Revolution Wind

Massachusetts– Informational Meeting

February 2022
Prepared by

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Agenda

01 Introductions/Summary of Meeting Goals

02 Project Overview

03 Summary of the NEPA Substitution Process/Timeline

04 Summary of Visual Assessments

05 Massachusetts Historic Properties

06 Measures to Avoid, Minimize, and/or Mitigate Effects

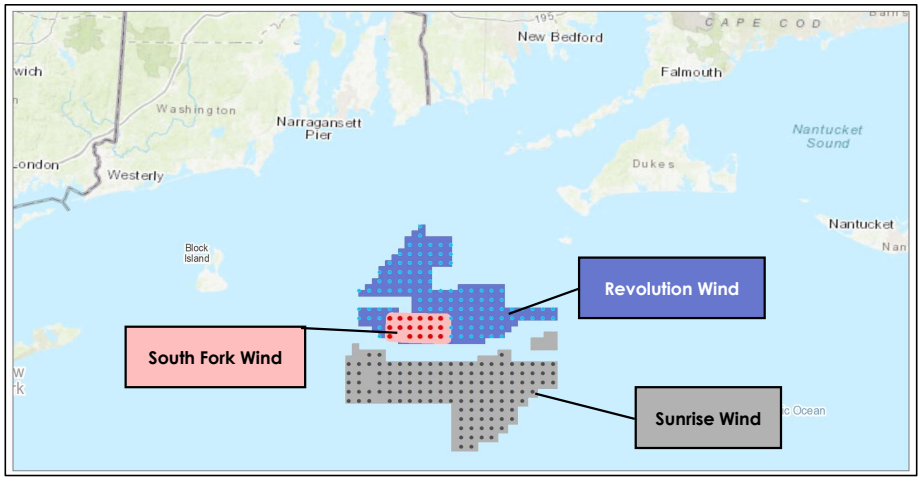
Introductions & Meeting Goals

Introductions to Project Team & Participants

Meeting Goals:

- **Preview Applicant-Prepared Assessment Methods and Results**
- **Review Affected Historic Properties (as identified by applicant)**
- **Solicit feedback on avoidance, minimization, mitigation concepts**

Overview of Meetings for Revolution Wind, South Fork Wind, and Sunrise Wind



	2021	2022									
Activity	**December**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**
SFW Post-MOA HPTP Consultation											
REV Scheduled Pre-DEIS Project Engagement								**DEIS**			
SRW Scheduled Pre-DEIS Project Engagement											**DEIS**

Revolution Wind Overview

- **50/50 Joint Venture between Orsted and Eversource**

- **Power contracts awarded to date (704 MW total) that will power more than 350,000 homes:**
  - **RI ~400 MW**
  - **CT ~200 MW**
  - **CT ~104 MW**

Schedule

Ongoing	Stakeholder meetings
2020 – 2021	Apply for permits
2022 -2023	Permit approvals
2023	Installation begins offshore
2024	Commercial operations begin

Revolution Wind Overview

Located within BOEM Wind Energy Lease Area OCS-A 0486

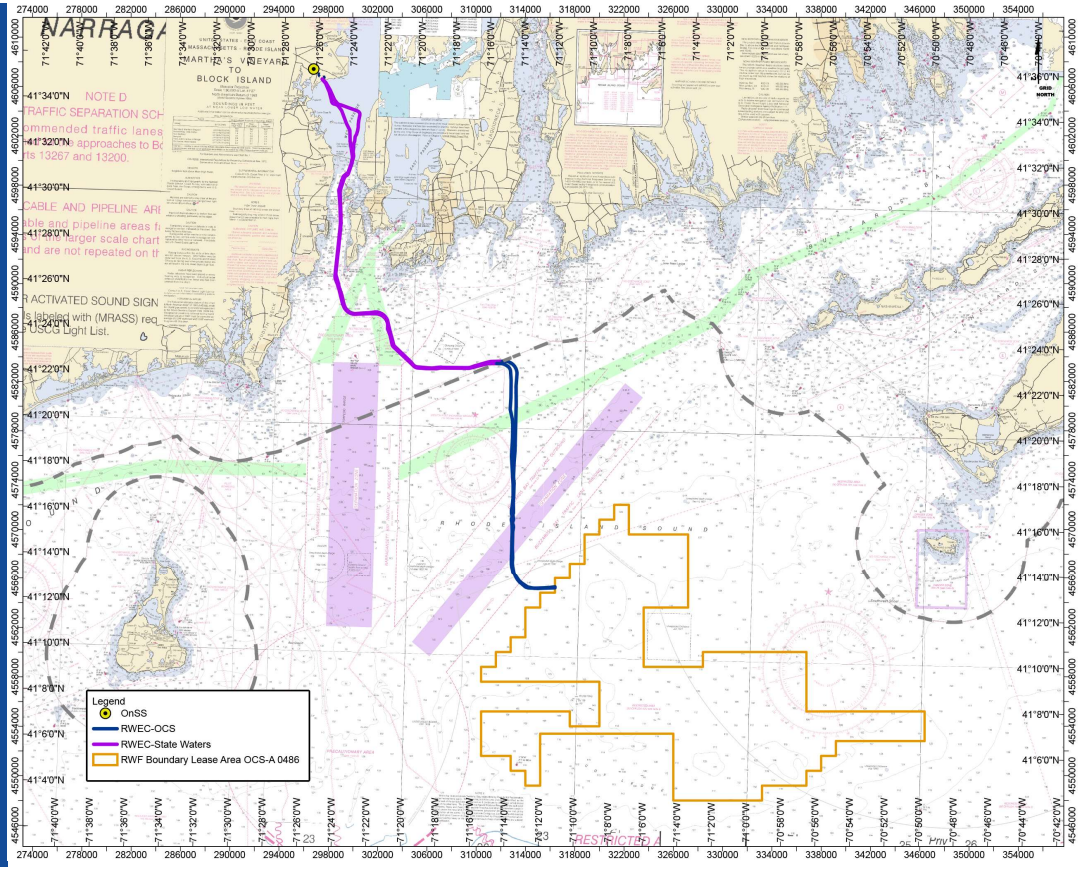
- ~18 miles southeast of Point Judith, ~15 miles east of Block Island, ~8.5 miles south of Nomans Land Island National Wildlife Refuge (uninhabited island), and between ~12 to 14 miles south/southwest of varying points of the RI and MA coastlines.
- Water depth approximately 90 - 160 feet

Offshore Project Components

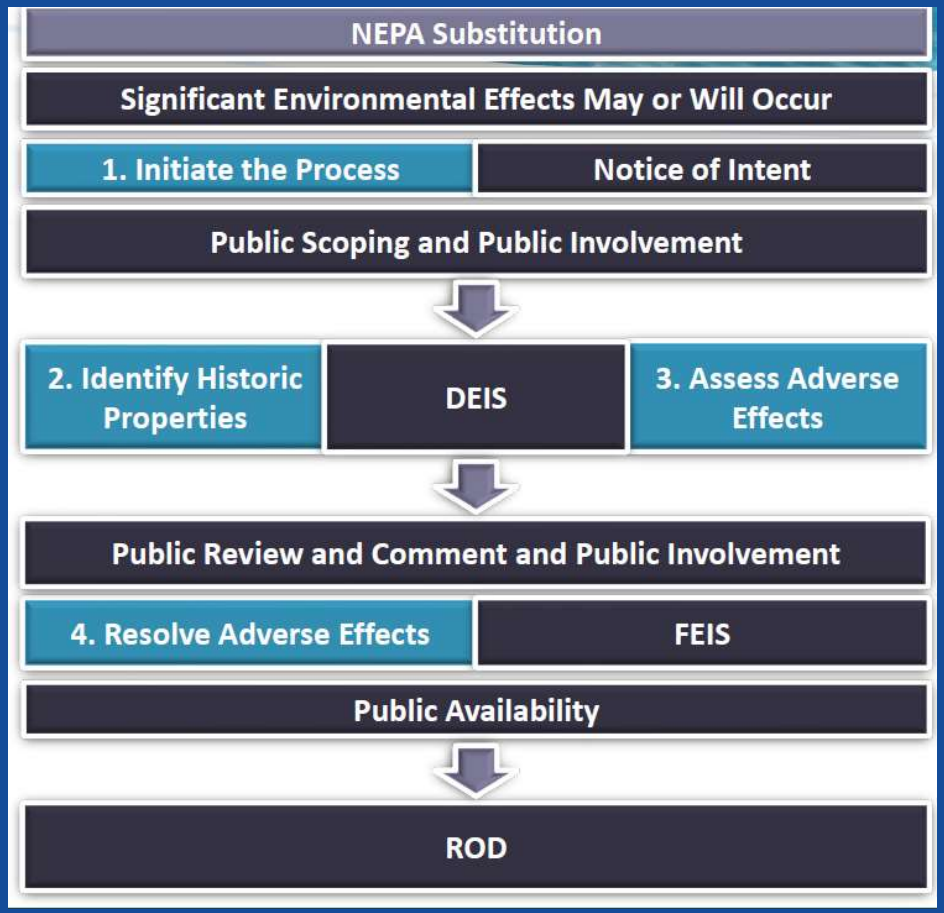
- Up to 100 wind turbines positioned on a 1 nm x 1nm grid
- Inter-array cable system
- Up to 2 offshore substations
- Up to 2 export cables

Onshore Project Components

- Onshore transmission cable
- New onshore substation and interconnection facility adjacent to existing Davisville Substation in North Kingstown, RI



NEPA Substitution Schedule



Timeframes of BOEM's Actions	
Notice of Intent	April 5, 2021 to April 30, 2021
Public Scoping and Public Involvement	May 1, 2021 to June 11, 2021
2. Identify Historic Properties / DEIS / 3. Assess Adverse Effects	June 12, 2021 to June 30, 2022
Public Review and Comment and Public Involvement	July 1, 2022 to Aug 15, 2022
4. Resolve Adverse Effects / FEIS	Aug 15, 2022 to March 24, 2023
Public Availability	March 24, 2023 to April 23. 2023
ROD	April 23, 2023 to May 1, 2023

We are Here

Source: BOEM Section 106 Consultation Meeting Presentation – Dec 17, 2021

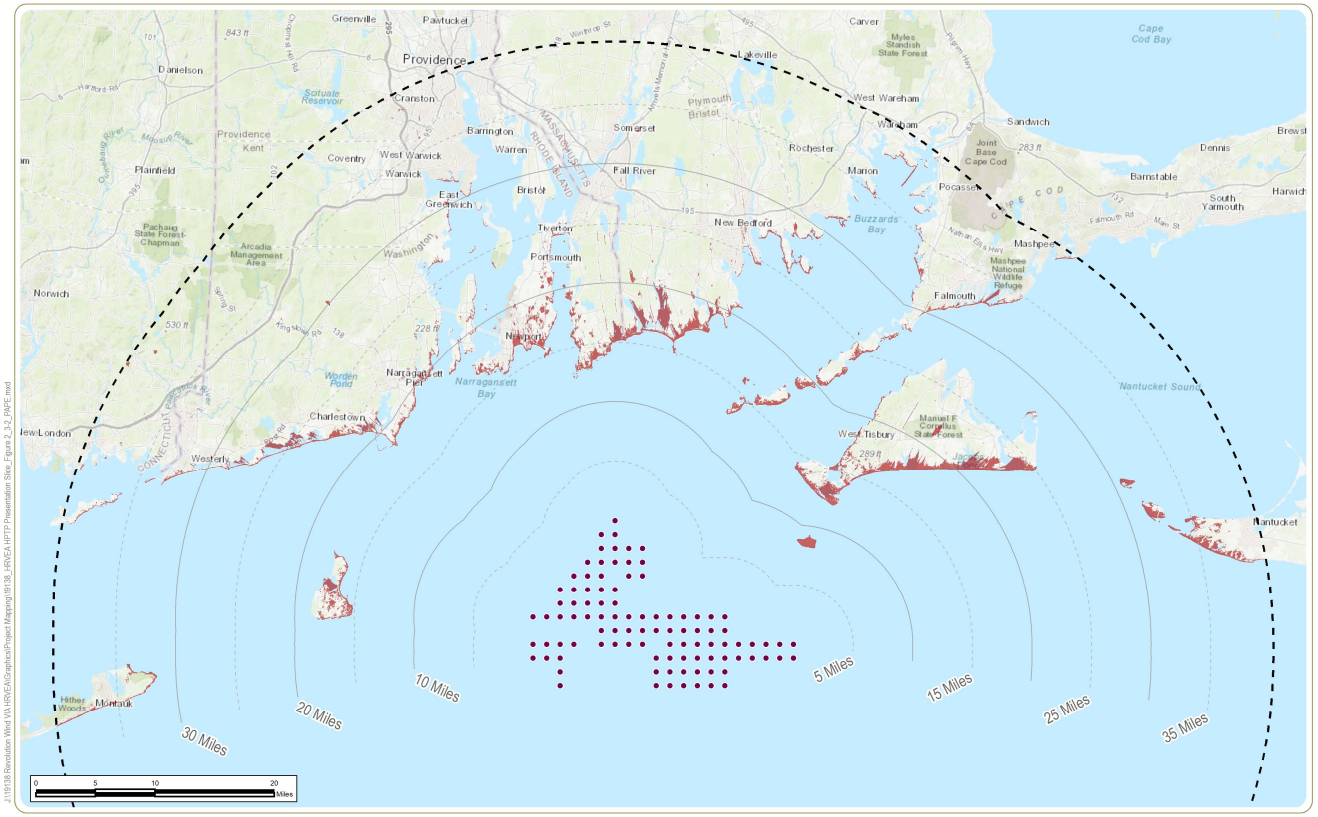
Preliminary Area of Potential Effects (PAPE)

Area of Potential Effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (36 CFR Part 800.16).

Revolution Wind evaluated areas from which the Project may be visible based on GIS modeling and field surveys.

BOEM will determine the APE in consultation with the SHPOs; Revolution Wind has identified a Preliminary Area of Potential Effects (PAPE).

Determining the Viewshed/PAPE



Revolution Wind Farm
Outer Continental Shelf (OCS-A0486)

Figure 2.3-2: Visual Study Area and Preliminary Area of Potential Effects

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.. **2.** This map was generated in ArcMap on January 20, 2022. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Wind Turbine
- 40-Mile Visual Study Area
- Preliminary Area of Potential Effects (PAPE)

N W E S

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Previous analyses suggest that, in general, offshore wind turbines of up to 12 MW in size will be substantially screened by the curvature of the earth at a distance of 40 miles

At a distance of 35-40 miles, only the narrowest portion of the blade tip will be theoretically visible

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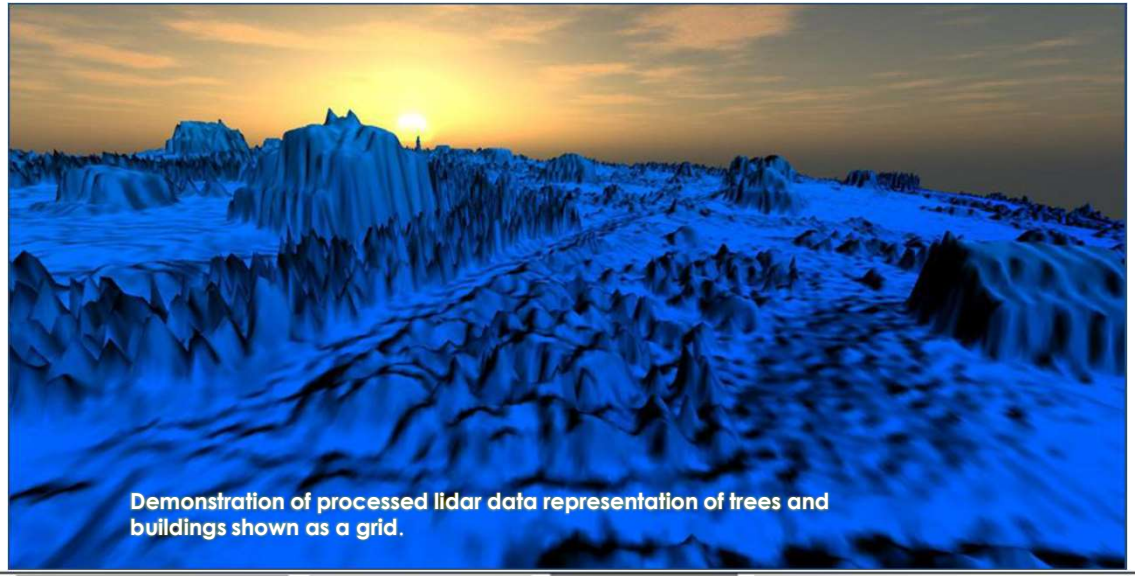
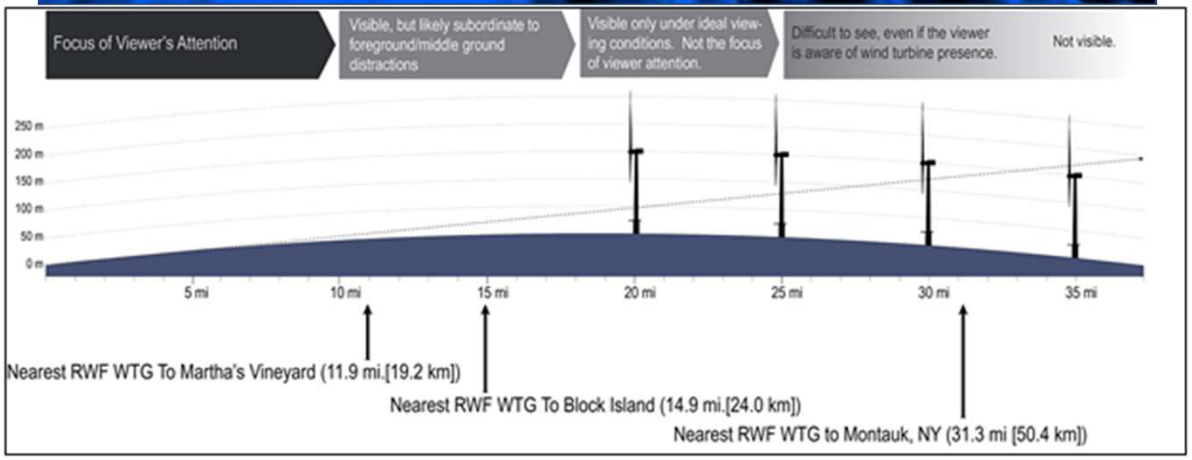




Determining the Viewshed/PAPE

A viewshed analysis was conducted to determine the Projects Area of Potential Effects (PAPE)

A detailed digital surface model representing buildings and trees was created.

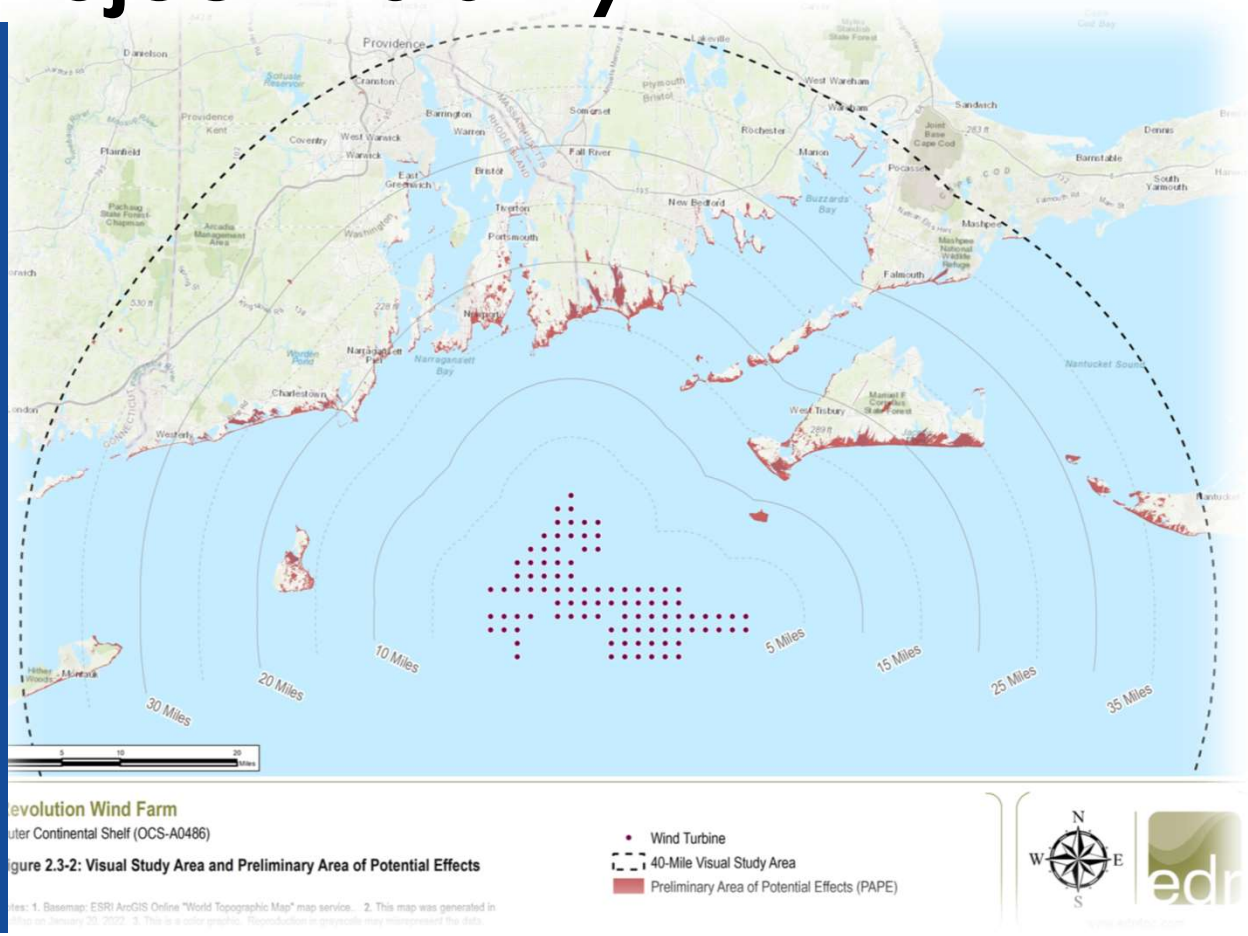
A separate digital terrain model was generated representing "bare earth" conditions (i.e. no buildings, vegetation).

The combination of the models allows for a comparison of the height and location of objects on the landscape to the surrounding ground surface.

The viewshed analysis is based on an observer height of 5' 5'' (height to eye level) and considers the curvature of the earth.

Factors Affecting Project Visibility

- 3% - The total land area in the 40-mile study area with project visibility.
- Of which 0.9% of the land area would only have potential visibility of wind turbine blades.
- 61% of a given year atmospheric conditions would limit visibility to less than 20 nautical miles.
- 31% of a given year atmospheric conditions would limit visibility to less than 30 nautical miles.
- Average daytime and nighttime visibility would be limited to 16-20 nautical miles over the course of a given year.
- Cloudy conditions reduce the average visibility to 12 miles, ranging from 10 nm in summer to 16 nm in winter.
- Overcast conditions occur over 52% of a given year. This condition minimizes the turbine contrast with the background sky.



SIGNIFICANCE OF MARITIME SETTING/OCEAN VIEWS

An Adverse Effect occurs when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register.

EDR reviewed the characteristics contributing to the significance of each of the identified above-ground historic property to determine if the property has a significant maritime setting, per the *Evaluation of visual impact on cultural resources/historic properties: North Atlantic, Mid-Atlantic, South Atlantic, and Florida Straits* (BOEM, 2012).

"Resources within this category derived their importance, in whole or in part, from their proximity to the sea. They included TCPs, coastal fortifications, parks and seashores, residential estates, lighthouses, life-saving stations, breakwaters, marinas, fishing and resort communities, and shore lodgings of all kinds, including hotels, motels, inns, seasonal cottages, and permanent residences" (BOEM, 2012).

Not every historic property within a PAPE will be adversely affected by an Undertaking

Whether the above-ground historic property has clear, unobstructed views of the sea and whether or not this view contributes to the historic significance of a given property was considered in determining if the project would constitute an adverse effect.

A study undertaken by the New York State Energy Research and Development Authority (NYSERDA), suggests offshore wind energy projects of typical magnitude would have **minimal visual effects at a distance of 20 miles and negligible effect beyond 25 miles**.

Per BOEM's previous analyses, adverse effects tend to result within 20 miles of wind turbines, to properties on elevated seaside bluffs that offer open vantage points within the APE, and through the introduction of modern visual elements that diminish the integrity of the properties' character-defining elements.

Overview of Historic Properties identified within PAPE

Property Designation	Occurrences of Property Within The PAPE Potential Adverse Effects									
	NY		CT		MA		RI		Total	
National Historic Landmark (NHL) properties and districts	1	-	1	-	2	-	10	7	**14**	**7**
Above-Ground Historic Properties and Historic Districts Listed in the National Register of Historic Places	3	-	3	-	55	12	62	**26**	**123**	**38**
Above-Ground Historic Properties Eligible for Listing in the National Register of Historic Places	2	-	-	-	7	11	61	**38**	**70**	**48**
Traditional Cultural Properties	-	-	-	-	3	2	-	**-**	**3**	**2**
Total	**6**	**0**	**4**	**0**	**313**	**25**	**229**	**71**	**552**	**95**

This is based on Revolution Wind's analyses.

BOEM has not formally determined that any historic property will be adversely affected by Revolution Wind.

LIST OF HISTORIC PROPERTIES ADDRESSED IN THIS MEETING

New Bedford
Fort Rodman
Fort Taber Historic District

West Tisbury
Scrubby Neck Schoolhouse

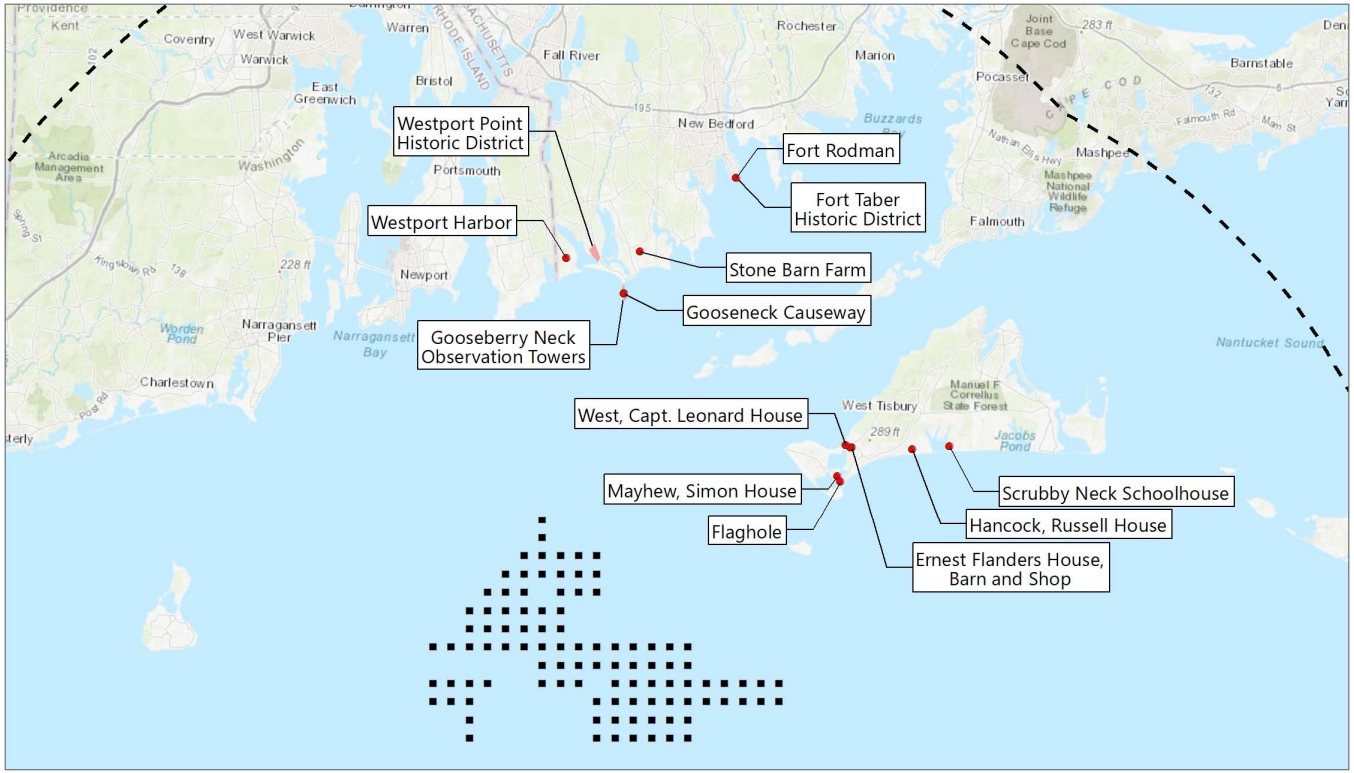
Westport
Gooseneck Causeway
Westport Harbor
Westport Point Historic District
Gooseberry Neck Observation Towers

Chilmark
West House
Russell Hancock House
Simon Mayhew House
Ernest Flanders House, Barn & Shop
Flaghole

Dartmouth
Stone Barn Farm

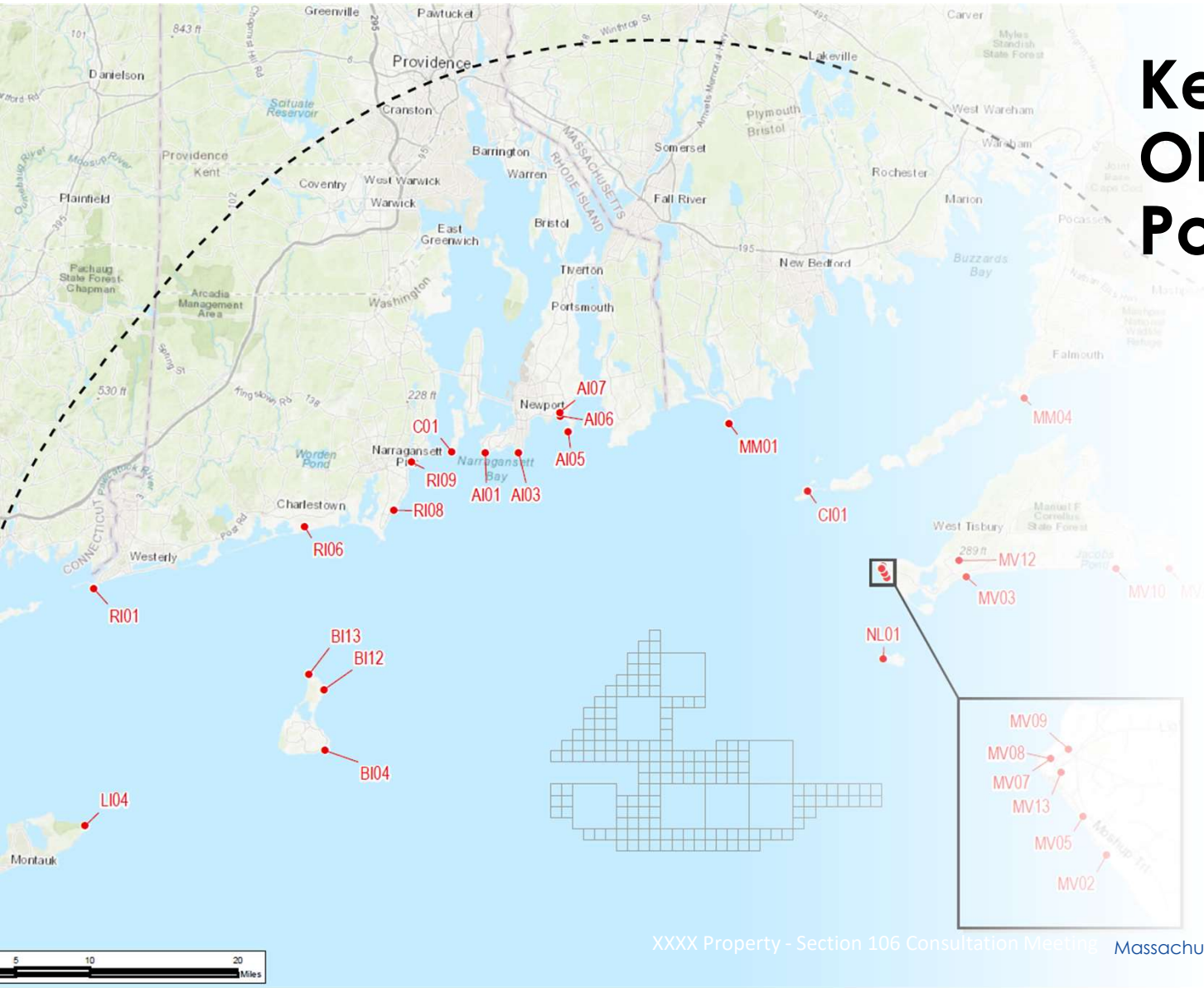
Massachusetts Historic Properties in Relation to the Project

Municipality	Historic Property
New Bedford	Fort Rodman
	Fort Taber HD
Westport	Westport Point HD
	Westport Harbor
	Gooseberry Neck Observation Towers
	Gooseberry Causeway
Chilmark	Capt. Leonard West House
	Simon Mayhew House
	Russell Hancock House
	Ernest Flanders House
	Flaghole
West Tisbury	Scrubby Neck Schoolhouse



Basemap: Esri ArcGIS Online "World Topographic Map" map service.

Key Observation Points (KOPs)



Viewing the Simulations

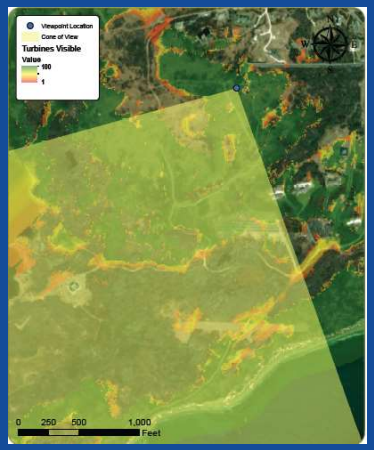
The visual simulations require viewing on a high-definition monitor measuring no less than 24 inches of useable area measured on a diagonal.

Each visual simulation contains a graphic scale measuring one inch long, a measuring device should be used to ensure this scale bar is accurate and the simulation is at the proper scale.

The viewer should view the simulation at a distance of approximately 20 to 22 inches in full screen mode.

The simulations are all available on BOEMs website with viewing instructions included.

Cuttyhunk Island-Gosnold



Cuttyhunk Island

Viewpoint Information
County: Dukes
Town: Gosnold
State: Massachusetts
Location: Cuttyhunk Island
Coordinates: 41.42052° N, 70.93411° W
Direction of View: South to Southwest (206.3°)
Distance to Nearest Visible Turbine: 14.1 miles

Visual Resources
Landscape Similarity Zone: Coastal Scrub/Scrub Forest
User Group: Local Residents, Tourists/Vacationers
Aesthetic Resource: Elizabeth Islands State Scenic Area, Buzzards Bay

Environmental Data
Date Taken: 1/18/2018
Time: 1:22 PM
Temperature: 34.0 °F
Humidity: 64%
Visibility: >10 miles
Wind Direction: North-Northwest
Wind Speed: 10.4 mph
Conditions Observed: Clear

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 151.3 feet AMSL

Viewing Instructions:
Printed at 100% the resulting simulation size is 15 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed from a distance 21 inches.

South Beach State Park-Edgartown

South Beach State Park

Viewpoint Information
County: Dukes
Town: Edgartown
State: Massachusetts
Location: Martha's Vineyard
Coordinates: 41.34982° N, 70.53103° W
Direction of View: Southwest to West-Southwest (239.8°)
Distance to Nearest Visible Turbine: 21.8 miles

Visual Resources
Landscape Similarity Zone: Shoreline Beach
Viewer Type: Local Residents, Tourists/Vacationers
Aesthetic Resource: South Beach State Park

Environmental Data
Date Taken: 8/9/2017, 11/20/2017 (Sunset)
Time: 9:42 AM, 4:13 PM (Sunset)
Temperature: 79.0 °F
Humidity: 40%
Visibility: >10.0 miles
Wind Direction: Variable
Wind Speed: 4.6 mph
Conditions Observed: Partly cloudy

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 17.0 feet AMSL

Viewing Instructions:
Printed at 100% the resulting simulation size is 15 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed from a distance 21 inches.

Gooseberry Island Westport

Gooseberry Island

Viewpoint Information

County: Bristol
Town: Westport
State: Massachusetts
Location: Gooseberry Island
Coordinates: 41.48515° N, 71.03884° W
Direction of View: South to South-Southwest (185.9°)
Distance to Nearest Visible Turbine: 15.1 miles

Visual Resources

Landscape Similarity Zone: Coastal Scrub/Scrub Forest
User Group: Local Residents, Tourists/Vacationers
Aesthetic Resource: Horseneck Beach State Reservation, Westport South Dartmouth Unit State Scenic Area, Buzzards Bay

Environmental Data

Date Taken: 7/26/2017, (Sunset)
Time: 2:21 PM, (Sunset)
Temperature: 75.9 °F
Humidity: 54%
Visibility: >10 miles
Wind Direction: South
Wind Speed: 8 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 16.0 feet AMSL

Viewing Instructions:
Printed at 100% the resulting simulation size is 15 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed from a distance 21 inches.

Nobska Lighthouse Falmouth

Nobska Lighthouse

Viewpoint Information
County: Barnstable
Town: Falmouth
State: Massachusetts
Location: Mainland, MA
Coordinates: 41.51576° N, 70.65512° W
Direction of View: South-Southwest to Southwest (219.6°)
Distance to Nearest Visible Turbine: 28.6 miles

Visual Resources
Landscape Similarity Zone: Maintained Recreation Areas
Viewer Type: Local Residents, Tourists/Vacationers
Aesthetic Resource: Nobska Lighthouse National Register Historic Site, Church Street/Nobska Point State Historic District, Nobska Beach Association Beach

Environmental Data
Date Taken: 8/9/2017, 1/1/2017 (Sunset)
Time: 6:23 AM, 4:10 PM (Sunset)
Temperature: 71.0 °F
Humidity: 68%
Visibility: >10 miles
Wind Direction: Southwest
Wind Speed: 7 mph
Conditions Observed: Partly Cloudy

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 53.7 feet AMSL

Viewing Instructions:
Printed at 100% the resulting simulation size is 15 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed from a distance 21 inches.

Summary of Avoidance and Minimization Measures

Wind Turbines will:

- **have uniform design, speed, height, and rotor diameter, thereby minimizing visual clutter;**
- **be installed on a 1NM by 1NM grid that extends across adjacent lease areas;**
  - reduces potential visual clutter caused by irregular or discordant spacing
- **be painted Pure White to Light Grey as recommended by BOEM and the FAA.**
  - turbines of this color white generally blend well with the sky at the horizon and eliminates the need for daytime warning lights or red paint marking of the blade tips

Revolution Wind will implement an aircraft detection lighting system (ADLS) to control aviation obstruction lights on turbines.

- Evaluation of the use of such a system in the project area indicates aviation obstruction lights would be activated for a total of approximately 3.5 hours over a one-year period

Onshore Measures:

- Onshore transmission cable will be buried below ground.
- Lighting at the onshore substation and interconnection facility will be dark sky-compliant and generally kept to a minimum (as-needed task lighting and safety/security lighting).
- Screening will be implemented at the onshore substation to reduce potential visibility.

Summary of Preliminary Measures to Avoid, Minimize and Mitigate

New Bedford

Fort Rodman

Fort Taber District

- **Provide funding for support on the next phase of the 2013 Architectural/Structural Assessment & Feasibility Study for Universal Accessibility.**

Summary of Preliminary Measures to Avoid, Minimize and Mitigate

Westport

Gooseberry Neck Observation Towers

Gooseneck Causeway

Westport Harbor Historic District

Westport Point Historic District

- Provide funding to Survey and Inventory Maritime Heritage Sites and Prioritize Preservation Efforts.
- Provide funding for hazard mitigation planning and/or adaptive re-use planning targeting historic piers, docks, landings and support continuing use by in the marine and fishing industries.

Summary of Preliminary Measures to Avoid, Minimize and Mitigate

Dartmouth

Stone Barn Farm

- **Provide funding for the development of interpretive exhibits at the Stone Barn site focusing on the history of the site, the historic ecology of farming, and impacts to agriculture and the local landscape from climate change.**

Summary of Preliminary Measures to Avoid, Minimize and Mitigate

West Tisbury

Scrubby Neck Schoolhouse

- **Provide funding for a conditions assessment and feasibility plan for the adaptive reuse of the building.**

Summary of Preliminary Measures to Avoid, Minimize and Mitigate

Chilmark

West House

Russell Hancock House

Simon Mayhew House

Ernest Flanders House, Barn & Shop

Flaghole

- **Provide funding support to prioritize historic preservation in the county hazard mitigation plan or to develop a town hazard mitigation plan incorporating historic property-specific considerations.**

Meeting Recap

Thank you!

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