Offshore Wind Public Webinar
July 24, 2019
Outline

• New York State Climate Leadership and Community Protection Act
• ORECRFP18-1 Inaugural Solicitation Results
  • Empire Wind Project
  • Sunrise Wind Project
• Next Steps & Public Engagement
• General Program Updates
New York State Enacts Historic Climate Law

Climate Leadership and Community Protection Act (CLCPA)
9,000 MW of offshore wind by 2035

10,000 JOBS
ENOUGH TO POWER 6 MILLION HOMES
BILLIONS IN INFRASTRUCTURE
30% OF NEW YORK’S ELECTRICITY LOAD

NEW YORK’S NATION-LEADING CLIMATE LAW
Climate Leadership and Community Protection Act
Regional Market Potential, 20 GW

Offshore Wind Goals by State

- New York: 9 GW
- NJ: 3.5 GW
- MA: 3.2 GW
- MD: 1.2 GW
- RI: 1 GW

Map showing Lease Areas and BOEM Draft Wind Energy Areas.
Record Competition

Evaluation Criteria

70% price
20% economic benefits
10% project viability

INAUGURAL SOLICITATION, 2018

4 proposers
18 bids
Proposal Requirements

• Environmental and Fisheries Mitigation Plans
• Community Outreach Plans
• Project Labor Agreements
• Prevailing Wage
• New York Supplier Opportunity
1,696 MW of offshore wind capacity

Enough to power over half of all New York City households

AWARD RESULTS: TWO PROJECTS

THE LARGEST COMMITMENT TO OFFSHORE WIND BY A STATE IN U.S. HISTORY

Contracted MW By State

- Connecticut
- Maryland
- Rhode Island
- Massachusetts
- New Jersey
- New York
AWARD RESULTS: TWO PROJECTS

Empire Wind
816 MW

Sunrise Wind
880 MW
AWARD RESULTS: TWO PROJECTS

1,600 Jobs
in project development, component manufacturing, installation, and operations maintenance

Directly offering well-paying careers with salaries of over $100,000 per year

$3.2 billion
in combined private sector investments both upstate and downstate
AWARD RESULTS: TWO PROJECTS

NYS Investments

$20 million
Offshore Wind Training Institute

$3 million
Community and Workforce Benefits Fund

in combined public and private investments
NYS Investments

$287 million
largest investment by any state

Combined private investments with Governor Cuomo’s 2019 State of the State commitment in offshore wind port infrastructure
AWARD RESULTS: TWO PROJECTS

Project Timelines

Research and Stakeholder Engagement
New York State Energy Research and Development Authority (NYSERDA) leads design of project guidelines
2017 - Ongoing

Permitting and Approvals
Developers identify sites for turbines and substations, map cable routes, and obtain federal, state, and local permits and approvals
2019 - 2023

Construction and Installation
Developers install foundations, lay cables, build substations, and assemble wind turbines
2022 - 2024

Operations
Offshore wind projects produce renewable electricity to power New York State (25+ years)
2024 - 2050+

2019 Proposal Review and Contract Awards
Developers submit proposals to NYSERDA, who reviews and awards contracts

2020 - 2024 Manufacturing
Developers work with supply chain to manufacture and transport components

2024 Commissioning
Developers and grid operators conduct pre-operational testing
Let's power New York's future together

Julia Bovey
Director, External Affairs | Equinor Wind US
Equinor introduction: Bringing European experience to the US

<table>
<thead>
<tr>
<th>Project</th>
<th>Capacity</th>
<th>Year</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hywind demo</td>
<td>2.3 MW</td>
<td>2009-</td>
<td>In operation</td>
</tr>
<tr>
<td>Sheringham Shoal</td>
<td>317 MW</td>
<td>2012-</td>
<td>In operation</td>
</tr>
<tr>
<td>Dudgeon</td>
<td>402 MW</td>
<td>2017</td>
<td>In operation</td>
</tr>
<tr>
<td>Hywind Scotland</td>
<td>30 MW</td>
<td>2017</td>
<td>In operation</td>
</tr>
<tr>
<td>Arkona</td>
<td>385 MW</td>
<td>2019</td>
<td>In operation</td>
</tr>
<tr>
<td>Dogger Bank</td>
<td>3 x 1.2 GW</td>
<td>2020-</td>
<td>Consented</td>
</tr>
<tr>
<td>Empire Wind</td>
<td>816 MW</td>
<td>2024-</td>
<td>Provisional Award</td>
</tr>
<tr>
<td>Floating large scale</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Equinor Wind in the US: leading position in US offshore wind

New York
New Jersey
New England
Empire Wind: Key facts

- Provisional award capacity: 816 MW
- Foundations: Gravity-Based (Concrete) manufactured in the Capital Region
- Operations and Maintenance (O&M) base in New York City
- Proposed onshore substation: Gowanus
- Next generation turbines
- Water depth: 65 – 100 ft
- Construction period: 2022-23
- Electricity Delivered to New York: 2024+
Empire Wind: Providing great benefits to New York

- Creating **thousands of jobs** during construction and operations
- Creating a **manufacturing hub for concrete foundations** at Port of Coeymans
- More than **$60 million** in port upgrades
- **Operations and maintenance** base in New York
- Establishing a **community benefits fund** of $4.5 million
- Supplying renewable power from the **New York Bight to the heart of New York City**
- Supporting New York State in **cost-effectively delivering its long-term decarbonization goals**
- **Reduced CO₂ emissions** of 1.6 million tons per year
Empire Wind: Gravity-Based Structure (GBS) Foundation Fabrication

1. Fabrication at Port of Coeymans

2. Assembly with Transition Piece

3. Staging and Delivery to Site

- EU TP Manufacturing and transport to US, 2wks transport @10knots
- Staging & Final Mechanical Completion
- Tow to Site - 20nm, 6hr, @5knots

Port of Coeymans (Ravens, NY)

Tow out - 128nm, 30hr, @4knots

New York
Empire Wind: Operations and Maintenance (O&M) base in Brooklyn

- Proposed O&M base at South Brooklyn Marine Terminal
- Direct labor: approx. 50-70 full-time jobs
- Indirect labor: additional staffing working from the base:
  - Turbine suppliers
  - Vessel workers
  - Other contractors – e.g. Installation and construction contractors, equipment contractors, vessel captains, etc.
Empire Wind: Local initiatives & partnerships

**SUNY Maritime & Farmingdale** Collaborating to establish offshore wind training program – in partnership with the unions

**Columbia University – Center of Global Energy Policy** Contributing to research on new ideas to solve challenges in the energy space

**SUNY StonyBrook – CEAS** Collaborating on wind resource assessment and wind park optimization research

**SUNY StonyBrook – SoMAS** Atlantic sturgeon monitoring in our New York Bight lease area

**Fisheries Outreach** Equinor fisheries liaisons, hundreds of engagements with local fisheries, Responsible Offshore Development Alliance (RODA) partnership
Empire Wind: Responsible siting and permitting

New York State
- Environmental and Fishing Mitigation Plans
- Article VII Process

BOEM
- Site Assessment Plans (SAP)
- Construction and Operation Plan (COP)
- Environmental and Technical Review

Stakeholder Engagement
Contact: Julia Bovey
Director, External Affairs

jbov@equinor.com
www.empirewind.com
Twitter: @EquinorWindUS
Sunrise Wind
A Joint Venture of Ørsted and Eversource

Ryan Chaytors
Project Development Director, North America

Ørsted

Eversource

NYSERDA Offshore Wind Webinar
July 24, 2019
Sunrise Wind is bringing unparalleled experience in developing offshore wind to New York

<table>
<thead>
<tr>
<th>Orsted</th>
<th>Eversource</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offshore Wind Pioneer</strong></td>
<td><strong>Energy Leader</strong></td>
</tr>
<tr>
<td>Built the first offshore wind farm in the world, the first in the U.S. and developing the largest project portfolio in the country</td>
<td>100+ year history of operation in Northeast</td>
</tr>
<tr>
<td><strong>Global Leadership</strong></td>
<td><strong>Transmission Expertise</strong></td>
</tr>
<tr>
<td>20+ years experience building offshore wind farms</td>
<td>Premier electric transmission developer</td>
</tr>
<tr>
<td><strong>Proven Expertise</strong></td>
<td><strong>Northeast Roots</strong></td>
</tr>
<tr>
<td>25 successful offshore wind farms totalling 5.6GW capacity</td>
<td>Deep-rooted knowledge of the region’s electrical system</td>
</tr>
</tbody>
</table>
Sunrise Wind Is Coming To New York
880 MW of clean, reliable energy

**Energy Where It’s Needed**
- Located 30+ miles over the horizon from Montauk, NY
- Output delivered over a new submarine export cable to Brookhaven, NY

**Energy When Its Needed**
- Production beginning in 2024
- Supports New York’s nation-leading clean energy mandate

**Energy For New York**
- 800 direct jobs
- 1,500-2,000 indirect jobs
- Committed to paying prevailing wages
- Project Labor Agreement(s)
Sunrise Wind Is Investing In New Yorkers
Strategic Initiatives to Position NY for a New Industry

- $10 Million to fund the National Workforce Training Center
  - Nation’s first training facility dedicated to the U.S. offshore wind workforce
  - Hosted by Suffolk County Community College, Long Island
  - Innovative partnership between industry, academia, and labor

- $1 Million Upper Hudson Workforce Development Fund
  - Targeted to advancing the skills of the workforce of the Upper Hudson and Capital Region
  - Prepare region to be a hub of OSW fabrication and logistics
Sunrise Wind Is Investing In Major Port Infrastructure Upgrades

- $10 Million New York Ports Infrastructure Development Fund
  - Supporting major port infrastructure upgrades at multiple New York ports

- Port Jefferson regional operations and maintenance hub
  - Complementary use of the port that will not conflict with ferry service
  - ~100 permanent, full-time jobs over the 25-year life of project and shorter-term construction jobs

- Fabricating key foundation components in the Capital Region
Sunrise Wind Commitment To The Fisheries Community

We will…

Promote the smart growth of the American offshore wind industry

Focus on maintaining access and navigation in and around our wind farms for all ocean users

Complete scientific research collaboratively with the fishing community

Be accessible and available
Learn More | Contact Us

www.SunriseWindNY.Com
info@us.orsted.com
Next Steps for NYSERDA

Negotiate contracts for Offshore Wind Renewable Energy Credits (ORECs) with winning developers

Phase 1 report filed with the Public Service Commission
Required within 30-days of contract execution. Full details of the procurement process including executed contracts and pricing will be made available to the public via NYS DPS Matter Master 18-E-0071

Host public meetings in the Capital Region, NYC, and Long Island
Offshore Wind Projects in Context

1,826MW
Upcoming Public Meetings

Details coming soon for September public meetings:

Albany
Staten Island
Sunset Park
Rockaways
Long Beach
Brookhaven
Southampton

Please check back for more information:
https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Contact/Events
Public Engagement

Technical Working Groups

Environmental
Commercial Fishing
Jobs/Supply Chain
Maritime

Key Stakeholders
Offshore Wind Developers
Technical & Facilitation Support
Regional State Agencies
Federal Agencies

Cost-Effective and Responsible Advancement of Offshore Wind for New York
Public Engagement

Technical Working Groups

• These working groups are critical stewards of New York State’s projects and provide valuable representation, technical insight, and constructive solutions

• On-going supporting activities include:
  – Synthesis of monitoring and mitigation practices (MMPs)
  – Stakeholder feedback on environmental research needs
  – Specialist Committees working towards BMPs for marine mammals and sea turtles and birds and bats for inclusion in future procurements
  – Launch of the Offshore Wind Lease Mapper Tool
  – Worked with RODA to hold the first Commercial Fishing Transit Workshop for the NY Bight in Spring of 2019
Public Engagement

Research Opportunities

**National Offshore Wind Research and Development Consortium**

Supports 3 Research Pillars:
1. Offshore Wind Plant Technology Advancement
2. Offshore Wind Power Resource and Physical Site Characterization
3. Installation, O&M and Supply Chain Solutions

Focused on reducing the levelized cost of electricity (LCOE) for offshore wind in the United States by facilitating innovations directly responsive to technical and supply chain barriers

Pillar 1-3 2019 $7M Solicitation Live Now!
Coming Soon

Offshore Wind Webinar Series
Learning from the Experts

Learn more about Offshore Wind technologies, development practices, and research findings

Find dates for upcoming webinars on our website: https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Contact/Events
Questions?

offshorewind@nyserda.ny.gov | nyserda.ny.gov/offshore-wind