The U.S. Department of Energy (DOE) has made the following modification (001) to this presentation:

• On slide 24, Lobster Cove Road has been revised to Black Head Road. Note: this change is noted in red text on the slide.
WELCOME!

U.S. Department of Energy
National Environmental Policy Act (NEPA)

Public Scoping Meeting
for the New England Aqua Ventus I Project
# DOE/EA-2049 Public Scoping Informational Meeting

## DOE Representatives

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Alana Duerr, Ph.D.</td>
<td>Offshore Wind Lead</td>
</tr>
<tr>
<td>Lori Gray</td>
<td>NEPA Division Director</td>
</tr>
<tr>
<td>Diana Heyder</td>
<td>NEPA Specialist</td>
</tr>
<tr>
<td>Nicole Serio</td>
<td>Environmental Specialist</td>
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## University of Maine Project Team Representatives

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Nate Johnson</td>
<td>ORPC Outreach Coordinator</td>
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<tr>
<td>Jake Ward</td>
<td>UMaine Vice President for Innovation and Economic Development</td>
</tr>
<tr>
<td>Dick Hall</td>
<td>SGC Engineering, Senior Engineer</td>
</tr>
<tr>
<td>Joshua Plourde</td>
<td>Manager of Communications, IT at UMaine Advanced Structures and Composites Center</td>
</tr>
</tbody>
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## Other Federal and State Representatives

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<tr>
<th>Name</th>
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<tr>
<td>Jay Clemont</td>
<td>U.S. Army Corps of Engineers Senior Project Manager</td>
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<tr>
<td>Robert Marvinney</td>
<td>Maine Geological Survey/Department of Agriculture, Conservation and Forestry State Geologist</td>
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</table>
Meeting Structure and Online Protocols

Short Presentation:
- DOE Offshore Wind Demonstration Program Overview
- DOE National Environmental Policy Act (NEPA) Process
- Description of Project Activities

Question and Answer Period for Remote Participants
- “Chat” questions or comments will not be considered in the draft EA.
- Written comments must be submitted on or before March 22 via e-mail at AquaVentus1EA@ee.doe.gov or via mail to DOE.

Open House
The Wind Energy Program aims to accelerate widespread U.S. deployment of clean, affordable, reliable, and domestic wind power to promote national security, economic growth, and environmental quality.

Programmatic Focus

- Establish a competitive U.S. offshore wind industry through offshore system development and demonstration
- Eliminate and reduce market barriers through accelerated siting and deployment strategies
- Optimize wind plant performance to achieve significant cost of energy reductions through R&D, advanced component development, reliability improvements and resource characterization
- Optimize grid integration and transmission for wind systems through integration studies and operational forecasting tool development

Reduce Costs

- Reduce the unsubsidized market LCOE for offshore wind energy systems from a reference of $.20/kWh in 2010 to $.10/kWh by 2030
Significant Offshore Wind Resource Nationwide

**2,058 GW** of offshore wind resource capacity technically accessible in U.S. waters using existing technology

**TWICE** the current electricity generating capacity of the United States
Offshore Wind Opportunities and Challenges

• **Offshore Wind Represents a Significant Opportunity for the Nation**
  – Technically accessible resource with ample space available for lease *(2,058 GW)*
  – Electricity demand growth and power plant retirements create a significant market opportunity for new generation
  – Potential to achieve competitive cost

• **Key Challenges Remain**
  – Reducing technology costs and risks
  – Ensuring efficient, effective regulatory construct
  – Supporting effective stewardship of the environment and public space
  – Improving understanding of offshore wind’s benefits
Historic Investments in Offshore Wind

Key Milestones

2009
ARRA Funding of Test Facilities

2011
DeepCWind Consortium

2015
Deployment of UMaine VolturnUS

2016
DOE Lidar Buoys

National Offshore Wind Strategy (2016)

Technology and Market Barrier Funding Opportunities

Demonstration Projects Initiated

Wind Vision Report

2011 National OSW Strategy

National Offshore Wind Strategy
Funding Opportunity Announcement (FOA) Goals: Technology

- Install innovative offshore wind systems in U.S. waters, rapidly and responsibly
- Drive down the cost of offshore wind with demonstration project innovations

Demonstrating Innovations

- Advanced Materials
- Floating Platforms
- Large Direct Drive Turbines
- Improved Manufacturing
- Leading-Edge Foundations

FOA Goals: Permitting and Siting

- Evaluating current siting and approval processes and identifying opportunities for improvement
- Advance the regulatory frameworks vital to implementing offshore wind in the U.S.
- Address public concerns associated with the concept of offshore wind
Current Activities

**Offshore Wind Demonstration Projects**

DOE seeks to demonstrate offshore wind innovations at multi-megawatt scale to reduce the cost of energy and address regional challenges and opportunities, expediting development of the US offshore wind industry ($168M)

The two projects will demonstrate unique technology innovations that have significant potential to lower the cost of energy.

These projects will deploy foundation technology that has never been deployed on a MW scale:

- **University of Maine**
  - Floating concrete semisubmersible
- **LEEDCo**
  - Monobucket (monopile with suction bucket) to resist surface ice conditions of the Great Lakes

Potential for Collaboration/Data Sharing

- Highly instrumented platforms
- Project cost data
## DOE Funding

<table>
<thead>
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<th>Funding Period</th>
<th>DOE Funding Amount</th>
<th>Cost Share</th>
<th>Funding Objectives</th>
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</table>
| Budget Period 2  | $3M/3.7M           | 20%        | • **Design/Engineering:** Completion of 100% Front End Engineering Design (FEED) including vendor quotes from all major suppliers, and independent verification of costs and schedule by an approved 3rd party.  
• **Installation/O&M:** Completion of Installation, and Operations and Maintenance plans with vendor information based on quotes received to complete the Criterion #1 Design milestone.  
• **Permitting/NEPA:** Completion of necessary major regulatory processes including lease issuance, interagency consultations, and NEPA documentation and plan approval.  
• **Grid/PPA:** Completion of necessary grid interconnection processes, including grid operator interconnection agreements, utility specific requirements, and any needed power off-take agreements. |
| Budget Period 3  | $13.3M             | 50%        | • **Reach Financial Close**                                                                                                                                 |
| Budget Period 4  | $13.3M             | 50%        | • **Initiate Fabrication/Construction**                                                                                                                                 |
| Budget Period 5  | $13.3M             | 50%        | • **Finalize construction, initiate operations**                                                                                                                                 |

- **DOE will conduct a Go/No-Go Review between each Budget Period (BP)**  
- **BPs were intended to be approximately 1 year; however BP2 is projected to be 18-months, and BP 3-5 may be shorter than 1-year**
Why Demo Projects?
To Increase Understanding and Reduce Uncertainty

- **The demo projects will be laboratories at sea**
  - Powerful opportunity to collect real data from operational projects that will be made publically available
- **The demo projects showcase innovative commercial scale technology, and will be deployed on a limited scale**
  - Determine the viability of commercial scale development from a technology, operational, environmental, and cost perspective
- **Demo projects will reduce uncertainty for stakeholders**
  - Award funds can be used to answer environmental, technology, and socio-economic questions
DOE NEPA Process

Key Steps in the DOE National Environmental Policy Act (NEPA) Process

- Public Scoping Process
- Draft EA Development
- Public Comment Period for Draft EA
- Final EA Development
- Issuance of Final EA and Decision

Public scoping notice and project details posted for public review on our website:

www.energy.gov/node/2053718
DOE Proposed Action and Alternatives

DOE’s Proposed Action – DOE is proposing to provide the University of Maine funding to support the development of the New England Aqua Ventus I project (proposed project).

- Development actions include design, construction and commissioning of the proposed project; environmental monitoring; and up to five years of post-construction structural and performance monitoring data collection.
- Operation, maintenance and eventual decommissioning of the proposed project will also be analyzed in the EA since they are connected actions.

Alternatives – to be analyzed in the EA
- Power and fiber optic cable to Monhegan Island
- No Action Alternative
DOE NEPA Process

Resources to be Considered in the Draft Environmental Assessment

Aesthetics and Visual Resources
Air Quality
Biological Resources
Cultural Resources
Floodplains and Wetlands

Geology, Sediment, Soils
Noise
Ocean and Land Use
Socioeconomics
Water Quality
DOE NEPA Process

Public Comment Opportunities

This is the first opportunity for public comment.

The public comment period is open until March 22, 2017.

Please provide your written comments on DOE’s Proposed Action (i.e. providing funding for the proposed project), alternatives, and the issues and resources that should be considered in the Draft EA.

Comment Options

In-Person
- Note Cards Are Available
- Computer Laptop

Remote
- Comments accepted via electronic mailbox
- or by mail
DOE NEPA Process

How Can You Be Involved?

Please Ask Questions!

DOE and University of Maine representatives are here to answer questions and accept your comments. Provide written comments in person at this meeting, by mail or email no later than **March 22, 2017**.

Stay Involved!

If you would like to be notified of upcoming meetings, provide your name and address on a comment card or send a request to **AquaVentus1EA@ee.doe.gov**

Stay Up-to-Date!

Please check DOE website for updates. Once completed, the Draft EA will be available for your review at: **www.energy.gov/node/2053718**
Demonstration-scale offshore wind facility located ~2.5 miles south of Monhegan Island, Maine and ~12 miles off the mainland

- One of the first offshore wind projects in the United States.
- Two 6.0* MW wind turbines on floating concrete foundations.
- Interconnection to an existing Central Maine Power distribution line located in Port Clyde.

*Due to rapid advances in turbine technology that could result in energy production benefits, the University of Maine design team is also evaluating the possibility of an 8 MW turbine. All design details are preliminary.
**Project Description**

**Turbine Assembly and Installation**

Floating foundations would be constructed in a cofferdam along Penobscot River in Hampden, Maine.

- Cofferdam excavation and construction ~5 months.
- Foundations would take ~1 year to complete.

Foundations would be towed to Mack Point Intermodal Cargo Terminal in Searsport for turbine assembly and installation.

Complete structure would be towed to the Monhegan Test Site for commissioning.

Duration of Project:
- Turbine and foundation performance data would be collected for up to five years.
- Operate for ~20 years
Turbines and Foundations

Turbines:
• Turbine Hub Height: ~328 feet above waterline
• Maximum Blade Height: ~576 feet above waterline
• Rotor diameter: ~495 feet
• Turbine would be painted white
• 3–4 chain mooring lines and 3-4 anchors per structure
• An 8 MW turbine would be ~5%-10% larger

Floating Foundation:
• Reinforced concrete with three columns forming a tri-float configuration (semi-submersible)
• Extend ~66 feet below waterline
• Extend ~44 feet above waterline
• Diameter of foundation: ~301 feet
• Flashing lights in accordance with U.S. Coast Guard navigation requirements
• Foundations would be ~10%-20% larger for an 8 MW turbine
Project Description

Subsea Cable Construction and Layout

Each turbine would have one 6MW Dynamic cable that is suspended in the water column. The cable is connected to a seabed hub.

A 12 MW Static Cable will be connected to the hub. The cable would be buried or on the seafloor and is 5.5” in diameter.
Cable Landing Locations

Port Clyde, Maine
- Export cable would interconnect with existing Central Maine Power (CMP) distribution line.
- Landfall Point - Several locations under consideration (~1,200 feet apart).
- CMP plans to rebuild ~8.8 miles of distribution line between Port Clyde and Rockland substation.

Monhegan Island, Maine (Alternative A)
- Landfall Point - Deadman’s Cove or nearby location to connect to a transformer.
- Cable would run from transformer underground or overhead on a rebuilt pole line for ~680 feet to Black Head Road.
- From Black Head Road cable would run underground for ~650 feet and terminate at the Monhegan Plantation Power District generator/switchgear.
Online Question and Answer Session

You can submit a question using the "Chat" button on the bottom of your screen. Questions will be read aloud and then answered.

**Note** – “Chat” questions or comments will not be considered in the draft Environmental Assessment (EA).

Submit comments to be considered in the draft EA. on or before **March 22, 2017** via e-mail at AquaVentus1EA@ee.doe.gov or mail them to:

Ms. Diana Heyder, NEPA Division  
U.S. Department of Energy  
Golden Field Office  
15013 Denver West Parkway  
Golden, CO 80401

Additional information available at: www.energy.gov/node/2053718
Maine's 2009 Ocean Energy Test Siting Process

Robert G. Marvinney
State Geologist
Maine Geological Survey
Department of Agriculture, Conservation and Forestry
February 2017
Site Selection Criteria and Process

Legislation – passed unanimously in June 2009

- Established Siting Requirements
- Directed Dept Conservation and State Planning Office to Conduct a Collaborative Process
- Scoping Meetings, Public Meetings
- December 15 Deadline
Legislated Criteria

Within Maine’s Coastal Waters (3 miles)

At least 60 Meters Feet Deep (~200 ft)

Average Annual Wind Speeds of >17 MPH

Avoid Navigation Channels, Obstructions
Demonstration Sites

- Initial Mapping: 8 Large “Possible” Areas
- Additional legislated siting considerations:
  - Impacts on protected natural resources and scenic resources
  - Impacts on marine mammals
  - Impacts on commercial fishing and navigation
  - Impacts on recreation, existing public access, and other existing uses
  - Proximity to deep water port facilities, transportation and transmission infrastructure, and existing environmental monitoring devices
  - Geology of the ocean bottom
  - Community Support
• Identified “Planning Areas” using only basic criteria, then sought feedback

• 25 Scoping Meetings
  – Monhegan fishermen 8/26/2009
  – Monhegan Island Community 10/8/2009

• 5 Regional Public Meetings

• Feedback from meetings used to identify smaller “demonstration” sites

• Draft demonstration sites released 10/27/09

• 30-day public comment period.

• Additional comments further refined sites.

• Final sites selected 12/15/09
Scoping Meetings

- August – December 2009
- 25+ meetings with small groups
- Fisherman, community leaders, NGOs
Scoping Meetings: Mapping exercise
MONHEGAN ISLAND OCEAN ENERGY TEST SITE

LATITUDE AND LONGITUDE OF SITE

NORTHERN BOUNDARY ---- 43° 43' 18.231"
EASTERN BOUNDARY ---- -69° 20' 16.759"
SOUTHERN BOUNDARY ---- 43° 42' 15.436"
WESTERN BOUNDARY ---- -69° 17' 39.544"

MAP C

State Marine Boundary
Test Site
Questions?

Robert G. Marvinney
State Geologist
Maine Geological Survey
207-287-2804
robert.g.marvinney@maine.gov
Section 10 - Rivers and Harbors Act of 1899

- Regulates work in navigable waters of the U.S.
- Includes virtually all temporary & permanent work
- Navigable waters = all *tidal* waters & other waterways that have been specifically declared navigable by Congress

Section 404 - Clean Water Act of 1972

- Regulates dredged & fill material discharges in waters of the U.S.
- *Includes ANY temporary or permanent fill* as well as certain excavation/demolition activities
- Waters of U.S. = all navigable waters and all others including wetlands

Section 103 - Marine Protection Research Sanctuaries Act

- Regulates transportation of dredged material ocean disposal.
• Work potentially subject to Corps jurisdiction:
  ❖ Tower Installation
  ❖ Transmission line – installation along the ocean bottom and installation on land that will require wetland clearing, temporary access fills, pole foundations in wetlands, anchors in wetlands.
  ❖ Secondary work, e.g. relocating moorings and other structures or shoreline stabilization or on land, substations.

• Work not subject to Corps jurisdiction:
  ❖ Work on uplands or adjacent to resources.

• A Corps individual Permit will likely be required
• Application likely filed concurrent with any state application
  Corps permit likely one of the last obtained
**Full Public Interest Review**

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<td>Navigation</td>
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<td>Essential Fish Habitat</td>
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<td>General Env. Concerns</td>
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<td>Needs/Welfare of the people</td>
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<td>Mineral Needs</td>
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**Individual Permit Review Process**

1. Application Submitted
2. Complete for Processing
3. 30 day Public Notice
4. Comments by Agencies, interested groups, public
5. May need public hearing
6. Final Decision by District
7. Issued
8. May be Appealed to Division
9. Denied

- Issued
- Denied
- May be Appealed to Division
- Final Decision by District
- Issued

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- Denied

**30 Day Public Notice**

- Issued
- Denied
- May be Appealed to Division
- Final Decision by District
- Issued
- May be Appealed to Division
- Denied

**Comments by Agencies, interested groups, public**

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## COORDINATION & COLLABORATION

**AN ACRONYM JUNGLE**

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