GULF OF MAINE
Floating Offshore Wind Research Array
Stakeholder Planning and Knowledge Sharing Workshop
FEBRUARY 5, 2021 12:30 – 5 PM

Webinar will begin in a few moments.
Planning Meeting

Agenda

12:30 pm Welcome and Overview
12:50 Overview of Floating Offshore Wind Technology
1:30 Overall Area of Consideration
2:10 Introduction to Data Sources
3:00 Break
3:15 Thinking About Research Approach
4:15 Next Steps
5:00 Wrap Up
Zoom reminders:

- Everyone, please MUTE yourself, except when speaking. If you are on the phone, press *6 to mute/unmute.
- Raise your hand, use the blue "Raise Hand" function in the participants tab. If you are on the phone, press *9. Or just raise your hand on the screen.
- Use "Chat" function to ask questions as well.

Navigating our discussion:

- Both questions and comments welcome
- Share the floor: Please be mindful of your time to allow others to speak
- Be direct and respectful: Express your views and let others do the same
- This is only the start of a conversation for the months to come
Maine’s Approach to Offshore Wind

- Offshore wind is part of state’s long-term clean energy vision
- Maine supports regional commercial leasing planning effort
- In November 2019, Governor announces multi-turbine research array, commitment to work with stakeholders
- In December, held initial webinars, focus on fishing industry
In response to fishing industry concerns, Gov. Mills announced the following:

- Support for 10-year moratorium on new offshore wind in state waters
- Additional time for planning and discussion, prior to lease application
- A review of applicable state laws
Offshore Wind in Maine
Offshore Wind Innovation and Cost Trajectory

Floating Wind Energy Costs Follow Fixed-bottom Offshore Wind Trends

- Shared supply chains
  - Turbines
  - Array and export cables
  - Regulations
  - Ports and Infrastructure
  - Operations and Maintenance
- Floating cost reductions lag fixed-bottom offshore wind cost by 5-7 years
- Floating cost are likely to converge with fixed-bottom wind

Figure credit: NREL
## Growth of Offshore Wind in the U.S.

<table>
<thead>
<tr>
<th>State</th>
<th>Target (MW)</th>
<th>Selected (offtake)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>3,200</td>
<td>1,600</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>430</td>
<td>430</td>
</tr>
<tr>
<td>Connecticut</td>
<td>2,000</td>
<td>1,100</td>
</tr>
<tr>
<td>New York</td>
<td>9,000</td>
<td>1,826*</td>
</tr>
<tr>
<td>New Jersey</td>
<td>7,500</td>
<td>1,100*</td>
</tr>
<tr>
<td>Maryland</td>
<td>1,200</td>
<td>368</td>
</tr>
<tr>
<td>Virginia</td>
<td>5,200</td>
<td>2,652</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28,530</strong></td>
<td><strong>9,076</strong></td>
</tr>
</tbody>
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Gulf of Maine Intergovernmental Task Force & BOEM Process

- Federal/Tri-State Task Force (ME, NH, MA) to inform federal offshore decisions
- Maine joined Task Force in 2019
- December 12, 2019 inaugural meeting
- Focus on commercial leasing for one or more large scale leases
Maine Offshore Wind Initiative

- Pursues strategic opportunities for additive economic activity and innovation across various sectors and regions of Maine
- Maximize compatibility with existing marine uses and fisheries and take a data-driven, inclusive, transparent approach
  - Maine fisheries: $674M in Maine’s commercial fishing landings in 2019 ($485M in lobster landings alone, most valuable single species fishery in US); 2X commercial fishing trips out of Maine than any other state on the east coast
- Support Maine engagement in BOEM Task Force and regional coordination

Maine’s Floating Offshore Wind Roadmap

October 2020
US EDA Grant: $2.167 million for a strategic roadmap to develop offshore wind industry in Maine, focusing on:
- Ports and infrastructure
- Manufacturing, supply chain, workforce
- Innovation
- Research array and research priorities
- Ocean and environmental data
- Stakeholder engagement
Maine Offshore Wind Projects

2013
1/8 Scale Pilot Project - 1 turbine (Castine - UMaine, Cianbro, MMA)

2023
10 MW Demonstration Project - 1 turbine (Monhegan - NEAV LLC, UMaine)

2025+
Research Array - 12 turbines or less (State, UMaine, NEAV LLC)

TBD*
Commercial Development - BOEM Leasing and Permitting
Offshore Wind Research Array
Research Array
By the Numbers

12 floating turbines or fewer
16 square miles or smaller
Who is Involved?

State of Maine
• Governor's Energy Office (lead)
• Department of Marine Resources
• Governor’s Office of Policy Innovation and the Future
• Department of Inland Fish and Wildlife
• Department of Environmental Protection
• Department of Economic and Community Development
• Consensus Building Institute (Consultant – Facilitator)

New England Aqua Ventus
• Diamond Offshore Wind/RWE Renewables

University of Maine
• Technology

Federal Agency and MA/NH State Agency Coordination
Maine’s Pathway to a Floating Offshore Wind Research Array

November 2020 – winter/spring 2021
Engagement and Outreach with fishing industry and other interested parties on site and potential research questions.

2021
Application Submitted and Processed
- Maine submits research lease application
- BOEM issues request for information
- BOEM reviews application

Years 2 - 4
Permitting and Approvals
Further project planning in consultation with fishing industry, federal, state, and local approvals, including NEPA review, with opportunity for formal public comment.

Years 1 - 4
Research Consortium Developed in partnership with state and federal agencies, fishing industry, universities, research institutions, and others to define research agenda and secure project funding.

Year 5+
Construction and Installation

2025+
Research Projects Underway

* Dates approximate  
Visit https://www.maine.gov/energy/ for more information.
Maine’s Approach to Offshore Wind

• Measured and deliberative
• Answering questions and exploring opportunities
• Regional coordination and partnerships
• Commitment to listen and engage with stakeholders
Research Approach
Research Approach

- Research is the key driver for the array.
- Research objectives will inform:
  - Siting process and decision
  - Project design, layout and operations

**Overall research process:**
- Key themes in initial application
- Further develop research approach through roadmap effort
- Stand up formal consortium, with diverse interests at the table
- Seek broad funding opportunities
- Open source data
Research Approach

- Environment and ecological interactions
- Interactions with fishing activity
- Navigation
- Technology research and demonstration, including mooring systems
- Workforce education and training
- Others?