Sunrise Wind Project Environmental Mitigation Plan

NYSERDA Environmental Technical Working Group

November 20, 2019

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Ørsted Offshore: Global overview

Ørsted is the global leader in offshore wind

Over **5,600 MW** in operation

Over **4,300 MW** under construction

~1,150 turbines spinning world-wide

25 offshore wind farms in operation

1991 → **2019**

25+ years of experience and unparalleled track record

The world's **first**

America's **first**

The world's **largest**

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Sunrise Wind is bringing unparalleled experience in developing offshore wind to New York

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Offshore wind pioneer

Built the first offshore wind farm in the world, the first in the U.S. and developing the largest project portfolio in the country

Global leadership

20+ years experience building offshore wind farms

Proven expertise

25 successful offshore wind farms totalling 5.6GW capacity

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Energy leader

100+ year history of operation in Northeast

New England's largest energy company

Transmission expertise

Premier electric transmission developer

Northeast roots

Deep-rooted knowledge of the region's electrical system

Ørsted U.S. Offshore Wind

Attractive and geographically diverse portfolio of offshore wind assets: potential for 8-10GW

In Operation

Block Island Wind Farm: 30MW

Awarded

Revolution Wind (50-50 JV w/ Eversource): 704MW (400MW to RI, 304MW to CT)

South Fork Wind Farm (50-50 JV w/ Eversource): 130MW

Sunrise Wind (50-50 JV w/ Eversource): 880MW

Ocean Wind (with the support of PSEG): 1,100MW

Skipjack Wind Farm: 120MW

Coastal Virginia Offshore Wind (EPC contract): 12MW demo project

Under Development

Bay State Wind (50-50 JV w/ Eversource)

Constitution Wind (50/50 JV w/ Eversource)

Garden State Offshore Energy (50/50 JV with PSEG)

Engagement across the spectrum of stakeholders

Local community –

Engagement early and often in the local communities near the project location

NGOs –

Local, state, regional, and national non-profits

Fishing –

Commercial and recreational, plus shore-side supply chain

Academic –

University, college, and other academic partners

Research and Development –

National labs, research institutions, private entities

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Ørsted's three sustainability priorities

A world that runs entirely on green energy

Our priority

By pursuing a world that runs entirely on green energy, we address societal challenges for which Ørsted can provide market-scale solutions in a manner that creates value for society and our business at the same time.

Enabling sustainable growth

Our priority

Through 'Enabling sustainable growth' we address the social and environmental impacts of our operations and business relations to enable growth of our business in a sustainable manner.

Business integrity

Our priority

Through 'Business integrity' we seek to conduct our business with transparency and accountability, respecting labor and human rights.

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CEO Henrik Poulsen speaking at the opening ceremony at UN Climate Summit

photos: Rasmus Skov, rands@orsted.dk

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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

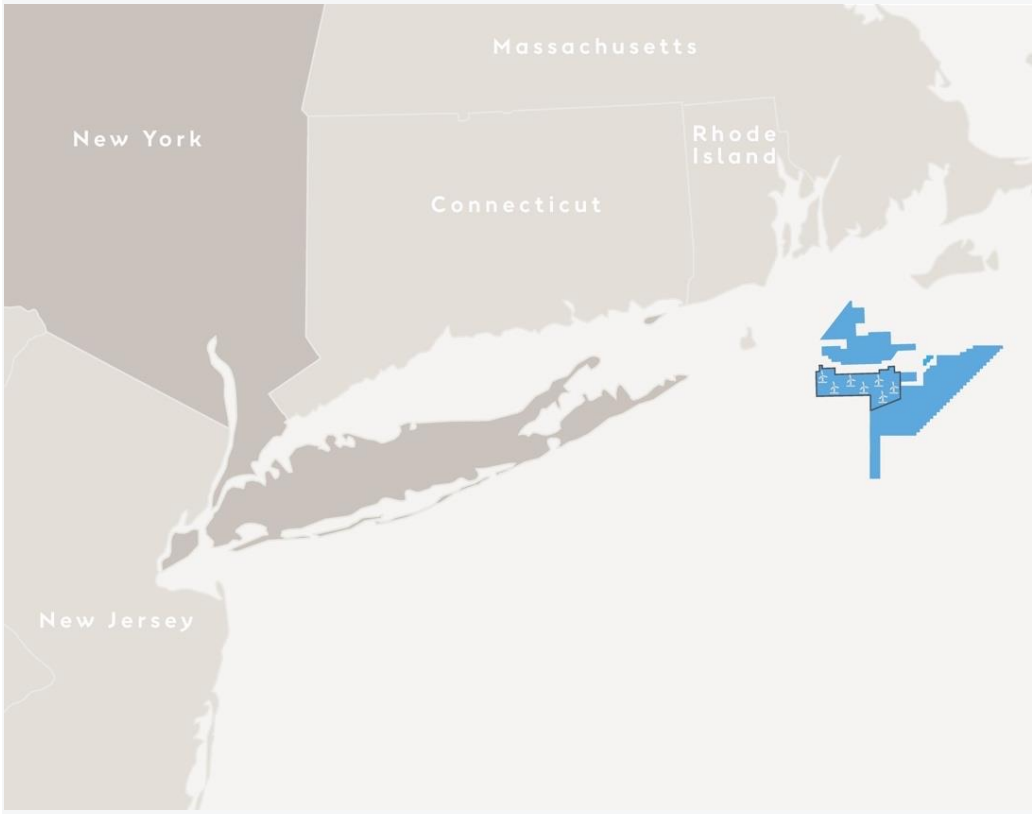
Energy *when* Its needed

- 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)

Renewable energy for 500,000+ New Yorkers



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Philosophy, principles, and collaborative approach

Stakeholders

Early stakeholder outreach and input is important

We intend to consult with:

- Federal and state agencies
- Native American Tribes
- Environmental Non-Governmental
- State groups such as the NYSERDA Environmental Technical Working Group
- Local communities, fishing communities, recreational boating groups, low income populations, and labor and local business interest

Environmental Impacts

We will prioritize minimizing environmental impacts

- Siting to avoid, where possible
- Design and minimization
- Mitigation
- Communication
- Supporting research

Compliance

We are committed to demonstrating compliance with relevant guidance documents and will rely on publications, tools, and plans

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Third-party research and data sharing

Third-party research support

- We will be engaging in third-party research support through collaboration with NYSERDA
- We will continue to review and reach out to look for opportunities to support third party research, which will be of wider benefit to the offshore wind industry
- Active participants in establishing a Regional Science entity

Data sharing

- Committed to data sharing non-proprietary environmental data for the project including:
  - Developing Memorandum of Agreement with NOAA for sharing non-proprietary data
  - We will employ a Science Coordinator
  - Standardizing data
  - Data sharing methods and procedure are continuing to evolve internally – watch this space!

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Approach to Pre/Post Construction Monitoring, Data Gaps, and Alternate Protocols

Pre-and Post-construction Monitoring

- Regional approach with other northeast projects via dedicated internal resource
- We will study topics and methodologies to review and assess changes
- Once identified these areas will have robust plans coordinated for monitoring and the results from these monitoring campaigns
- We will actively seek input from stakeholders and agencies from multiple states

Data gaps

- We will work with stakeholders and regulatory agencies to identify data gaps
- Community Outreach Plans
- Cross project data comparisons and mapping of existing data areas

Mitigation measures

- We will be continually evaluating throughout the survey/design, construction, operation, and decommissioning phases of the project
- If further mitigation measures are deemed necessary, Sunrise Wind will coordinate with federal and state agencies to modify mitigation measures or identify additional measures

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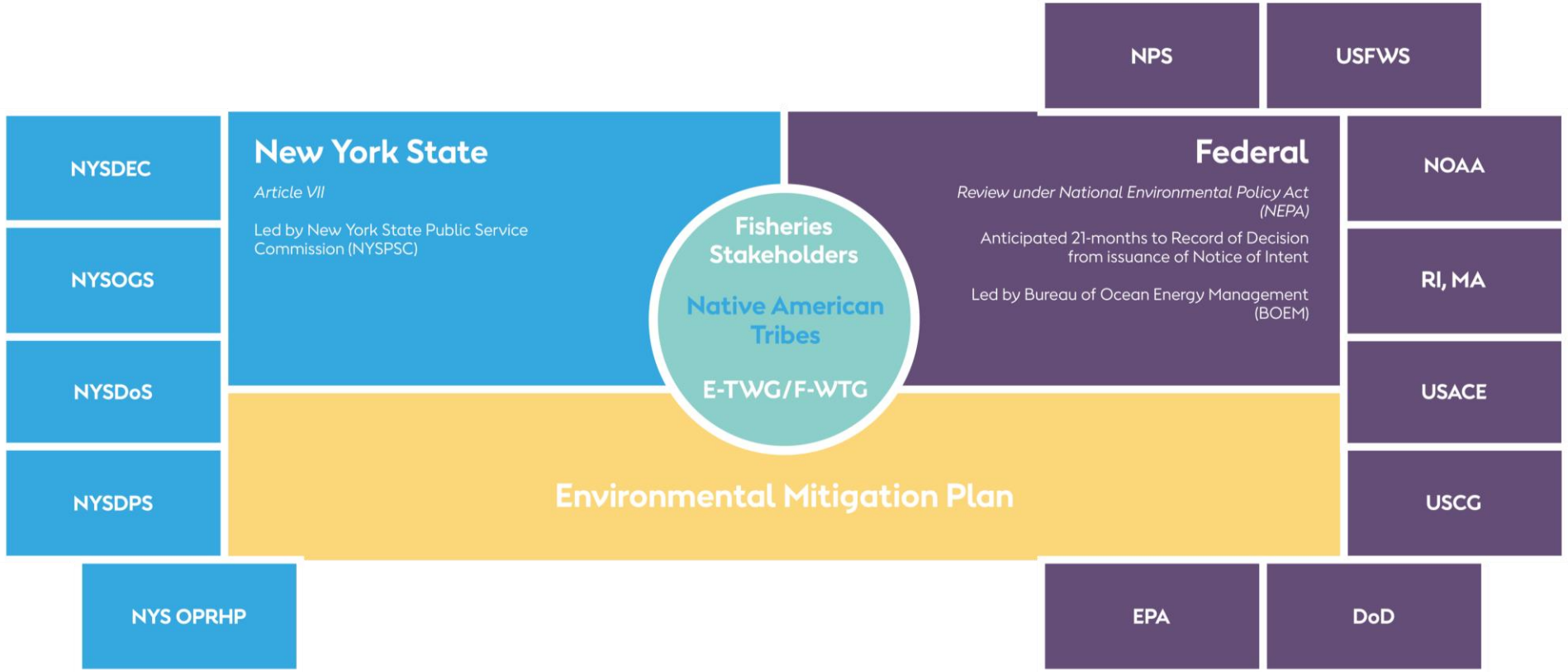
Permitting

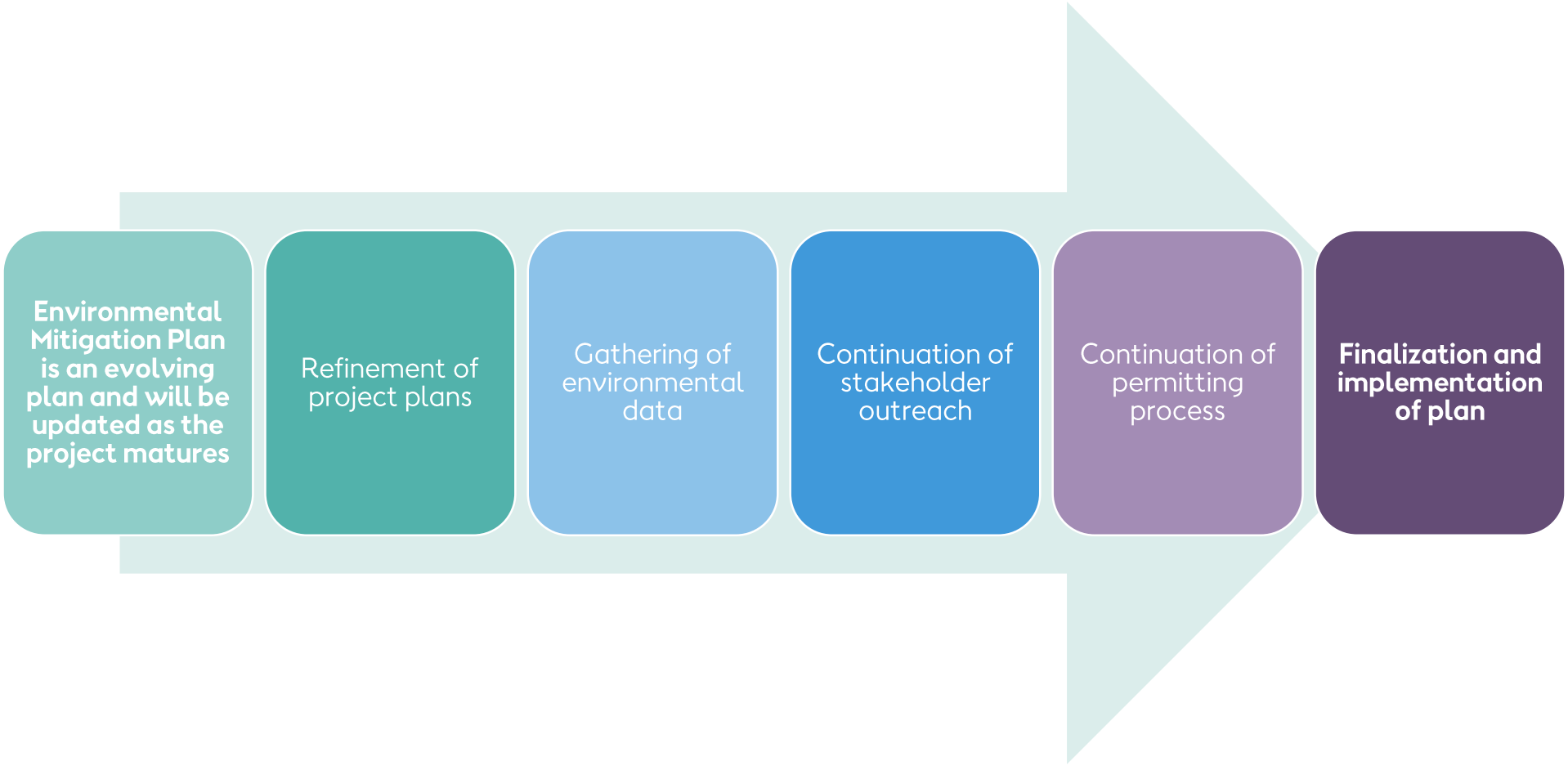
A process that informs project design and mitigation measures

The Sunrise Wind Farm will be located in federal waters, and its power export cable connects in New York State in the Town of Brookhaven. The project will be subject to two major permitting processes at the state and federal levels.

A series of environmental and economic assessments will be completed to the support the permitting processes that will inform project design and appropriate mitigation measures based on agency consultations, in addition to feedback from fishing stakeholders.



Environmental Mitigation Plan Approach



Marine mammals and sea turtles - data

Available data

- NYSERDA studies on marine life and whales
- BOEM studies on whales and sea turtles
- NOAA studies on marine mammals and sea turtles
- Other state and regional studies
- Roberts et al /Duke University database

Data collected

- Protected species observer (PSO) sightings data from geophysical and geotechnical surveys conducted in the project area
- NYSERDA's 3-year fine scale aerial survey of marine wildlife

Species of greatest concern

- Endangered Species Act (ESA) listed whale species
- ESA-listed sea turtle species
- Marine Mammal Protection Act (MMPA) protected species known to occur in north Atlantic region

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Marine Mammals and Sea Turtles – Mitigation Measures

Dedicated cross project support and lesson learning

Potential Impacts

- Underwater noise impacts from geophysical survey equipment
- Underwater noise impacts from construction and installation activities
- Potential ship strikes of marine mammals
- Habitat disturbance

Mitigation Measures

- Exclusion and monitoring zones for marine mammals and sea turtles
- Visual monitoring program with NMFS approved PSOs
- Training for all personnel regarding protected species and mitigation measures
- Use of low visibility monitoring tools
- Use of passive acoustic monitoring equipment (PAM) as applicable, pursuant to regulatory concurrence
- Committed to noise attenuation technologies to reduce sound from pile driving of foundations, pursuant to regulatory concurrence
- Will develop a project-specific protected species mitigation and monitoring plan
- Compliance with NOAA ship speed regulations and lease conditions for vessel speeds
- Adhere to NOAA Fisheries guidance for vessel strike avoidance

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Advancements to date

Innovative solutions: funding real time monitoring and mitigation solutions to reduce vessel strike risk and minimize harassment

Innovative technology: utilizing state of the art mitigation tools during ongoing G&G Surveys

Innovative partnerships: developing partnerships for long term solutions

Ørsteds guiding principle –

Love your Home

Whale alert system→

← Mysticetus data collection software

→ Monitoring tools such as night vision and thermal cameras

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Birds and bats – data

Available data

- BOEM 2014 Environmental Assessment and BOEM studies on seabirds and bats
- NYSERDA and NYSDEC studies on marine wildlife, birds, and bats
- MassCEC seabird surveys
- Rhode Island Ocean Special Area Management Plan
- Other state and regional studies

Data collection

- Lease-Area-wide offshore avian boat-based survey of Lease Area OCS-A 0500 between June and October 2017
- NYSERDA's 3-year fine scale aerial survey of marine wildlife
- Surveys to be conducted, if appropriate:
  - Nesting bird surveys
  - Onshore bat surveys

Species of Greatest Concern

- Endangered Species Act (ESA) listed bird species:
- Roseate Tern; Piping Plover; and Red Knot
- ESA-listed and NYSDEC-listed bat species:
- northern long-eared bat

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Birds and bats – mitigation measures

Dedicated cross project support and lesson learning

Potential impacts

- Collision risk to marine birds and bats
- Breeding and nesting habitat impacts to birds
- Breeding and nesting habitat impacts to bats

Mitigation measures

- Wind turbine generators will have air gaps of at least 98 feet which minimizes collision risk for seabirds
- Locate facilities and workspaces in previously disturbed lands to the extent practicable
- Clearing and cable landing activity to occur outside of breeding or nesting period to the extent practicable
- Reduce perching opportunities
- Work with USFWS and NYSDEC to employ recommended protection measures, including tree clearing restrictions

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Fish, invertebrates, and their habitats – data

Available data

- BOEM studies on marine species, lobsters, and crabs
- NYSERDA studies on marine wildlife
- NOAA studies on trawl surveys, sea scallops, and clams
- Other state and regional studies on ocean trawls surveys

Data collection

- Benthic habitat surveys
- Geophysical and geotechnical surveys
- Additional data collected by agencies such as Massachusetts Division of Marine Fisheries

Species of greatest concern

- Multiple fish species with essential fish habitat (EFH) in the project area
- ESA-listed species:
- Atlantic salmon; shortnose sturgeon; and Atlantic sturgeon

New vacancy to be filled soon

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Fish, invertebrates, and their habitats – mitigation measures

Dedicated cross project support and lesson learning

Potential impacts

- Temporary, localized increases in noise and turbidity
- Permanent changes to substrate
- Development of a biogenic habitat associated with WTG foundation structures
- Distribution of mobile species
- EMF Impacts

Mitigation measures

- Time-of-year restrictions on construction
- Mobile species will likely temporarily leave the area during construction activity
- Implementation of spill prevention and response plans
- Shift toward structure-based community can be considered desirable as these habitats support fish that are of commercial and recreational value
- Methods under evaluation:
  - Micrositing of wind turbine generators
  - Slow start (ramp up) of pile driving equipment
- Cable shielding and target burial depths to reduce EMF impact

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Takeaways and contact information

- Support responsible development of offshore wind in the U.S.
- Support advancing knowledge and data sharing
- Stakeholder outreach and feedback is important
- Environmental surveys will inform mitigations

Contact us

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