



Lakewood Park Woman's Club Pavilion

**U.S. Department of Energy
U.S. Army Corps of Engineers
U.S. Coast Guard**

PUBLIC MEETING

September 28, 2016

4:00 pm to 7:00 pm

**SCOPING FOR THE
DRAFT ENVIRONMENTAL ASSESSMENT
FOR
PROJECT ICEBREAKER**



Energy Efficiency &
Renewable Energy



**US Army Corps
of Engineers®**
Buffalo District
BUILDING STRONG®

National Environmental Policy Act (NEPA)

What Is the NEPA Process?

NEPA is the federal law that requires federal agencies to evaluate potential environmental impacts of proposed actions and to inform and involve the public in the decision-making process.

- The Federal agencies will prepare a Draft Environmental Assessment (Draft EA) to evaluate direct, indirect, and cumulative environmental impacts of the proposed project.
- Prior to preparation of the Draft EA, we invite the public; federal, state, and local agencies; and American Indian Tribes to identify issues that should be considered in the Draft EA.
- Your input on the issues that should be evaluated in the Draft EA is welcome during the public comment period, which ends on **October 21, 2016.**



National Environmental Policy Act (NEPA)

How Can You Be Involved?



- **Please ask questions.**

DOE, USACE, USCG, and LEEDCo representatives are here to answer questions and accept your written comments on the issues and resources that should be considered in the Draft EA.

- **Stay involved.**

Provide written comments in person at this meeting, or by mail or email. If you would like to be notified of upcoming meetings, provide your name and address on a comment card.

- **Check DOE website for updates.**

Once completed, the Draft EA will be available for your review at:

www.energy.gov/node/2001046

Steps in the DOE NEPA Process



- ✓ Public Scoping Period (until 10/21/16)
- ✓ Public Scoping Meeting
- Conduct Impact Analyses
- Conduct Interagency Consultations
- Publish Draft EA
- Public Comment Period for Draft EA
- Public Meeting for Draft EA
- Resolution of Public Comments
- Publish Final EA
- Issue Final NEPA Decision Document

Issues and Resources to be Considered in the Draft Environmental Assessment

The following issues and resources will be considered for the lake water surface, water column, and lake bottom as well as upland features related to the onshore electrical interconnection:

- Geology, Sediments and Soils (including known salt mines)
- Water Resources (including water quality and water supply)
- Biological Resources (lake and terrestrial flora and fauna including avian, bat, fisheries, and protected species)
- Wetlands
- Shore Erosion and Accretion
- Flood and Flood Plain Hazards
- Health and Safety (including waste management and hazardous materials)
- Air Quality and Climate Change
- Lake Use (including commercial and recreational fisheries, commercial shipping, and recreational boating)
- Traffic and Transportation (including navigation risk management and ice floes)
- Land Use and Infrastructure
- Cultural Resources
- Aesthetics and Visual Resources
- Noise
- Economics and Socioeconomics (including property ownership, energy needs, mineral needs, and food and fiber production)
- Environmental Justice

Project Icebreaker

Project Icebreaker would be a demonstration-scale offshore wind facility located approximately 8 miles off the shore of Cleveland, Ohio

- One of the first offshore wind projects in the United States.
- Six 3.45 MW wind turbines.
- Buried and shielded submarine cables (inter-array cables) interconnecting the turbines (approximately 2.8 miles).
- Buried and shielded submarine cable (export cable) connecting the turbines to the Project Substation in Cleveland (approximately 9 miles).
- Generation capacity of approximately 21 MW of renewable electricity (enough to power approximately 7,000 homes).

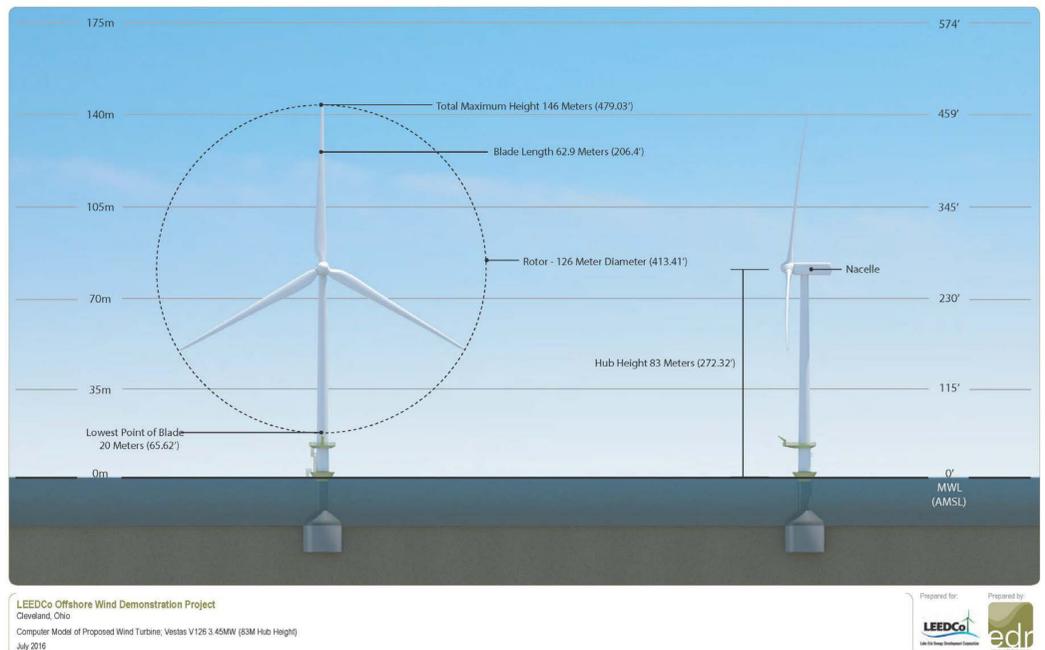


Proposed Project Icebreaker Layout

Turbines and Foundations

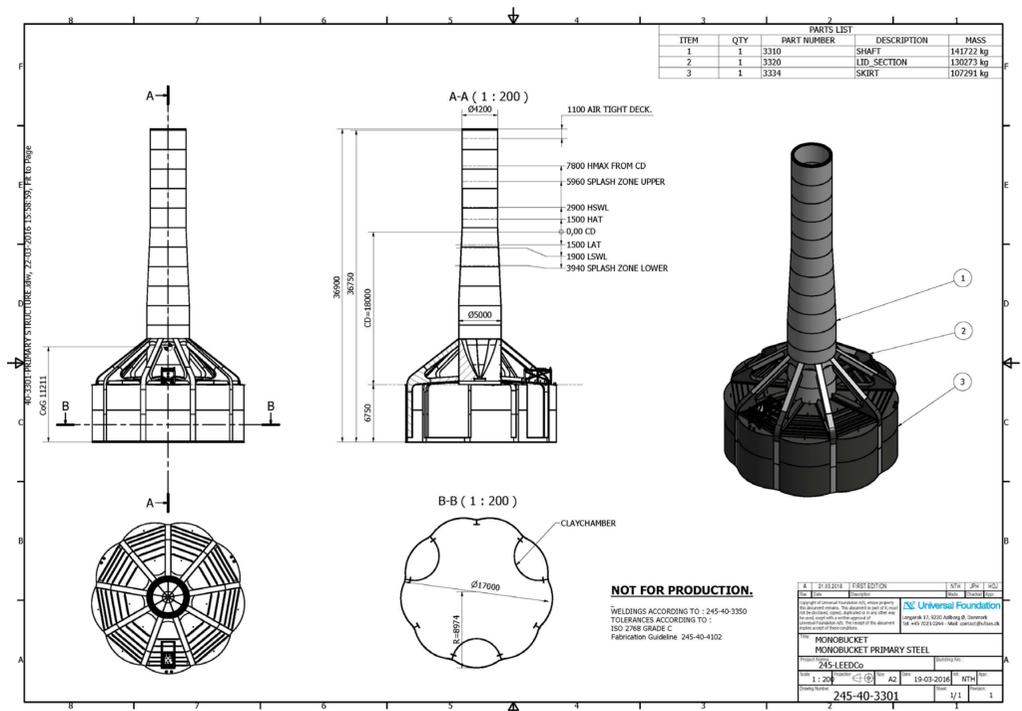
Turbines (Tower, Nacelle and Rotors):

- Approximate Blade Length: 206 feet
- Approximate Turbine Hub Height: 272 feet
- Maximum Blade Height: 479 feet
- Approximate Tower Height: 233 feet above water line
- Tower Material: Multiple sections of conical steel structures
- Tower, nacelle, and rotors would be painted a light gray



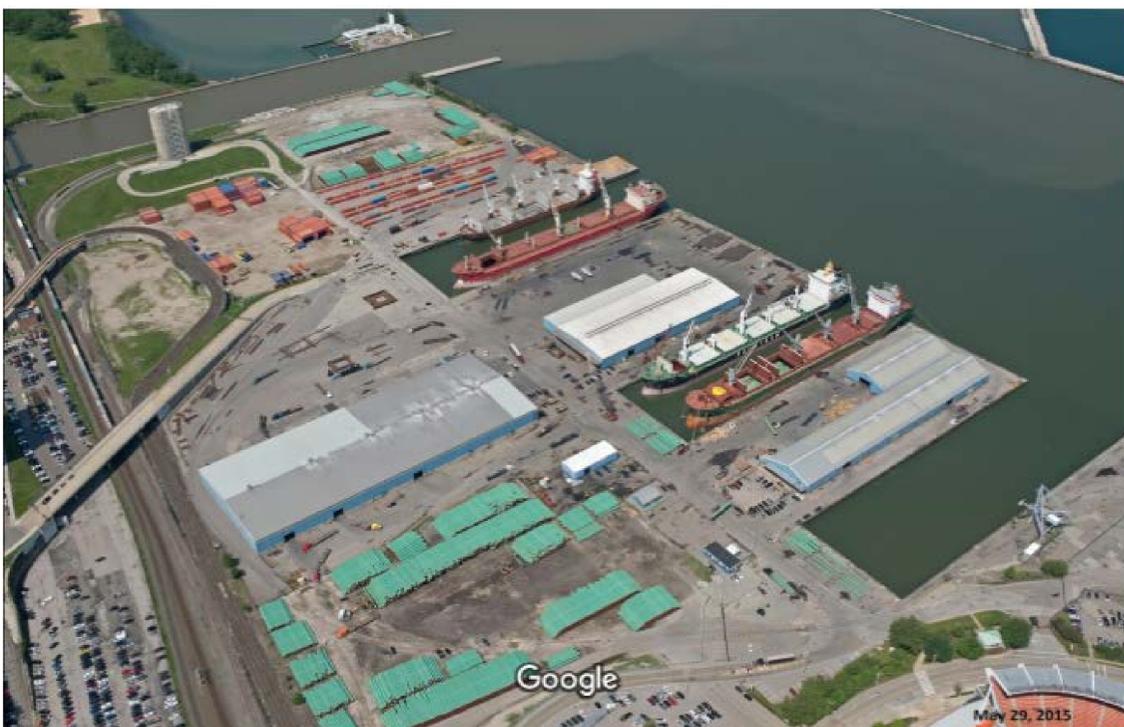
Mono-Bucket Foundation:

- Suction Installed Caisson
- Foundation Material: Steel
- Approximate Bucket Diameter: 56 feet
- Approximate Shaft Diameter: 14 feet
- Approximate Overall Height: 121 feet
- Painted yellow above the water line up to the attachment point of the tower



Turbine and Foundation Installation

- Proposed quayside staging area at Port of Cleveland.
- Proposed construction period: Spring 2018 to Fall 2018.
- A crane would be utilized to lower the mono bucket (MB) foundation to approximately 1 meter above the lakebed. The MB foundation would be installed by applying suction causing the foundation to sink into the lakebed. This process would be monitored by divers and/or remote observation technology. No lakebed preparation or pile driving would be required.
- Using a crane mounted on a barge, tower sections would be installed at the first turbine site followed by assembly work inside the tower. Then the nacelle and blades would be installed. Following full installation of the first turbine site, installation of each of the following turbines would occur in the same sequence.



Construction sequence:

- Mobilize floating equipment
- Transport MB foundations from port to site
- Install MB foundations
- Install export cable
- Install inter-array cables
- Transport and install towers
- Transport/install nacelles and blades
- Commission turbines



Submarine Cable

- Inter-array and export cables would be rated at 34.5 kilovolt.
- Cables would be insulated and shielded with an approximate outer diameter of 4.5 inches.
- Cables would be installed in the lake bottom using either a cable plow or jetting tool. This burial technique would cut a trench, lay the cable, and bury the cable in a single operation.
- Cables would be installed under the breakwater using horizontal directional drilling. The cable would be pulled through the drill bore to the Cleveland Public Power Substation.



Typical Cable



Typical Cable Preparation for Installation

Project Icebreaker and the U.S. Army Corps of Engineers (Corps) Permitting Process

- The Corps regulatory responsibility for the proposed off-shore wind energy demonstration project fall under the following authorities:
 - Section 10 of the *Rivers and Harbors Act*
 - Section 404 of the *Clean Water Act*
- Off-shore wind energy projects will often involve structures, fill material, and utility lines that will require Corps permits under one or both of the above authorities.
- In order to provide strong protection of the Nation's aquatic resources, the Corps must consider an array of public interest factors (e.g. fish & wildlife, navigation, etc.) and balance favorable impacts against detrimental ones.
- The Corps is working as a cooperative agency with the Department of Energy and the U.S. Coast Guard in the review and evaluation of the proposal. The Corps will also continue to work with interested and involved local, state and federal agencies throughout the permit process.
- Public input is an important part of the evaluation process and the Corps will solicit further public input following submission of the applicant's permit application.



VISIBILITY SUBJECT TO CHANGE BASED ON FINAL TURBINE LOCATIONS AND SPECIFICATIONS.

Project Icebreaker

Visual Simulation of Proposed Turbines From Lakewood Park, Lakewood

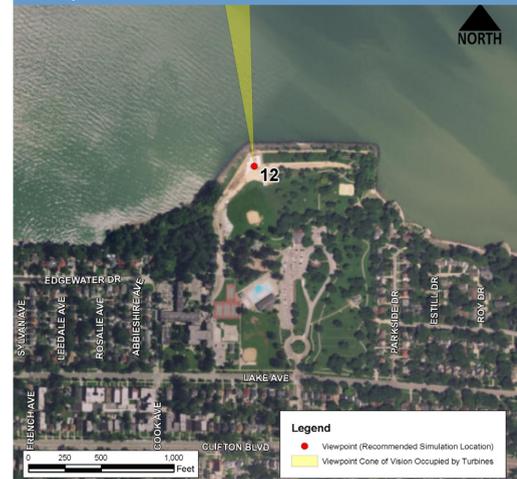
Cuyahoga County, Ohio

September 2016

Viewpoint and Wind Farm Technical Data

Camera Type	Nikon D810
Field of View	39.5°
Viewer Location	Lat/Long: 41°29'49.69" N, 81°47'52.56" W
Photograph View Direction	North
Distance to Nearest Visible Turbine	7.2 Miles
Time of Photograph	15:58
Date Photograph Taken	August 3, 2016
Turbine Type	Vestas 126
Maximum Blade Tip Height from Ground	479 Feet (146 Meters)
Turbine Hub Height	272.3 Feet (83 Meters)
Turbine Rotor Diameter	413.3 Feet (126 Meters)
Number of Turbines	6 Total

Viewpoint Location and View Direction



Original Photograph



Prepared For:

Prepared By:





VISIBILITY SUBJECT TO CHANGE BASED ON FINAL TURBINE LOCATIONS AND SPECIFICATIONS.

Project Icebreaker

Visual Simulation of Proposed Turbines From Cleveland Mall, Cleveland

Cuyahoga County, Ohio

September 2016

Viewpoint and Wind Farm Technical Data

Camera Type	Nikon D810
Field of View	39.5°
Viewer Location	Lat/Long: 41° 30' 18.03" N, 81° 41' 43.64" W
Photograph View Direction	North Northwest
Distance to Nearest Visible Turbine	8.6 Miles
Time of Photograph	18:43
Date Photograph Taken	August 3, 2016
Turbine Type	Vestas 126
Maximum Blade Tip Height from Ground	479 Feet (146 Meters)
Turbine Hub Height	272.3 Feet (83 Meters)
Turbine Rotor Diameter	413.3 Feet (126 Meters)
Number of Turbines	6 Total

Viewpoint Location and View Direction



Original Photograph



Prepared For:

Prepared By:

