact on birds and bats** ([Reference 19: "Environmental Assessment \[EA-2045-LEEDCo-Final EA-2018\]", Section 3.4.2.3,](#)

[pages 3-52 thru 3-56](#)). The U.S. Fish and Wildlife Service said Icebreaker poses “limited direct risk” to migratory birds and bats ([Reference 17: “Supplement No. 4 to Application”, Attachment 6 – sheet 218 of the pdf document](#)). They also found that the project is unlikely to have any adverse impact on threatened or endangered species ([Reference 19: “Appendix M-2, Environmental Assessment”, page 11](#)). The project is supported by the Sierra Club, the Environmental Defense Fund, and the Ohio Environmental Council.

It is also important to place the threat posed to birds and bats by wind turbines in context with other threats that these species face. The National Audubon Society completed a continental analysis of how North America’s birds may respond to future climate change. They found that more than half of North American bird species were classified as climate endangered or threatened in this century across a range of future climate projections ([Reference 23: “Audubon’s Birds and Climate Change Report”, Conclusions, page 6](#)). **Audubon strongly supports properly sited wind power** as a renewable energy source that helps reduce the threats posed to birds and people by climate change ([Reference 22: “Audubon’s Position on Wind Power”](#)).

There are many direct sources of bird mortality. According to the “The State of the Birds 2014” report, cats are estimated to be responsible for 2.4 billion bird mortalities; buildings are responsible for 599 million; and wind turbines are responsible for only 234,000. To put these numbers in perspective, for every one bird mortality caused by a wind turbine, cats are responsible for 10,000 mortalities. ([Reference 18: “The State of the Birds 2014, Top Sources of Bird Mortality”](#))

For a thorough assessment of risks to birds and bats, refer to Reference 17, “Supplement No. 4 to Application”, Attachment 2 - Summary of November 2016 Avian and Bat Risk Assessment (sheets 10 thru 24 of the pdf document).

Q. The turbines have oil and other industrial fluids. Will these oils and fluids leak into the Lake and contaminate the water?

A. Offshore turbines (different from land based turbines) are designed to prevent any fluids from being discharged into the water with **three levels of containment to minimize risk of any fluid discharges**. The primary systems are sealed with multiple sensors that monitor fluid performance and containment. The secondary system is in the nacelle where fluid containment reservoirs are designed to capture any leaks from a primary system failure. If both primary and secondary containment fails, the bottom of the tower has a reservoir to contain any fluids originating from the nacelle ([Reference 19: “Environmental Assessment \[EA-2045-LEEDCo-Final EA-2018\]”, Section 2.2.2, page 2-9](#)). **Most importantly, all of the fluids used in the turbine are biodegradable** ([Reference 19: “Environmental Assessment \[EA-2045-LEEDCo-Final EA-2018\]”, Section 3.3.2.1, page 3-25](#)). It's worth noting that similar to any vessel on the lakes, US Coast Guard requires a spill response protocol to be in place in the event of any discharge of any kind. The US Army Corps of Engineers, the US Coast Guard, and the US Department of Energy found that impacts to water quality would be negligible. Furthermore, the Ohio Environmental Protection Agency determined that the project will comply with the Federal Water Pollution Act.

[Refer to Reference 19, “Environmental Assessment \[EA-2045-LEEDCo-Final EA-2018\]”, Section 3.3, pages 3-16 thru 3-27](#), for a comprehensive assessment of impacts to water quality.

Q. Why didn’t LEEDCo prepare an Environmental Impact Statement (EIS) as opposed to an Environmental Assessment (EA)?

A. EA and EIS are terms associated with the federal law known as the National Environmental Policy Act (NEPA). Every agency in the executive branch of the Federal Government has a responsibility to implement NEPA. ([Refer to Reference 21, “The Citizen’s Guide to the National Environmental Policy Act by Council on Environmental Quality, Executive Office of the President”, page 2.](#)) In the case of Icebreaker, the U.S. Department of Energy, the U.S. Army Corps of Engineers, and the U.S. Coast Guard all cooperated to complete the NEPA process. **These three agencies made the decision to perform an EA** for Icebreaker and then went to prepare the EA, with the assistance of qualified environmental consultants.

An EIS is appropriate and required if the project will significantly affect the quality of the human environment. The purpose of an EA is to determine the significance of the environmental effects and to provide sufficient evidence and analysis for determining whether to prepare an EIS. The EA process concludes with either a Finding of No Significant Impact (FONSI) or a determination to proceed to preparation of an EIS. In the case of Icebreaker, the three agencies that completed the EA (USDOE, USACE, and USCG) concluded with a Finding of No Significant Impact and thus there is no reason to prepare an EIS ([Reference 20: “Finding of No Significant Impact”](#)). **An EIS isn’t warranted** because a determination was made that the project would not significantly affect the quality of the human environment ([Reference 21: “The Citizen’s Guide to the National Environmental Policy Act by Council on Environmental Quality, Executive Office of the President”, page 8](#)).

Q. Will Icebreaker lead to thousands of wind turbines in Lake Erie?

A. There are no plans in place at this time for any additional projects or turbines. However, LEEDCo does have a vision that potentially more clean wind energy on Lake Erie would be developed and deliver on the economic and environment benefits that offshore wind energy would provide, based on the successful completion and operation of Icebreaker ([Reference 3: “OPSB Application”, Section 4906-4-02 \(B\) \(1\), page 3](#)). It’s important to keep in mind that in order to secure approval for Icebreaker, eight (8) major permits are needed and sign-off from over 20 federal, state, and local agencies are required to obtain those eight permits. **Icebreaker is not permitted for, and the permits do not in any way allow for more turbines to be built, beyond the six (6) turbines** ([Reference 3: “OPSB Application”, Section 4906-4-02 \(A\), page 2](#), and [Reference 19, “Environmental Assessment \[EA-2045-LEEDCo-Final EA-2018\]”, Section 2.2, pages 2-1 thru 2-4](#)). Any proposal to construct additional wind turbines in Lake Erie would have to go through the same rigorous scrutiny and approval process, and meet the same requirements. Stakeholders will have ample opportunity to voice their views on any potential future project, just as they have on this project.

Q. What are the economic benefits of the Icebreaker project?

A. This six turbine pilot project will create over **500 jobs and pump \$253 million** into the region’s economy - ([Reference 7: “Socioeconomic Report”, sheet 19 of the pdf document](#)); very similar impacts to the first U.S. project - the Block Island Wind Farm. Ohio has significant manufacturing capabilities in the

wind turbine supply chain. Northern Ohio has an opportunity to grow this sector substantially, and become a hub for the offshore wind energy supply chain. In fact, many of the 18 East Coast projects currently under development are looking to the Midwest supply chain for competitive solutions. One of our objectives is to help Ohio companies participate in that supply chain.

Q. What happens to the turbines at the end of their useful life? Will they ultimately become looming, abandoned, non-functioning edifices in the lake?

A. Conditions of the lease with the State of Ohio ([Reference 4: "Submerged Lands Lease", Section 21, pages 12-13](#)) and the Ohio Power Siting Board ([Reference 2: "Revised Joint Stipulation And Recommendation", Condition 30, pages 10-11](#)) both require that before construction can begin, **LEEDCo must post and maintain a financial guarantee** acceptable to the State of Ohio (typically a performance bond) in an amount equal to the decommissioning costs. After the guarantee is initially provided, LEEDCo must maintain the financial guarantee throughout the project life and must adjust the amount of the assurance to offset any increase or decrease in the decommissioning costs over time. The **State of Ohio may use those funds to cover the removal and decommissioning costs** under certain conditions including a) the end of the lease term, b) if the project is abandoned by LEEDCo, c) if LEEDCo becomes insolvent, or d) if for any reason the project ceases producing electricity for an extended period of time.

Q. Does wind power cost more than other energy sources?

A. Levelized **cost of energy from onshore wind is now lower than gas, coal, and nuclear generation**, with costs having declined by 69% in the past 10 years ([Reference 24: "Lazard's Levelized Cost of Energy Analysis Version 12.0", page 7](#)). The cost of offshore wind in Europe, (now a mature industry) is now at similar levels. As a startup industry in the U.S., offshore wind is still more expensive than onshore wind, but **costs are already decreasing**; and the first large scale project in Massachusetts is **already down to \$65 per megawatt hour (6 ½ cents per kilowatt hour)** ([Reference 25: "Vineyard Wind secures levelised cost of \\$65/MWh" article by Windpower Offshore](#)). As the industry develops, the costs will follow the same cost declines seen in the industry in Europe. Once Icebreaker is constructed, the **fuel cost is zero**, and unlike coal, nuclear, and natural gas, the electricity price will not fluctuate dramatically over time.

Q. Is LEEDCo going to be acquired by a foreign-owned company?

A. No, but a Norway-based company, Fred. Olsen Renewables (FOR), has been involved in this project for several years, as has been previously disclosed. Fred. Olsen created FORUSA in Cleveland, Ohio as its U.S. headquarters. FORUSA has been **investing money in Ohio** to fund development activities happening here in Ohio by many Ohio companies and individuals. Attracting private sector companies and investors to Ohio is one of LEEDCo's primary objectives. Eventually, the project assets will be transferred to FORUSA and FORUSA will provide the equity investment required to complete construction of and operate Icebreaker.

For more information contact:
Dave Karpinski, VP of Operations
(216) 533-3725
dkarpinski@leedco.org

Icebreaker Wind FAQs LIST OF REFERENCES

#	DOCUMENT	LINK
1	Link to the Ohio Power Siting Board (OPSB) Case Record for Icebreaker Windpower, Inc. (Case Record: 16-1871-EL-BGN)	http://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=16-1871
2	Revised Joint Stipulation And Recommendation <i>filed 5/15/19 [Defines the conditions, agreed to by the OPSB Staff and Icebreaker Windpower, under which Icebreaker Wind must comply to construct and operate the wind farm]</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=ee43749a-063d-4232-9799-40e9b554701f
3	OPSB Application <i>Application - Part 1 of 13, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=1572268d-53d2-4baa-8f52-91f4edc4eb63
4	Exhibit A to OPSB Application: Submerged Lands Lease <i>Application - Part 3 of 13, which includes Exhibits A, B, C1, and C2, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=d14c8424-946d-4fad-895d-dc806d4eaef0
5	Exhibit I to OPSB Application: Aquatic Geotechnical and Geophysical Surveys <i>Application - Part 6 of 13, which includes Exhibits H, I, J, K, and L, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=ff91663d-e202-44d5-bc93-817f23d33856
6	Exhibit J to OPSB Application: Avian and Bat Assessment and Monitoring <i>Application - Part 6 of 13, which includes Exhibits H, I, J, K, and L, filed 2/1/17</i>	

#	DOCUMENT	LINK
7	Exhibit M to OPSB Application: Socioeconomic Report <i>Application - Part 7 of 13, which includes Exhibits M, N, and O, filed 2/1/17</i>	
8	Exhibit N to OPSB Application: Complaint Resolution Plan <i>Application - Part 7 of 13, which includes Exhibits M, N, and O, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=ce7dad68-22fc-4708-833e-b074472627c3
9	Exhibit O to OPSB Application: LimnoTech Aquatics Monitoring and Assessment <i>Application - Part 7 of 13, which includes Exhibits M, N, and O, filed 2/1/17</i>	
10	Exhibit Q to OPSB Application: LimnoTech Boat Survey <i>Application - Part 8 of 13, which includes Exhibits P, Q, R, and S, filed 2/1/17</i>	
11	Exhibit R to OPSB Application: Navigational Risk Assessment <i>Application - Part 8 of 13, which includes Exhibits P, Q, R, and S, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=2e7a11a9-5c82-4397-bf08-c11da5808d9d
12	Exhibit Y to OPSB Application: Inadvertent Return Contingency Plan <i>Application - Part 10 of 13, which includes Exhibits X, Y, and Z, filed 2/1/17</i>	
13	Exhibit Z to OPSB Application: LimnoTech EMF Memorandum <i>Application - Part 10 of 13, which includes Exhibits X, Y, and Z, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=ab0610cf-952f-4788-9dbf-14ef6ff79e60
14	Exhibit BB to OPSB Application: Section 106 Geophysical Survey Review for Icebreaker Wind <i>Application - Part 12 of 13, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=227957d6-0010-42f3-8e76-d2d3b5451ec2

#	DOCUMENT	LINK
15	Exhibit CC to OPSB Application: Visual Impact Assessment <i>Application - Part 13 of 13, filed 2/1/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=1003d4da-21a4-4459-a8a9-b18b7ab963d9
16	Supplement No. 2 to Application: MOUs with Ohio Department of Natural Resources <i>filed 7/20/17</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=57f07c2e-5388-4861-a688-9de295762f7b
17	Supplement No. 4 to Application: Summary of Risk Assessments, US Fish and Wildlife Service Letter, and other documents <i>filed 3/22/18</i>	http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=3e087eb4-92e2-4c01-b52e-1d1670ab1ee7
18	The State of the Birds 2014, Top Sources of Bird Mortality	http://www.stateofthebirds.org/2014/abundance/anthropogenic
19	Environmental Assessment by US Department of Energy, US Army Corps of Engineers, and US Coast Guard	https://www.energy.gov/nepa/downloads/ea-2045-final-environmental-assessment
20	Finding of No Significant Impact by US Department of Energy, US Army Corps of Engineers, and US Coast Guard	https://www.energy.gov/nepa/downloads/ea-2045-finding-no-significant-impact
21	The Citizen's Guide to the National Environmental Policy Act by Council on Environmental Quality, Executive Office of the President	https://ceq.doe.gov/docs/get-involved/Citizens_Guide_Dec07.pdf
22	Audubon's Position on Wind Power	https://www.audubon.org/conservation/audubons-position-wind-power
23	Audubon's Birds and Climate Change Report	http://climate.audubon.org/sites/default/files/NAS_EXTBIRD_V1.3_9.2.15%20lb.pdf
24	Lazard's Levelized Cost of Energy Analysis Version 12.0	https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf
25	Vineyard Wind secures levelised cost of \$65/MWh, by Windpower Offshore	https://www.windpoweroffshore.com/article/1489414/vineyard-wind-secures-levelised-cost-65-mwh