

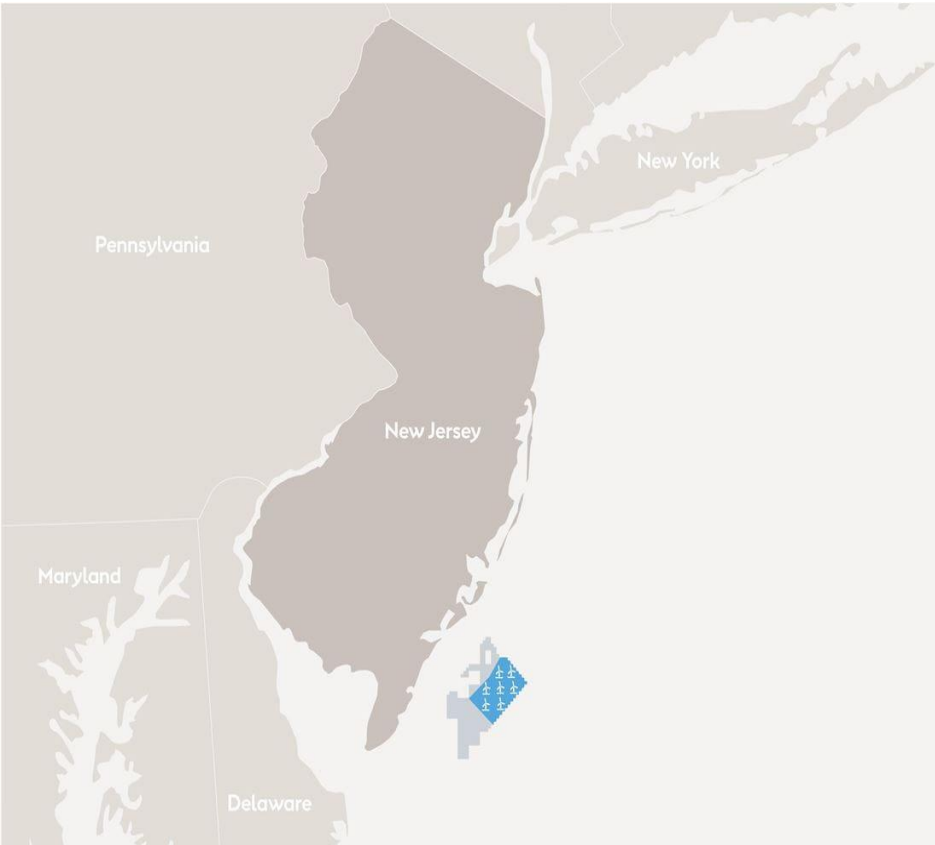
# Ocean Wind Scoping Meetings

April 2021

**Ocean Wind**  
An Ørsted & PSEG project



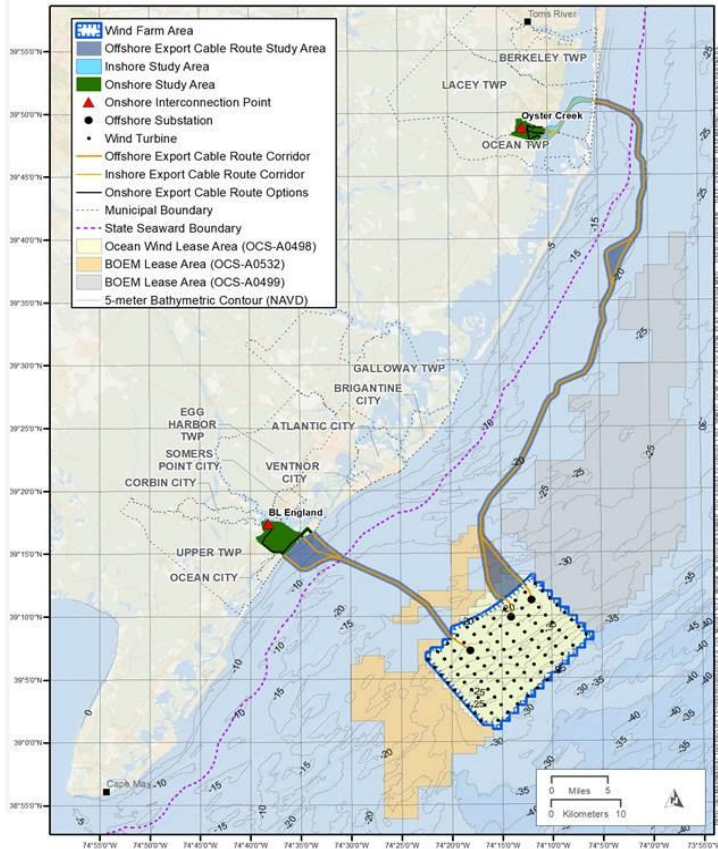
# Project Overview - Ocean Wind



## Project overview

- Wind Farm is located 15-27 miles off the coast of Southern New Jersey.
- 1,100 MW – one of the largest planned offshore wind farms in the U.S. to date.
- Enough power for about 500,000 homes
- Up to 98 turbines to be installed.
- Commercial operations expected by the end of 2024.
- Ocean Wind is a 75/25 Joint Venture with PSEG
- Notice of Intent (NOI) issued March 30, 2021
- Draft Environmental Impact Statement scheduled May 2022
- Final Environmental Impact Statement scheduled February 2023

# Project Route Overview



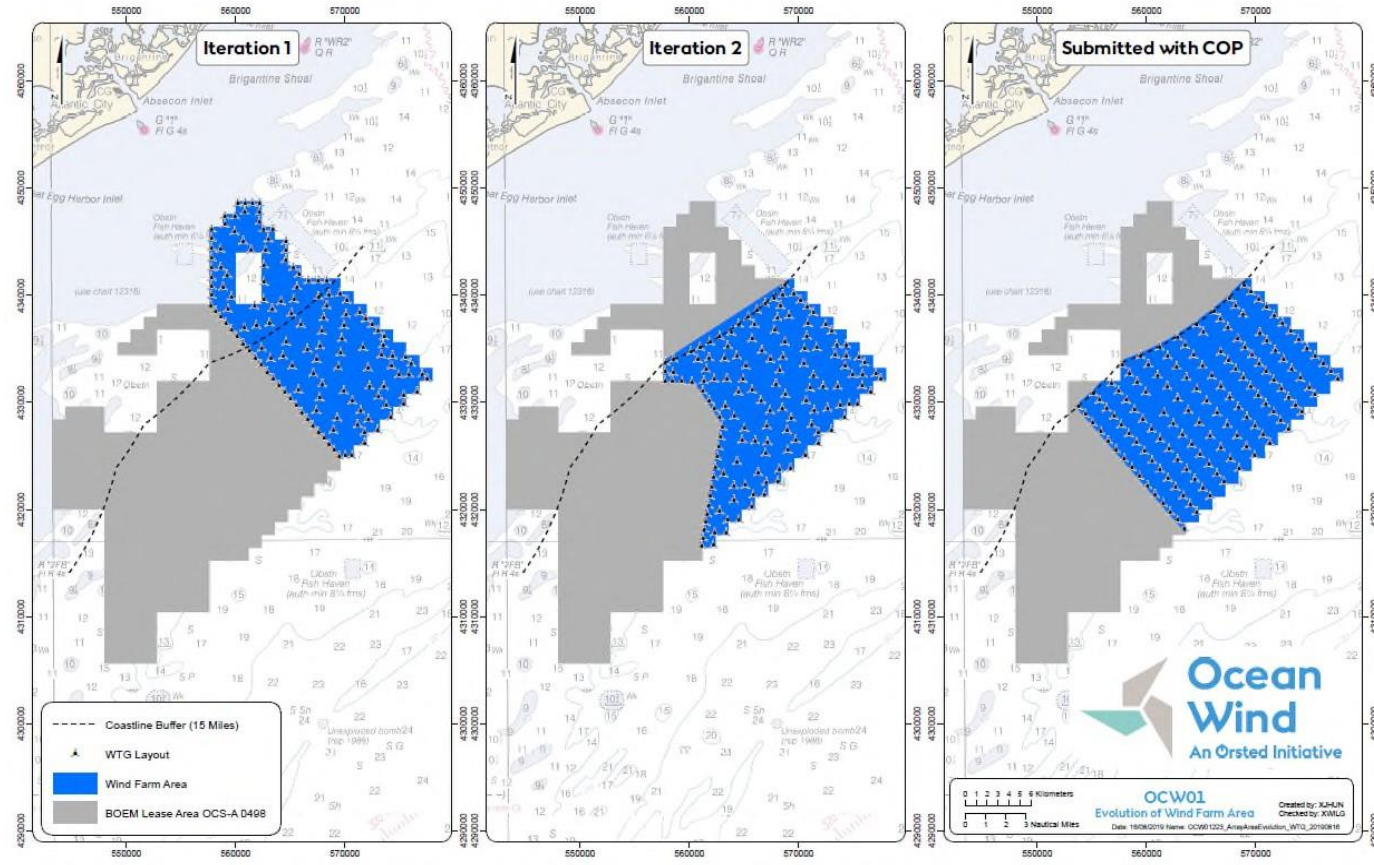
## Offshore Project Description:

- Up to 98 turbines and three offshore substations located in federal waters
- Up to three offshore export cables buried under the seabed floor within two cable corridors
- Northern cables cross Island Beach State Park and will be installed underground using trenchless technology to minimize disturbance on the barrier island

## Onshore Project Description:

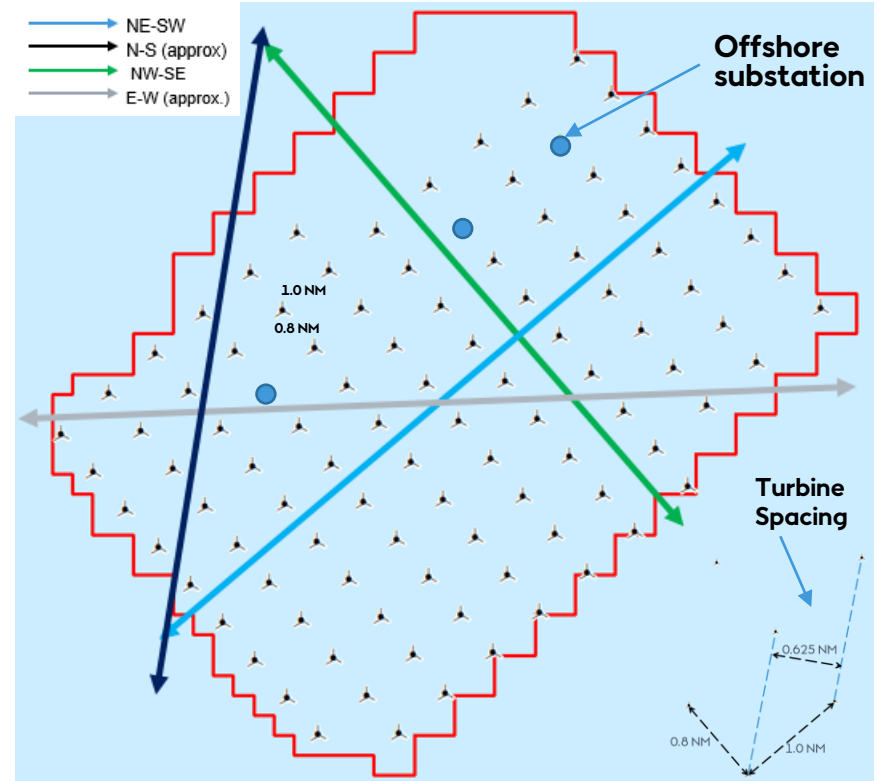
- Project requires two points of interconnection.
  - Oyster Creek (Lacey Township) ~636 MW.
  - BL England (Upper Township) ~450 MW.
- Onshore cable routes were developed to utilize existing, disturbed rights of way. Majority of cables will be buried.
- Routes developed in discussion with local township officials.
- Several indicative routes were developed and will continue to be refined.

# Evolution of the Project Area

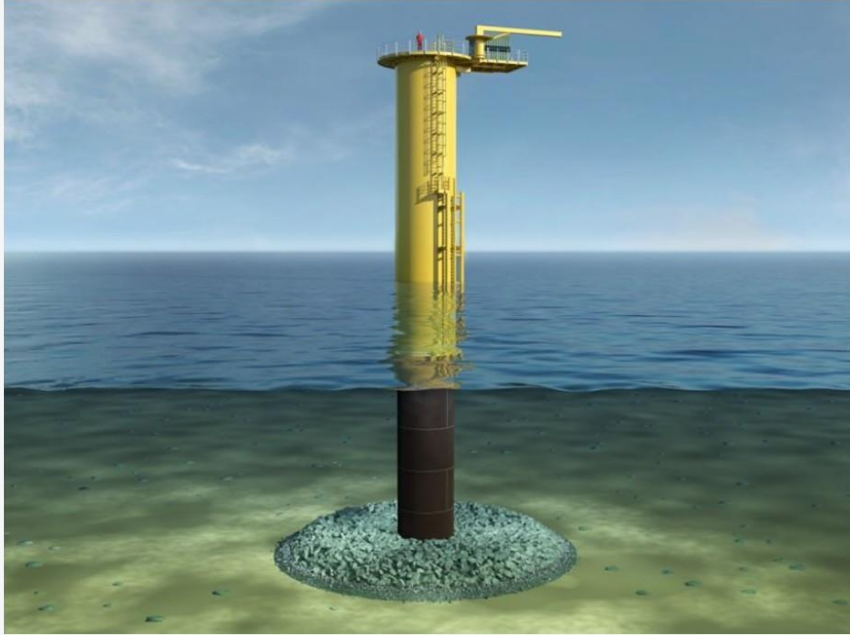


# Vessel Navigation

- Grid layout with turbine spacing 1nm x 0.8nm.
  - Clear lines of transit NW – SE, NE – SW, E – W, N – S.
  - Northern-most corridor greater than 1nm.
- Turbine spacing provides for vessels moving through and fishing within the array.
  - Developed with input from fishing community in New Jersey.
- Consistent turbine marking and lighting to aid navigation and safety operations in accordance with USCG guidelines.
- Navigational Safety Risk Assessment included in the COP.



# Foundations



A monopile with transition piece foundation and scour protection stone bed.

## Turbines

- Monopiles.
- Installed using pile driving hammer and/or drilling techniques.
- Monopile diameter at seabed: < 43ft/ 13 m.
- Seabed penetration: 164 ft/ 42 m.
- Scour protection around all foundations; diameter 72 yards/ 66 m.
- Approx 12 months turbine installation duration (consisting of approx. half time preparation and half-time installation).

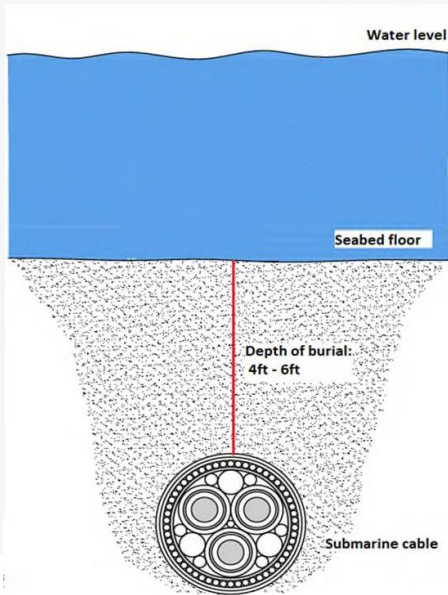
## Offshore Substations

- Monopile (as described above) -or- Piled Jacket Foundations
- Max 6 legs per foundation.
- 0.6 acres seabed occupation (w/scour protection).

# Export Cables

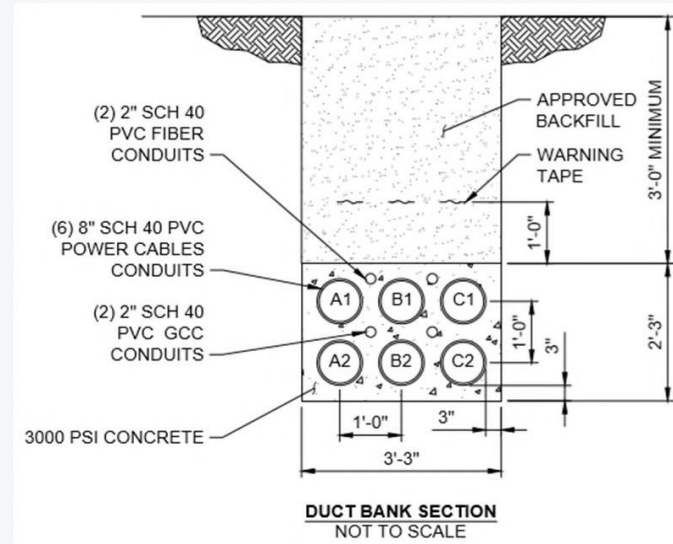
## Offshore Export Cables

- 275kV cable with outer dimension approx. 14"
- Two cables to Oyster Creek (cable spacing: 297' to 363')
- One cable to BL England.

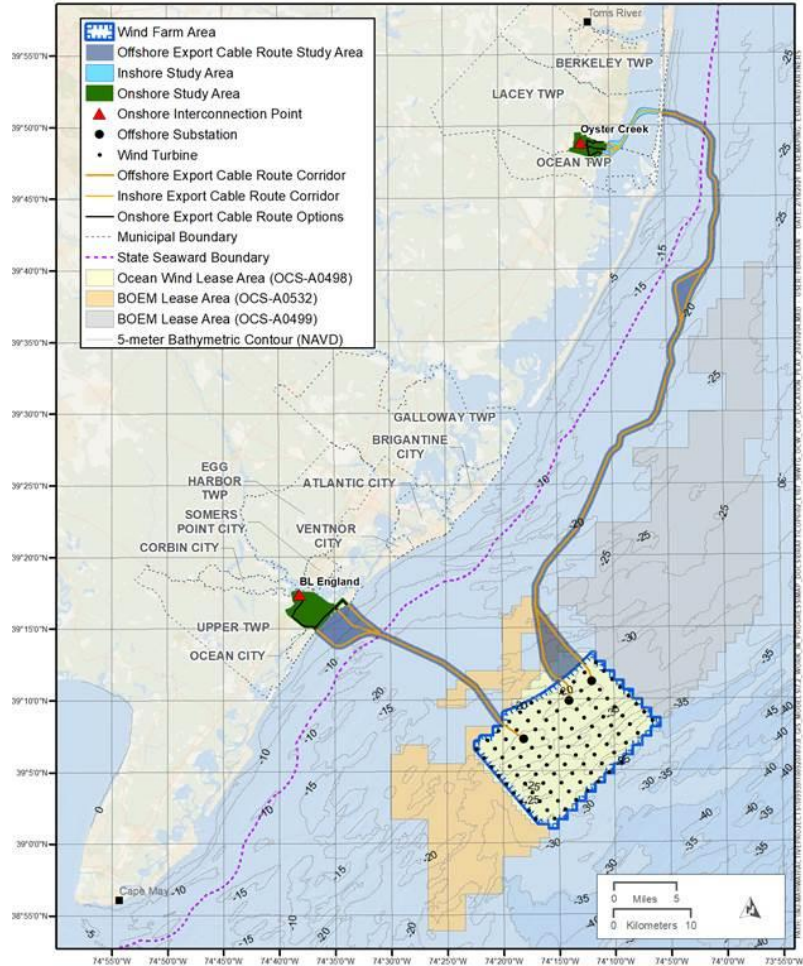


## Onshore Cables

- Up to six cables inside concrete ductbank
- Buried a minimum of 3 feet deep (or as required)



# Project Overview





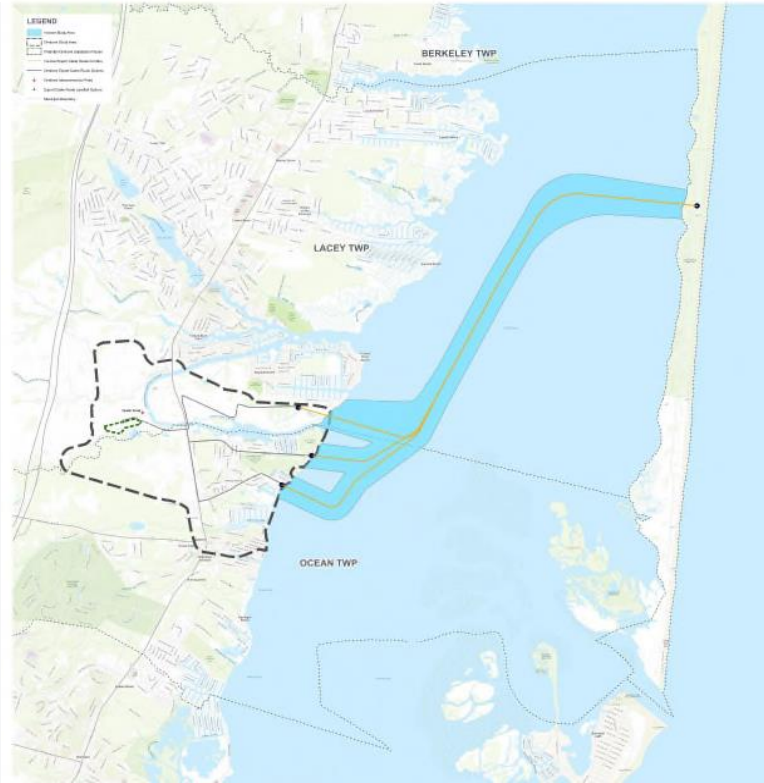
# BL England - Ocean City Landfall Options



## Ocean City

- Interconnection process ongoing
- OCW is exploring three potential landfalls:
  - 5th Street
  - 13th Street
  - 35th Street
- Landfall on 5<sup>th</sup> or 13<sup>th</sup> Street would be routed within West Ave to 35<sup>th</sup> street.
- Landfall on 35<sup>th</sup> street (and routing continuance from 5<sup>th</sup> or 13<sup>th</sup> street options) would follow Roosevelt Blvd into Upper Township and then North Shore Road to BL England.
- Cable installation under USACE beach nourishment program will require Section 408 Permit and use trenchless technology to be below authorized project limits.

# Oyster Creek – Island Beach State Park and Barnegat Bay Crossing



## Island Beach State Park

- Trenchless technology method to be used to cross under Island Beach State Park.
- Using parking lots to avoid and minimize impacts.
- Requires lease of DEP Managed Lands for buried cables.
- No construction during summer months.
- Barnegat Bay - exact method and route of cable burial to be determined based on:
  - Geotech data;
  - Shellfish habitat and submerged aquatic vegetation in the Bay.
- USACE requires cable burial 6 feet below authorized depth at Intercoastal Waterway crossing.

# Oyster Creek – Ocean County Landfalls



Interconnection process ongoing

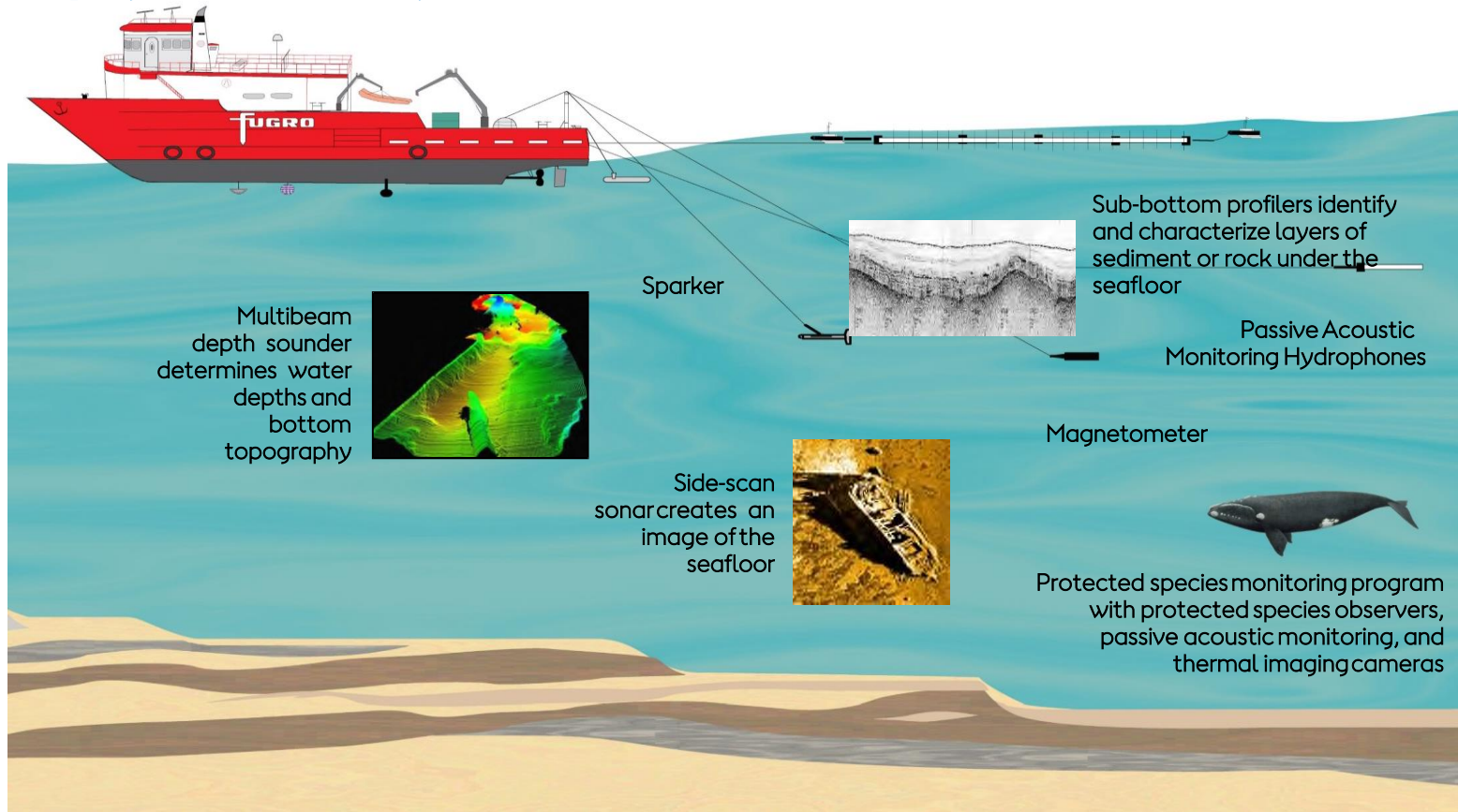
- Interconnection can accept approx. 636MW from Ocean Wind.

One of three potential landfalls to be selected:

- Holtec/Oyster Creek location, Lacey Twp
- Bay Parkway, Twp of Ocean
- Lighthouse Drive, Twp of Ocean

Orsted to construct a new substation to connect to existing substation at Oyster Creek.

# Geophysical Survey Work

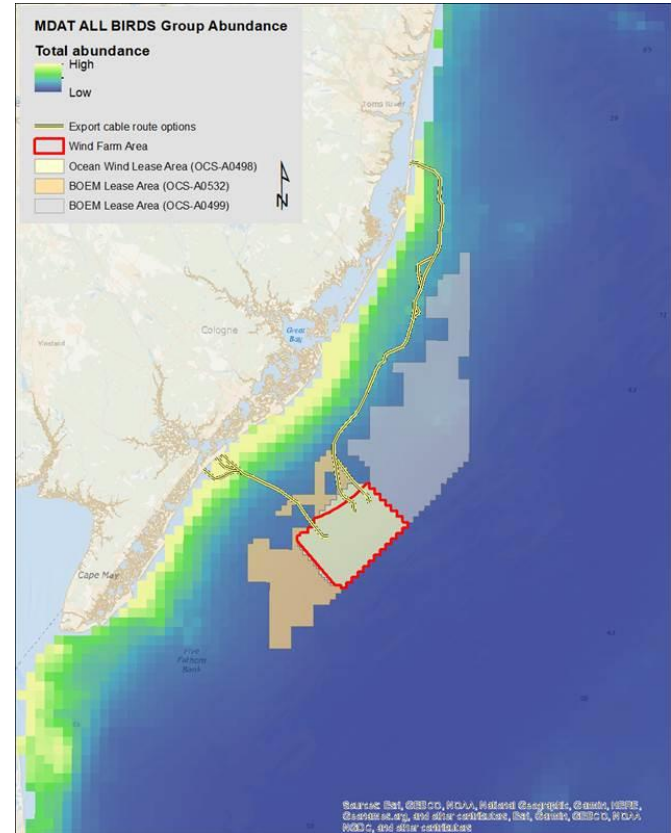


Between 2019 – 2020, the geophysical survey effort has covered over 6,000 miles of survey lines.

# Avian Assessment for Ocean Wind

Available data:

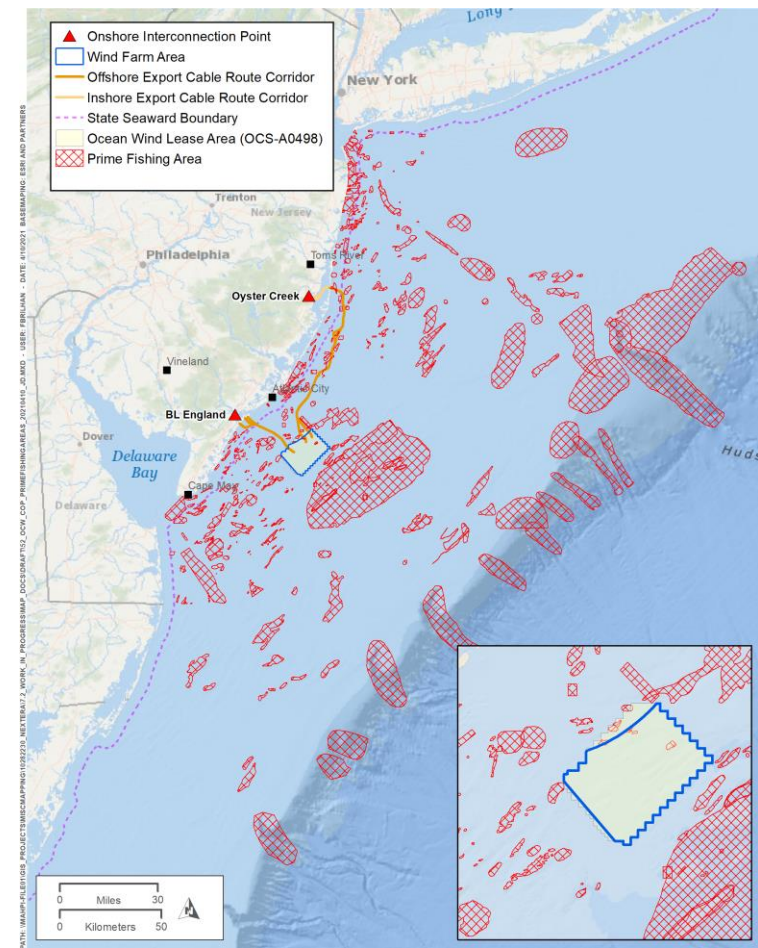
- **NJDEP Ecological Baseline Survey Avian Boat-based Surveys:** 23 monthly surveys over two years ('08 –'09).
- **Marine Bird Abundance Models, Marine-Life Data and Analysis Team (MDAT):** Regional-scale seasonal predictions of density for 47 species, 1978 -2016.
- **Northwest Atlantic Seabird Catalog:** Survey records from 1978-2017.
- **Tracking studies:** diving birds, falcon, listed species.



# Fisheries review and surveys

## Available data include:

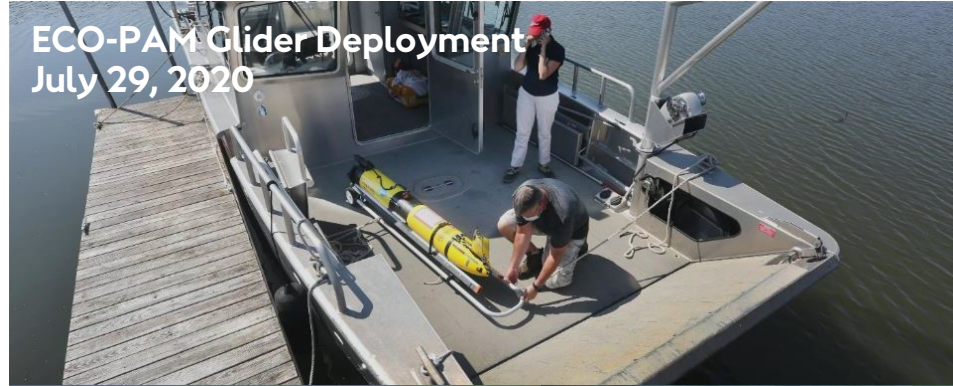
- **Northeast Fisheries Science Center Seasonal Trawl Studies:** conducted between 2003 and 2016.
- **USACE Otter Trawl Surveys:** Surveys conducted 1994 to 1999.
- **Virginia Institute of Marine Science:** Seasonal nearshore bottom trawl surveys have been conducted annually since 2007.
- **National Marine Fisheries Service:** Seasonal annual bottom trawl surveys since 1999.
- **NJ Ocean Trawl Program:** Seasonal trawl surveys conducted annually for last 30 years.
- **Available GIS data:** prime fishing areas, artificial reefs, shellfish habitat, migratory finfish pathways, etc.



# Marine Mammal Detection System: Ecosystem and Passive Acoustic Monitoring (ECO-PAM) Project

## A three-year project designed to:

- Better understand the habitat and behavior of the North Atlantic right whale in offshore wind lease areas.
- Provide better protection of the North Atlantic right whale during the survey, construction, and operation phases of its U.S. offshore wind projects.
- Work jointly with Rutgers University, the University of Rhode Island (URI), and the Woods Hole Oceanographic Institution (WHOI).
- The project will use data from two sound detection buoys deployed by the WHOI and one experimental buoy deployed by URI. In addition, a glider deployed by Rutgers will provide real-time oceanographic data and detections of marine mammal vocalizations.



## Factors that Affect Wind Farm Visibility

Weather and atmospheric conditions change over the course of each day and season, making it difficult for the average observer to recognize turbine blades at distances >15 miles.

- Curvature of the earth
- Atmospheric conditions
- The thinness of the blades
- Cloud cover
- The time of day
- Haze and fog may have the greatest impact on potential visibility.





# Visual Impact Assessment (VIA)

## Photosimulation

Bayview Park, Long Beach Township 28 miles south to project



# Visual Impact Assessment (VIA)

## Photosimulation

Atlantic City Beachfront 16 miles southeast to project



# Visual Impact Assessment (VIA)

## Photosimulation

### Stone Harbor Beach 21 miles east to project



# Windfarm Lighting

## Aircraft Lighting

- Aircraft warning lights will be located on the top of each turbine.
- Ocean Wind intends to incorporate an Aircraft Detection and Lighting System (ADLS). This system activates the aircraft warning lights only when an aircraft is within the vicinity of the wind farm during low light and night conditions.
- To understand how often the aircraft warning lights would be activated, Ocean Wind has studied historical air traffic data for flights passing within the vicinity of the wind farm.
- During the operational phase, it is estimated the lights would be active for a total of only a few hours spread over a one-year period.
- The use of ADLS is contingent on BOEM approval and compliant with Federal Aviation Administration (FAA) guidelines.

## Navigation Safety Lighting

- For marine navigation purposes, the structures will be lit in accordance with USCG offshore structure Private Aids to Navigation marking guidance. The structures will be equipped with continuous amber flashing lights that will be visible for a maximum distance of 5 nm (not visible from shore).



# Electromagnetic Fields (EMF) and Offshore Wind

## What Are EMF?

- EMF are produced by any source that generates, transmits, or uses electricity; also naturally occurring and are present everywhere in the ocean

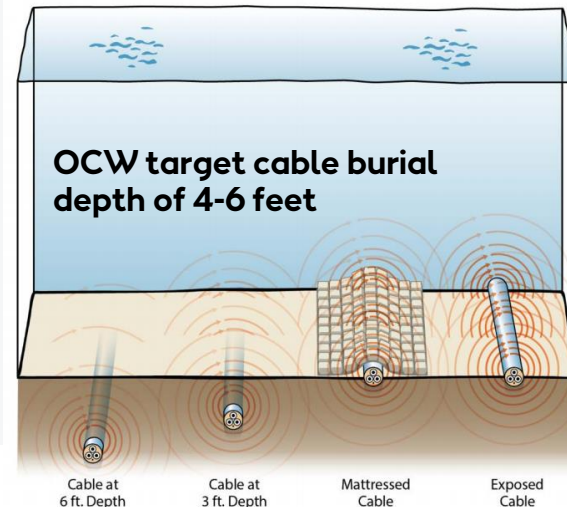
## Potential Impacts

- BOEM study found no compelling evidence that EMF were attracting or repelling fish or macroinvertebrates
- For bottom-dwelling species, EMF decays very quickly with distance from the cable, minimizing potential exposure

## Mitigating Factors

- Dividing the total power output among multiple export cables reduces EMF per cable; OCW has two export cable corridors, and two cables in the corridor to Oyster Creek
- Per BOEM study, increasing the burial depth from 1 m to 2 m (3.3 to 6.6 ft) reduces the magnetic field at the seafloor about four-fold

EMF Source	Magnetic Field at Various Distances from the Source* (mG)	
	6 inches	1 foot
Vacuum cleaner	300	60
Hair dryer	300	1
	at seafloor	1 m (3.3 ft) from seafloor
Array cable (515 A)	12.2	~0.2
Export cable (1032 A)	138	10



Sources: EMF Questions and Answers (NIEHS, 2002); OCW COP; OCS Study BOEM 2019-049

## Recreation and Tourism

COP considers impacts which may affect tourism including:

- potential seabed / land disturbance
- habitat conversion / noise / traffic
- visible structures / lighting

During Construction Ocean Wind will:

- Onshore: Minimize construction activities during summer recreation and tourism season
- Offshore: Inform recreational boating and fishing communities in advance of activities

Wind Farm Operations Studies Suggest:

- No loss of property values, tourism revenue, or recreational fishing opportunities
- Block Island Wind Farm an “enhanced fishing destination” for recreational fisheries
- Researchers using Airbnb data from Block Island concluded that offshore wind farms can act as an attractive feature of a location



# Fisheries outreach resources



Fisheries Liaisons



Fisheries Representatives



Outreach – early and often



Input on project layout  
and design



Collaborative design



# Open Houses and Comments

## Virtual Open Houses – October 2020

- Virtual Meeting Room
- Three Sessions with Q&A
- Between 300 - 400 attendees in total

## Categories of comments and questions

- Siting and Visibility
- Navigation and Fishing
- Permitting process
- Construction impacts
- EMF effects
- Noise
- Benefits and Opportunities for supply chain
- Decommissioning



Explore Recorded Open House – click on “Virtual Meeting Room”  
[www.OceanWind.Com](http://www.OceanWind.Com)



# Next Steps

- Public Scoping Period
- Development of Draft Environmental Impact Statement
- Public Process
- Development of Final Environmental Impact Statement

## Key Ørsted Contacts:

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- Liz Kretovic: Marine Affairs  
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**Thank you!**

