September 30, 2022

Secretary Bethany A. Card
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Subject: **New England Wind 2 Connector**
Environmental Notification Form (ENF)

Dear Secretary Card:

Commonwealth Wind, LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, (the "Company") is pleased to submit this Environmental Notification Form (ENF) for the New England Wind 2 Connector (the "Project"). The Project comprises the Massachusetts-jurisdictional components of the Commonwealth Wind project, an offshore wind project located within Lease Area OCS-A 0534 in federal waters under the jurisdiction of the Bureau of Ocean Energy Management (BOEM).

In May 2021, the Massachusetts Electric Distribution Companies (EDCs), in coordination with the Massachusetts Department of Energy Resources (DOER), issued a third offshore wind solicitation as part of a procurement schedule developed by the EDCs and DOER. The Company submitted and was subsequently awarded a bid for Commonwealth Wind, a 1,232 megawatt (MW) offshore wind project within Lease Area OCS-A 0534. Commonwealth Wind/New England Wind 2 Connector is the largest renewable energy project ever proposed in New England.

Avangrid Renewables is a 50 percent partner in the nation's first commercial-scale offshore wind project, Vineyard Wind 1 (800 MW), and a 100 percent owner of Park City Wind (800 MW). Vineyard Wind 1 is currently under construction and Park City Wind is proceeding through permitting. Through its development of Vineyard Wind 1/Vineyard Wind 1 Connector (EEA #15787) and Park City Wind/New England Wind 1 Connector (EEA #16231), the Company has established meaningful and enduring relationships with federal, state, and local regulators and a diverse array of stakeholders. The Project will generally utilize the same offshore export cable corridor (OECC) as Vineyard Wind 1 Connector and New England Wind 1 Connector. While unique permits are required for the New England Wind 2 Connector, the Company has significant experience working with the relevant permitting authorities and local officials.

The Project will serve the public interest by delivering 1,232 MW of zero-carbon power to Massachusetts, contributing to the achievement of the Commonwealth's ambitious greenhouse gas reduction goals. Commonwealth Wind will also advance job creation and the development of an offshore wind workforce and supply chain in the Commonwealth and the entire New England region. Further, the Project will deliver affordable energy during the winter months, helping offset the need for oil or imported natural gas during times of peak demand while generating significant air quality benefits for the region and the planet. The Project will additionally enhance energy security by increasing the reliability and diversity of the energy supply.

The Company respectfully requests that the enclosed ENF be noticed in the next issue of the *Environmental Monitor* to be published on October 7, 2022. The Company anticipates that the public comment period for the ENF will extend through October 27, 2022, and the Secretary's Certificate will be published on November 7, 2022.

Thank you for your consideration of the Project. We are committed to working with state, federal, tribal, local, and regional officials, as well as other stakeholders, to maximize this unique, timely, and important opportunity to establish southern New England as the center for the offshore wind industry in the United States, and soon start to make large reductions in carbon emissions.

Sincerely,

Kenneth L. Kimmell
Vice President of Development for Offshore Wind
Avangrid Renewables, LLC

cc: ENF Distribution List

PRINCIPALS

Theodore A Barten, PE
Margaret B Briggs
Dale T Raczynski, PE
Cindy Schlessinger
Lester B Smith, Jr
Robert D O'Neal, CCM, INCE
Michael D Howard, PWS, CWS
Douglas J Kelleher
AJ Jablonowski, PE
David E Hewett, LEED AP
Dwight R Dunk, LPD
David C Klinch, PWS, PMP
Maria B Hartnett
Richard M Lampeter, INCE
Geoff Starsiak, LEED AP BD+C
Marc Bergeron, PWS, CWS
Alyssa Jacobs, PWS

ASSOCIATES

Holly Carlson Johnston
Brian Lever
Dorothy K. Buckoski, PE
John Zimmer

3 Mill & Main Place, Suite 250
Maynard, MA 01754
www.epsilonassociates.com

978 897 7100
FAX 978 897 0099

September 30, 2022

Subject: New England Wind 2 Connector
ENVIRONMENTAL NOTIFICATION FORM
Commonwealth Wind, LLC

Dear Interested Party:

On behalf of Commonwealth Wind, LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, (collectively referred to herein as "the Company"), Epsilon Associates, Inc. ("Epsilon") is pleased to submit the enclosed Environmental Notification Form ("ENF") for the proposed New England Wind 2 Connector Project ("NE Wind 2 Connector" or the "Project").

NE Wind 2 Connector is comprised of:

- Three 275-kilovolt (kV) high voltage alternating current (HVAC) offshore export cables located almost entirely within previously surveyed, mapped and characterized Offshore Export Cable Corridor(s) (OECC).
- An approximate 6.7-mile underground concrete duct bank which will house the onshore 275-kV transmission cables and fiber optic cable(s) from the transition vaults at the Dowses Beach Landfall Site to the proposed new onshore substation site off Oak Street in Barnstable.
- A new onshore substation where the 275-kV voltage in the onshore transmission cables will step up to 345-kV in preparation for interconnection at the existing Eversource 345-kV West Barnstable Substation.
- An underground duct bank which will house the 345-kV grid interconnection cables from the new onshore substation to the grid interconnection point at the existing Eversource 345-kV West Barnstable Substation in Barnstable.

The Project is subject to MEPA review and is subject to preparation of a mandatory EIR pursuant to 301 CMR 11.03(3)(a)(1)(b) and 301 CMR 11.03(7)(a)(4) because it requires Agency Actions and will result in alteration of ten or more acres of any other wetlands and involves the construction of electric transmission lines with a Capacity of 230 or more kV along five or more miles of new, unused or abandoned right of way.

The ENF will be noticed in the *Environmental Monitor* to be published on October 7, 2022. The Public Comment period will extend through October 27, 2022, and the Certificate on the ENF will be issued on November 7, 2022.

If you wish to submit comments on the ENF, those comments should be submitted to the MEPA Office during the referenced comment period. Comments can be submitted online via the MEPA Public Comment Portal at:

https://eeaonline.eea.state.ma.us/EEA/PublicComment/Landing/

Comments can also be e-mailed to mepa@mass.gov (please reference the Project name [New England Wind 2 Connector] in the subject line) or the Environmental Analyst reviewing the project (see https://www.mass.gov/service-details/submitting-comments for additional information).

or sent to:

Secretary Bethany A. Card
Attn: MEPA Office
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

A copy of the ENF may be requested from Ms. Corinne Snowdon at (978) 897-7100 or via e-mail at csnowdon@epsilonassociates.com.

Sincerely,
EPSILON ASSOCIATES, INC.

Marc Bergeron
Principal / Project Manager

Enclosure

New England Wind 2 Connector

Environmental Notification Form

September 30, 2022

Submitted by
Commonwealth Wind, LLC
125 High Street, 6th Floor
Boston, MA 02110

Submitted to
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Prepared by
Epsilon Associates, Inc.
3 Mill & Main Place
Suite 250
Maynard, MA 01754

In Association with
Foley Hoag LLP
Stantec, Inc.
Geo SubSea LLC
Public Archaeology Laboratory

Table of Contents

TABLE OF CONTENTS

ENVIRONMENTAL NOTIFICATION FORM

ATTACHMENT A SUPPORTING NARRATIVE **1**

1.0 Project Need and Benefits 1
- 1.1 Project Need 1
- 1.2 Project Benefits 2
  - 1.2.1 Energy Reliability Benefits 3
  - 1.2.2 Community and Economic Benefits 4
  - 1.2.3 Environmental Benefits 6

2.0 Summary of Federal Permitting Process, Overview of Project Components in Federal Waters, and Port Facilities for the Commonwealth Wind Project 7
- 2.1 Commonwealth Wind Project Federal Permitting Summary 7
- 2.2 Commonwealth Wind Project Components in Federal Waters 8
  - 2.2.1 Offshore Wind Generation Facilities 8
  - 2.2.2 Offshore Export Cables 8
  - 2.2.3 Commonwealth Wind Project Port Facilities 10

3.0 Alternatives 10
- 3.1 Project Alternatives 11
  - 3.1.1 No Build 11
  - 3.1.2 HVDC Alternative 11
  - 3.1.3 Shared Transmission Alternative 12
- 3.2 Onshore Project Components Alternatives Considered 13
  - 3.2.1 Landfall Location Alternatives Considered 13
  - 3.2.2 East Bay Crossing Alternatives Considered 15
  - 3.2.3 Onshore Transmission Cable Route Alternatives Considered 17
  - 3.2.4 Route 6 Crossing Alternatives Considered Along Onshore Transmission Cable Route 20
  - 3.2.5 Project Substation Alternatives Considered 20

4.0 Construction Mitigation, Compliance and Monitoring 21
- 4.1 Stormwater Runoff, Erosion Prevention Measures, Sediment Controls, and Dewatering 21
- 4.2 Air Quality 22
- 4.3 Construction Wastes 22
- 4.4 Traffic Management 23
- 4.5 Construction Noise 23

5.0 Schedule 24

6.0 Agency and Community Outreach 24
- 6.1 Agency Meetings and Consultations 24
  - 6.1.1 Massachusetts Environmental Policy Act Office 27
  - 6.1.2 Massachusetts Energy Facilities Siting Board Staff 27
  - 6.1.3 Interagency Meeting 27

TABLE OF CONTENTS (CONTINUED)

		6.1.4 Massachusetts Department of Transportation	28
		6.1.5 Department of Conservation and Recreation	28
		6.1.6 Municipalities	28
		6.1.7 Tribes	28
	6.2	Stakeholder Coordination	28
	6.3	Advance Notice	32
	6.4	Abutter Outreach	32
7.0	Project Team		33
	7.1	Avangrid Renewables	33
	7.2	Vineyard Power	33
	7.3	Epsilon Associates, Inc. (Lead Environmental Consultant)	34
	7.4	Foley Hoag LLP, Counsel	34
	7.5	Stantec, Engineering Design support	34
	7.6	Gradient Corporation	35
	7.7	Geo SubSea, LLC	35
	7.8	Public Archaeology Laboratory	35

ATTACHMENT B FIGURES

ATTACHMENT C DISTRIBUTION LIST

ATTACHMENT D PERMITS, REVIEWS, AND APPROVALS REQUIRED FOR THE PROJECT

ATTACHMENT E OFFSHORE EXPORT CABLE CORRIDOR MAP SERIES

ATTACHMENT E1: BENTHIC HABITAT MAP SET – AUSTER CLASSIFICATION SYSTEM

ATTACHMENT E2: BENTHIC HABITAT MAP SET – COASTAL AND MARINE ECOLOGICAL CLASSIFICATION STANDARD (CMECS) SYSTEM

ATTACHMENT F SUPPORTING PLANS

ATTACHMENT F1: DOWSES BEACH LANDING HDD LANDFALL DRILL PATHS

ATTACHMENT F2: ONSHORE 275-KV TRANSMISSION CABLE DUCT BANK ROUTE

ATTACHMENT F3: ONSHORE 275-KV TRANSMISSION ROUTE 6 CROSSING

ATTACHMENT F4: 275/345 KV GIS SUBSTATION

ATTACHMENT G RMAT CLIMATE RESILIENCE DESIGN STANDARDS TOOL REPORT

ATTACHMENT H MASSACHUSETTS COASTAL ZONE MANAGEMENT ACT CONSISTENCY CERTIFICATION

ATTACHMENT I SEDIMENT DISPERSION MODELING

ATTACHMENT J ADVANCE NOTICE OF MEPA ENF AND ADVANCE NOTICE CIRCULATION LIST

List of Figures

Figure 1	Project Overview
Figure 2	Onshore Project Components
Figure 3	Offshore Export Cable Corridor (OECC)
Figure 4A	Typical Offshore Export Cable Cutaway
Figure 4B	Typical Onshore Export Cable Cutaway
Figure 5	Environmental Constraints
Figure 6	Wetland Resource Areas
Figure 7	Proposed New Substation Site – Aerial Locus
Figure 8	Historic Resources
Figure 9	Water Resources
Figure 10	Environmental Justice Populations and English Isolation Areas
Figure 11	Sea Level Rise and Coastal Flooding
Figure 12	Hurricane Surge Inundation
Figure 13A	Historic High Water Shorelines at Dowses Beach Landfall Site
Figure 13B	Short-Term Shoreline Change Rate at Dowses Beach Landfall Site
Figure 13C	Long-Term Shoreline Change Rate at Dowses Beach Landfall Site
Figure 14	Town of Barnstable Sewer Installation Phasing
Figure 15	Potential Landfall Sites
Figure 16	Candidate Routes
Figure 17	Typical Horizontal Directional Drill Trajectory Profile at Dowses Beach Landfall Site

Environmental Notification Form

Environmental Notification Form

For Office Use Only
EEA#: ————————
MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **New England Wind 2 Connector**		
Street Address: **Offshore export cables from Federal/Massachusetts offshore boundary, northerly to Dowses Public Beach in Barnstable (Landfall Site), and onshore underground electric transmission cables within existing roadway layouts to a new onshore electrical substation in Barnstable and ultimately to an interconnection point at Eversource's existing 345-kV West Barnstable Substation.**		
Municipality: **Barnstable**	Watershed: **Cape Cod**	
Universal Transverse Mercator Coordinates: **386144.038248 (easting) 4608723.58444 (northing) to 387647 (easting) 4615794 (northing) (UTM Zone 19N)**	Latitude: **41.622 to 41.686** Longitude: **-70.366 to -70.350**[1]	
Estimated commencement date: **2025**	Estimated completion date: **2028**	
Project Type: **Utility Infrastructure**	Status of project design: **25**% complete	
Proponent: **Commonwealth Wind, LLC**		
Street Address: **125 High Street, 6th Floor**		
Municipality: **Boston**	State: **MA**	Zip Code: **02110**
Name of Contact Person: **Marc Bergeron**		
Firm/Agency: **Epsilon Associates, Inc.**	Street Address: **3 Mill & Main Place, Suite 250**	
Municipality: **Maynard**	State: **MA**	Zip Code: **01754**
Phone: **978-461-6253**	Fax: **978-897-0099**	E-mail: **mbergeron@epsilonassociates.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☒**Yes** ☐No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes ☒**No**
a Rollover EIR? (see 301 CMR 11.06(13))	☐Yes ☒**No**
a Special Review Procedure? (see 301CMR 11.09)	☐Yes ☒**No**
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes ☒**No**
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes ☒**No**

(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

[1] UTM Coordinates and Latitude/Longitude are given for the landfall site at Dowses Public Beach and the interconnection point at the existing Eversource 345-kV West Barnstable Substation.

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?

- **<u>301 CMR 11.03(3)(a)(1)(b)</u>: Provided that a Permit is required: alteration of ten or more acres of any other wetlands** *(temporary disturbance of ocean bottom, RFA and LSCSF; no BVW alteration)*.
- **<u>301 CMR 11.03(7)(a)(4)</u>: Construction of electric transmission lines with a Capacity of 230 or more kV, provided the transmission lines are five or more miles in length along New, unused, or abandoned right of way.**
- **<u>301 CMR 11.03(1)(b)(3) and/or (5):</u> Conversion of land held for natural resources purposes in accordance with the Amendments to the Constitution of the Commonwealth Article 97 to any purpose not in accordance with Article 97 and/or release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes** *(for Landfall Site, onshore transmission route along Dowses Beach Road, onshore substation site access, and grid interconnection route).*
- **<u>301 CMR 11.03(2)(b)(1)</u>: Greater than two acres of disturbance of designated priority habitat, as defined in 321 CMR 10.02, that results in a take of a state-listed endangered or threatened species or species of special concern** *(possible pending NHESP consultation)*.
- **<u>301 CMR 11.03(3)(b)(3)</u>: Dredging of 10,000 or more cy of material.**

Which State Agency Permits will the project require? **See Attachment D for a complete permit list.**

- **Massachusetts Department of Environmental Protection: Chapter 91 Waterways License and Dredge Permit, 401 Water Quality Certification;**
- **Massachusetts Department of Public Utilities/Energy Facilities Siting Board: Approval under MGL c. 164 Sections 69J and 72, and Chapter 40A Section 3 Zoning Exemption;**
- **Massachusetts Department of Transportation: Access Permit(s); and**
- **Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program: Conservation and Management Permit (if required).[2]**

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres:

The Project does not involve any funding or land transfer from an Agency of the Commonwealth.

[2] In addition, there are a number of consultations/reviews that are required but are not technically "permits", including MEPA Environmental Review and MHC Section 106 consultations.

Summary of Project Size & Environmental Impacts	Existing	Change	Total
Total site acreage	**211.6** [3]		
New acres of land altered		**15.2** [4]	
Acres of impervious area	**13.1** [5]	**1.2** [6]	**14.1**
Square feet of new bordering vegetated wetlands alteration		**0**	
Square feet of new other wetland alteration		**8.0 million (183 acres)** [7]	
Acres of new non-water dependent use of tidelands or waterways		**0**	
Gross square footage	**0**	**22,400**[8]	**22,400**
Number of housing units	**0**	**0**	**0**
Maximum height (feet)	**N/A**	**40** [9]	**40**
Vehicle trips per day	**0**	**<1**	**<1** [10]
Parking spaces	**0**	**6**	**6**
Water Use (Gallons per day)	**0**	**0**	**0**
Water withdrawal (GPD)	**0**	**0**	**0**
Wastewater generation/treatment (GPD)	**0**	**0**	**0**
Length of water mains (miles)	**0**	**0**	**0**

[3] 211.6 acres = 183 acres for the installation of the offshore export cables (23.0 miles per cable all within the OECC [Eastern Muskeget Channel], offshore export cable protection, dredging prior to cable installation, and use of Jack-up and/or anchored vessels and vessel grounding in state waters + 10.6 acres for installation of the onshore duct bank along the 6.7-mile transmission route (assuming a 13-foot-wide duct bank trench along the entire length) + 15.2 acres assuming maximum use of the proposed substation site + approximately 1.3 acres for onshore substation site access improvements and installation of the grid interconnection duct bank + approximately 1.5 previously disturbed acres for modifications and upgrades within the existing Eversource 345-kV West Barnstable Substation.

[4] Calculated for onshore land area: 12.4 acres of currently undeveloped/forested area proposed to be altered during build-out of the onshore substation site + approximately 1.3 acres for onshore substation site access improvements and installation of the grid interconnection duct bank + approximately up to 1.5 acres for modifications and upgrades at the existing Eversource West Barnstable Substation

[5] Existing impervious area is all paved surfaces and is calculated as 10.6 acres of proposed duct bank (assuming a 13-foot-wide duct bank trench used to install the onshore duct bank along its entire length) within existing roadway layouts along the onshore transmission route (6.7 miles) + 2.5 acre of existing impervious area at Dowses Beach.

[6] Change in impervious surface from the Project is associated with the new onshore substation and includes proposed pavement, structures, and concrete foundations. All existing paved areas will be restored to existing conditions.

[7] 8.0 million square feet (183 acres) = Includes installation of three offshore export cables through state waters through the OECC, for which the cable trench is expected to temporarily affect an area approximately 3.3 feet wide + temporary surficial disturbance from the skids/tracks of the cable installation equipment over the surface of the seafloor (each skid/track is assumed to be approximately 9.8 feet wide) + dredging prior to cable installation within state waters + Jack-up and/or anchored vessels and vessel grounding.

[8] The only proposed buildings are the five new buildings associated with the new onshore substation. Additional electrical equipment will be installed within the onshore substation site.

[9] Substation equipment and enclosures are expected to be 40 feet or less in height. The maximum height of any element of the proposed substation is approximately 80 feet (lightning protection masts).

[10] Project requires no on-site employees. Vehicle trips per day excludes construction traffic.

Length of sewer mains (miles)	**0**	**0**	**0**
Has this project been filed with MEPA before? ☐ Yes (EEA #_____) ☒**No**			
Has any project on this site been filed with MEPA before? ☐ Yes (EEA # 15787 and 16231) ☒**No (**The Project is using a shared Offshore Export Cable Corridor with the Vineyard Wind Connector 1 and the New England Wind 1 Connector Projects)			

GENERAL PROJECT INFORMATION – all proponents must fill out this section

The Commonwealth Wind Project (the CWW Project) is being proposed in response to a solicitation in 2021 for a commercial-scale offshore wind project by the Commonwealth of Massachusetts pursuant to Section 83C of the Green Communities Act, as amended by Chapter 188 of the Acts of 2016, An Act to Promote Energy Diversity, Chapter 8 of the Acts of 2021, and An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy. In December 2021, the Commonwealth of Massachusetts selected the CWW Project as one of two winning bids. Commonwealth Wind, LLC, a wholly owned subsidiary of Avangrid Renewables, LLC, (collectively referred to herein as "the Company") is the project proponent of New England Wind 2 Connector (NE Wind 2 Connector or the Project), the project that is the subject of this Environmental Notification Form (ENF). NE Wind 2 Connector is comprised of those elements of the broader CWW Project that are subject to state jurisdiction, which includes components proposed within both state waters and onshore. Please see Attachment A for additional project context and background.

The NE Wind 2 Connector will deliver approximately 1,232 megawatts (MW) of zero-carbon renewable power to the ISO New England (ISO-NE) electric grid from the CWW Project to meet the Company's obligations to provide approximately 1,200 MW under long-term contracts with Massachusetts electric distribution companies (EDCs) and the potential for an additional approximately 32 MW that is anticipated to be contracted separately with municipal light plants (MLPs) or other offtake users in Massachusetts. This new supply of offshore wind power will advance the Commonwealth's goal of contracting a total of 5,600 MW of offshore wind energy to reach the net-zero greenhouse gas emissions goals by 2050, established by the Legislature in the *Massachusetts 2050 Decarbonization Roadmap*.

NE Wind 2 Connector – Proposed Project Component Overview

NE Wind 2 Connector is comprised of:

1. Three (3) 275-kilovolt (kV) high voltage alternating current (HVAC) offshore export cables[11] located almost entirely within previously surveyed, mapped and characterized Offshore Export Cable Corridor(s) (OECC).
2. An approximate 6.7-mile underground concrete duct bank which will house the onshore 275-kV transmission cables and fiber optic cable(s) from the transition vaults at the Dowses Beach Landfall Site to the proposed new onshore substation site off Oak Street in Barnstable.
3. A new onshore substation where the 275-kV voltage in the onshore transmission cables will step up to 345-kV in preparation for interconnection at the existing Eversource 345-kV West Barnstable Substation.

[11] Each offshore export cable is expected to be comprised of a three-core cable for power transmission bundled together with one or more fiber optic cables.

4. An underground duct bank which will house the 345-kV grid interconnection cables from the new onshore substation to the grid interconnection point at the existing Eversource 345-kV West Barnstable Substation in Barnstable.

NE Wind 2 Connector – Detailed Project Description

The following sections provide a detailed description of each of the project components that comprise the collective NE Wind 2 Connector. Figure 1 in Attachment B provides a Project Site Locus map and Figure 2 provides a more focused map of the proposed onshore project components, which are located entirely within the Town of Barnstable.

Offshore Export Cable Corridor (in State Waters)

For context, the maximum length of the Offshore Export Cable Corridor (OECC) in state and federal waters is up to 47.2 miles. Of this, the maximum length of the OECC within state waters is approximately 21.9 miles. The OECC will pass through state waters in the offshore areas of Edgartown, Nantucket, Barnstable, and Mashpee before making landfall in Barnstable (see Attachment B, Figure 1). All sections of the cable route within state waters lie within the Massachusetts Ocean Management Plan (OMP) planning area. The OECC ranges in width from 3,100 ft to 5,500 ft along the portions located in Massachusetts state waters, with a typical width of 3,500 ft.

The Project's proposed offshore export cables connecting the offshore wind turbine generators (WTGs), located within the Southern Wind Development Area ("SWDA" or "Lease Area OCS-A-0534") in federal waters to the landfall site at Dowses Beach will be installed within a shared OECC (referred to as the Primary OECC). The Primary OECC will travel from the northwestern corner of the SWDA, along the northwestern edge of Lease Area OCS-A 0501, and northward along the eastern side of Muskeget Channel towards the southern shore of Barnstable, Massachusetts. The OECC for the NE Wind 2 Connector is largely the same OECC (approximately 96%) that was proposed for the Vineyard Wind Connector 1 and NE Wind 1 Connector (formerly Vineyard Wind Connector 2). The portion of the OECC associated with the NE Wind 2 Connector Project not previously reviewed as part of Vineyard Wind 1 and/or NE Wind 1 Connector Projects is located in Centerville Harbor where it is necessary for the cables to leave the Primary OECC to make landfall at the Dowses Beach Landfall Site. This small segment of the NE Wind 2 Connector OECC totals approximately 488 acres (see Attachment B, Figure 3). Using a substantially shared OECC provides an efficient, consolidated route from the Lease Areas to point of landfall divergence, and minimizes environmental, operational, and commercial impacts relative to longer alternative routes.

During the New England Wind 1 Connector permitting process, the OECC was widened by approximately 984 feet to the west along the entire corridor and by approximately 984 feet to the east in portions of Muskeget Channel, for a total width of approximately 3,100 ft to 5,500 ft. NE Wind 2 Connector names the Primary OECC as its preferred route but includes a supplemental route through the Western Muskeget Variant (see Attachment B, Figure 3). This supplemental route would be utilized in the event technical, or space constraints necessitate that one or up to two cables need to be placed within the Muskeget Channel due to installation and micro-siting of the two aforementioned Connector projects. The three possible scenarios include:

- OECC Scenario 1 – 3 cables in the Primary OECC
- OECC Scenario 2 – 2 cables in the Primary OECC and 1 cable in the Western Muskeget Variant
- OECC Scenario 3 – 1 cable in the Primary OECC and 2 cables in the Western Muskeget Variant

Table 1 outlines the maximum cable and corridor length for each respective OECC option associated with the Project. Note that cable length is longer than corridor length because of micro-siting (see footnote 2 in Table 1). A manufacturer's cutaway of a model offshore cable is provided as Figure 4A in Attachment B.

Table 1. Offshore Export Cable Corridor and Cables Summary

Offshore Export Cable Corridor and Cables Summary	Federal Waters	State Waters	Total
Offshore Export Cable Corridor	**miles**	**miles**	**miles**
Maximum Length of Primary OECC[1]	25.3	21.9	47.2
Maximum Length of Primary OECC[1] using the Western Muskeget Variant	25.3	19.6	44.9
Offshore Export Cables	**miles**	**miles**	**miles**
Maximum length of each cable within the Primary OECC[2]	27.6	23.0	50.6
Maximum length of each cable within the OECC using both the Primary OECC and the Western Muskeget Variant	27.6	20.7	48.3

Notes:

1. Dowses Beach Landfall Site to SWDA boundary. The length of the OECC is measured from the offshore edge of the corridor at the landfall site.
2. The offshore export cable length includes a 15% allowance for micro-siting within Lease Areas OCS-A 0534 and OCS-A 0501 and a 5% allowance for micro-siting within the OECC outside the lease areas.

The three sets of cables within the OECC (Vineyard Wind Connector's two offshore export cables, NE Wind 1 Connector's two offshore export cables, and NE Wind 2 Connector's three offshore export cables) will typically be separated by a distance of 164 to 328 ft to provide appropriate flexibility for routing, installation, and maintenance or repairs. This separation distance could be further adjusted, pending ongoing routing evaluation, to account for local conditions, such as deeper waters, micro-siting for sensitive habitat areas, or other environmental or technical reasons. For each cable, the direct trenching impacts will be limited to an approximately 3.3-foot (1-m) wide strip of the seabed, with some broader impacts where sand wave dredging may be required to achieve burial within the stable seabed or where cable protection may be required should burial depth be insufficient. The vast majority of the OECC within state waters (totaling approximately 13,740 acres) will remain unaffected by cable installation which is anticipated to impact up to 183 acres of Land Under Ocean (LUO) within state waters. The final routes will be developed to maintain a sufficient distance between the three sets of cables and avoid crossing each other. The three offshore export cables will be installed beneath the seafloor at a target burial depth of 5 to 8 feet.

Prior to cable installation, a pre-lay grapnel run, and pre-lay survey are expected to be performed to clear obstructions and inspect the route. Large boulders along the route may need to be relocated and some dredging of the upper portions of sand waves may be required prior to cable installation to achieve sufficient burial depth below the stable sea bottom. Each offshore export cable will be installed beneath the seafloor at a target depth of 5 to 8 feet. Offshore export cable installation is expected to be performed primarily via simultaneous lay and bury using jetting techniques (e.g., jet plow or jet trenching) or mechanical plow. However, other specialty techniques may be used in certain areas to ensure sufficient burial depth. To facilitate cable installation, anchored vessels may be used along the entire length of the offshore export cables. While the Proponent intends to avoid or minimize the need for cable protection to the greatest extent feasible, the following provides the amount of cable protection estimated for each OECC scenario:

- OECC Scenario 1 (3 cables in the Primary OECC) – up to 29.4 acres in state waters
- OECC Scenario 2 (2 cables in the Primary OECC / 1 cable in the Western Muskeget Variant) – up to 32.5 acres in state waters
- OECC Scenario 3 (1 cable in the Primary OECC / 2 cables in the Western Muskeget Variant) – up to 35.6 acres in state waters

The Primary OECC provides a relatively direct route for connecting the offshore wind energy generation facility to the Dowses Beach Landfall Site in Barnstable. The Primary OECC maintains sufficient water depths for installation, avoiding and minimizing passage through shoals and large seabed slopes. The Primary OECC also avoids and minimizes impacts to SSU areas identified in the Massachusetts OMP, completely avoiding core habitat of the North Atlantic Right Whale and eelgrass. The Primary OECC also minimizes impacts to hard/complex bottom. Results from the marine survey efforts in 2017, 2018, 2019, and 2020 have been compiled onto a plan set, provided as Attachment E, which presents information that includes, but is not limited to, benthic habitat characterization, eelgrass, delineation of hard bottom and complex bottom, and locations of grab samples, vibracores, and video transects.

Landfall

At the landfall site, horizontal directional drilling (HDD) will be used to complete the offshore-to-onshore transition while avoiding impacts to the nearshore or coastal resources.

The transition between the offshore and onshore export cables will be made in underground concrete transition vaults (one per cable, three total) that will be installed within the paved parking lot of Dowses Beach (see Attachment F1 for a full plan set showing the offshore to onshore operation). The HDD process begins with drilling bore holes between the onshore HDD staging area within the Dowses Beach parking lot and an offshore HDD exit point, which is approximately one mile from the shoreline. Once the bore holes are completed, a plastic conduit is inserted into the bore holes. To facilitate cable pull-in and expose the conduit end, a shallow "pit" would be excavated at the HDD exit point using techniques such as controlled flow excavation. Divers will then insert the offshore export cables into the conduits, and the cables will be pulled through the conduits towards land. The seaward end of each conduit would then be reburied beneath the seafloor, likely using divers with hand-jets (i.e. using a narrow, high-pressure stream of water). If softer sediments are present, silt curtains will be employed in and around the area of hand-jetting to contain turbidity. Once the offshore export cables are pulled into the transition vaults, they will be connected to the onshore export cables. Each underground transition vault is approximately 10.8 ft wide by 61.3 ft long and up to 8.5 ft deep, subject to further engineering and will be approximately 2 feet beneath the surface of the parking lot. The underground concrete transition vaults will be accessed via manholes. From the surface, the only visible components of the cable system will be the manhole covers (two per vault).

Wetland resource areas at Dowses Beach include Coastal Dune, Coastal Beach, and Land Subject to Coastal Storm Flowage (LSCSF) (see Attachment F1 and Attachment B, Figures 5 and 6). HDD operations, transition vault installation, and construction laydown areas will be sited to avoid work in Coastal Dune and Coastal Beach. The offshore cables will be installed at a depth of approximately 35 to 50 feet below the existing land surface thus avoiding any impacts to Coastal Beach and Coastal Dune (see Attachment F1 and Attachment B, Figure 17 for HDD details and profiles). The HDD entry pits, workspace, and transition vaults in the Dowse's Beach parking lot involve work in the 100 ft-buffer to Coastal Dune and Coastal Beach and within LSCSF. All of the proposed activities within the 100-ft buffer are within existing paved areas. Best Management Practices will include but not be limited to; the proper installation and maintenance of erosion control barriers, proper containment and management of stockpiles, spill prevention measures, and proper inspection and oversight will be implemented to ensure that there are no adverse effects to wetland resources in the vicinity of the work zone at the landfall site during the construction phase of the Project. The work area will be restored to pre-construction grades and stabilized (re-paved) to match pre-construction conditions resulting in no alteration of buffer zone or LSCSF, as compared to existing conditions.

The Dowses Beach Landfall Site is located within rare species habitat for the Piping Plover and Least Tern (see Attachment B, Figure 5). Based upon MESA consultation completed for the Vineyard Wind Connector 1 and NE Wind 1 Connector, the Company anticipates the need to repeat similar protective measures for the Piping Plover at the NE Wind 2 Connector landfall site at Dowses Beach. In addition, the Company will consult with NHESP with regard to the Least Tern at the landfall location. In accordance with the MESA (321 CMR 10.14), the Company will continue to consult with NHESP to ensure that the Project will not result in a Take.

Installation at the landfall site will be performed in the off-season, or as otherwise permitted by the relevant agencies, to minimize any disturbance to area residents or visitors and the Company plans to maintain beach access as much as possible while keeping the safety of both construction crews and residents the top priority.

Onshore Transmission Route

As described in detail in Attachment A, Section 3.2.3, the Company completed a comprehensive routing evaluation analysis to identify a preferred route for the onshore transmission cable duct bank. As required in the Massachusetts Energy Facilities Siting Board (EFSB) regulations, the Company has to identify a preferred route, as well as, an alternative route, referred to as a "noticed alternative route". The Noticed Alternative Route is included for further consideration and evaluation by the EFSB in the adjudicatory review process and serves as a potential alternative action to the preferred route presented by a proponent. Therefore, the Company has identified both a Preferred Route and a Noticed Alternative Route and a Route Variation for the onshore transmission cables extending from the Dowses Beach Landfall to the new Project Substation. The following sections provide a detailed description of both the Preferred Onshore Transmission Route and the Noticed Alternative Route (and variation) that will be included for consideration in the EFSB process. Note that the two routes have 2.7 miles of common segments including; Dowses Beach Road to East Bay Road near the landfall site (0.2 miles) and then from the intersection of Lumbert Mill Road and Old Falmouth Road to the new Project Substation (2.5 miles) (See Attachment B, Figure 2).

Preferred Onshore Transmission Cable Route (Main Street Alternative)

Each three-core offshore export cable will transition to three separate single-core onshore transmission cables in transition vaults located under the paved parking lot of the Dowses Public Beach Landfall Site. As shown in Attachment B, Figure 2, the preferred onshore transmission cable route for the Project is located entirely within public roadway layouts or within the existing parking lot area at Dowses Beach and has a total length of approximately 6.7 miles. As shown in Table 2, the route begins in the parking lot of the Dowses Beach Landfall Site and proceeds generally west on Dowses Beach Road to East Bay Road. From there the route proceeds approximately 0.2 miles in a southerly direction along East Bay Road. At the end of East Bay Road, the route turns northwest on Wianno Avenue, which it follows for approximately 0.9 miles to Main Street. The route continues north on Main Street for approximately 1.1 miles to Osterville-West Barnstable Road, which it then follows for approximately 1.9 miles to Old Falmouth Road. The route then turns and continues in a northeast direction and follows Old Falmouth Road for approximately 0.9 miles then turns eastward on Old Stage for approximately 0.2 miles to the Oak Street intersection. Turning north on Oak Street, the route follows Oak Street for approximately 1.0 mile before turning west on Service Road and continuing another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the substation site, where voltage will step up to 345-kV in preparation for interconnection with the existing electrical grid.

The trenchless crossing of Route 6 will be accomplished via pipe jacking methodologies. Pipe jacking methodologies include micro tunnel, earth pressure balance machines, conventional non-pressurized tunnel-boring machines, and open shield machines. Two micro tunnel crossings are proposed at this location (see Attachment F3). Micro tunnel is defined as a pipe jacking operation that utilizes a micro tunnel boring machine

(MTBM) pushed into the earth by hydraulic jacks mounted and aligned in a jacking shaft. A concrete casing pipe is lowered into the shaft and inserted between the jacking frame and the MTBM or previously jacked pipe. Slurry lines and power and control cable connections are made, and the pipe and MTBM are advanced along the planned alignment. This process is repeated until the MTBM reaches the reception shaft. Upon completion of the tunnel, the equipment is removed, the carrier pipeline/conduits are pulled through the concrete casing pipe utilizing rollers or an alternative method, and the annular space is grouted.

Each micro tunnel will have a dedicated jacking shaft and dedicated receiving shaft. The jacking shafts and staging area for the two micro tunnels will be located in the new substation property. Each circular jacking shaft has an outside diameter of approximately 41 ft (12.5 m). The receiving shafts will be located on the north side of Service Road / south side of Route 6 in a common 75 ft by 170 ft (22.9 m by 51.8 m) staging area. Each rectangular receiving shaft is approximately 29 ft by 20 ft (8.8 m by 6.1 m) in outside dimensions (see Attachment F3).

Table 2 Proposed Preferred Onshore Transmission Cable Route Summary (Main Street)

Road Segment (from Landfall to Substation)	Approximate Length (miles)
Dowses Beach Road	**0.2**
East Bay Road	**0.2**
Wianno Avenue	**0.9**
Main Street	**1.1**
Osterville-West Barnstable Road	**1.9**
Old Falmouth Road	**0.9**
Old Stage Road	**0.2**
Oak Street	**1.0**
Service Road	**0.2**
Route 6 Trenchless Crossing	**0.1**
total	**6.7**

The 275-kV single-core onshore transmission cables will consist of a copper or aluminum conductor covered by XLPE solid insulation and wrapped in a metallic sheath with non-metallic outer jacket. The primary functions of these last layers are to prevent direct contact between the conductor and the ground and to control and minimize thermal and electrical losses. The cables will not contain any fluids. A manufacturer's cutaway of a model onshore cable is provided as Figure 4B in Attachment B.

All three circuits will be installed in a single, common underground concrete duct bank along the entire length of the onshore transmission route which will include separate conduit for each onshore transmission cable and fiber optic cable. The conduit within the duct bank, will be constructed of polyvinyl chloride (PVC) or high-density polyethylene (HDPE) and encased in concrete. Spare conduits and grounding will also be accommodated within the duct bank.

The three-circuit duct bank will be arranged three conduits wide by four conduits deep for the majority of the transmission route, with the total duct bank measuring approximately 8.17 ft wide and 4.5 ft tall, set at a depth of 8 ft. In cases where the duct bank crosses under utilities or other obstructions, it will be approximately 11.5

ft wide and 4.5 ft tall, set at a depth of 11.5 (see Attachment F2). Fluidized thermal backfill will likely be placed over the duct bank for both scenarios. The circuits will be arranged in a twelve conduit wide by one conduit deep configuration, in a duct bank approximately 9.75 ft wide by 1.2 ft tall, when crossing the box culvert in Dowses Beach Road.

The duct bank is expected to be installed in open trenches. Once the duct bank is in place and backfilled, the cables are pulled through the conduit via underground splice vaults and associated manholes, which are placed in groups every 1,500–3,000 ft or more along the duct bank. The splice vaults are typically two-piece (top and bottom) pre-formed concrete chambers with openings at both ends to connect with the duct bank conduits and admit the cables. Each splice vault is typically 6 ft wide by 26 ft long and up to 8 ft deep (interior dimensions), subject to further engineering (see Attachment F2). The duct bank will have a typical depth of cover of 3.5 ft; however, if required due to existing conditions (e.g., at certain utility crossings), the depth of cover will be 7 ft (see Attachment F2).

Installation of the in-road underground duct bank and onshore transmission cables within public roadway layouts will be performed during the off-season, or as otherwise permitted by the Town or relevant agency, to minimize traffic disruption. Upon Project completion, the affected roads will be restored in accordance with the DPU's "Standards to be Employed by Public Utility Operators When Restoring and of the Streets, Lanes and Highways in Municipalities" (D.T.E. 98-22) ("Repaving Standards") and municipal standards. Off-road areas will be restored to pre-construction conditions or better, in compliance with applicable state and local standards, permit requirements and landowner agreements.

Noticed Alternative Onshore Transmission Cable Route (Old Mill Road Alternative)

The noticed alternative onshore transmission cable route associated with the Project is located entirely within public roadway layouts or within the existing parking lot area at Dowses Beach and has a total length of approximately 6.6 miles (see Attachment B, Figure 2). It begins in the parking lot of the Dowses Beach Landfall Site and proceeds generally northwest on Dowses Beach Road to East Bay Road. From there the route travels approximately 0.7 miles in a northwesterly direction along East Bay Road. At the north end of East Bay Road, the route crosses Main Street and proceeds in a northeasterly direction approximately 1.7 miles on Old Mill Road, Bumps River Road, and Five Corners Road. The route then turns to the northwest on Lumbert Mill Road and continues for approximately 1.5 miles to Osterville-West Barnstable Road. Turning again toward the northeast, the route follows Osterville-West Barnstable Road a short distance before merging onto Old Falmouth Road and continuing approximately 0.9 miles to Old Stage Road. The route follows Old Stage Road for approximately 0.2 miles to Oak Street, then proceeds on that road for approximately 1.0 mile before turning westward on Service Road and continuing another 0.2 miles to a staging area for the trenchless crossing of Route 6 to the proposed substation site.

Main Street Variation

The Main Street Variation provides a link between the Preferred Route and Noticed Alternative. The Main Street Variation is approximately 0.3 miles long and traverses Main Street between the intersection of East Bay Road, Main Street and Old Mill Road and the intersection of Wianno Avenue and Main Street.

New Onshore Project Substation

The new onshore project substation is required to step up power from 275-kV to 345-kV before connecting to the existing West Barnstable substation which is located approximately 0.5 miles from the substation site. It is proposed on an approximately 15.2-acre privately-owned site located off Oak Street in West Barnstable (see Attachment B, Figure 7). The site is comprised primarily of undeveloped wooded uplands. The parcels are located in a residentially zoned area as well as an Aquifer Protection Overlay District. To the west, the substation site is

bordered by undeveloped land. To the north, the site, including a 40-ft wide "panhandle" that extends from the north of the property, is bordered by two protected parcels that are part of the Spruce Pond Conservation Area owned by the Town of Barnstable and managed by the Conservation Commission. The existing Eversource ROW #342 and Spruce Pond Road are located in the Spruce Pond Conservation Area. To the east, the site is bordered by a residential parcel developed with one single family home. To the south is the Route 6 layout managed by Massachusetts Department of Transportation (MassDOT).

Onshore substation construction will require initial clearing and grading of the site. The Project's onshore substation will be enclosed with a perimeter access fence and may include sound attenuation walls, if necessary (see Attachment F4). A sound attenuation study for the site will be conducted to evaluate changes in sound levels associated with substation operation. As part of this study, ambient sound monitoring will be completed at the proposed substation site.

Substation Containment System

The Company will provide full-volume (110%) containment systems for substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable). While sumps for transformers are standard practice, they are not normally used for other lower-volume fluid-filled equipment given the low probability of any leakage. However, the Company has opted to commit to such containment given the sensitive nature of the Cape Cod watershed. The containment sumps will be designed to fully contain the dielectric fluid in the very unlikely event of a complete, catastrophic failure of the transformer or other equipment.

In addition, based on the Host Community Agreements for Vineyard Wind 1 and NE Wind 1 Connector, the Company commits to adding additional containment volume as follows: for the substation components identified above (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS) in anticipation of an extreme rain event. Thus, the Company is willing to increase the 110% containment volume to account for the simultaneous Probable Maximum Precipitation (PMP) event in a 24-hour period, which will be determined for the substation site in consultation with the Town of Barnstable. Also included in the design as additional mitigation will be a common drain system that routes each individual containment area, after passing through an oil-absorbing inhibition device, to an oil water separator before draining to the infiltration basin.

In addition, a Spill Prevention, Control and Countermeasures (SPCC) Plan will be included in the Proponent's Construction Management Plan. The Company will also include spill response in its emergency response plan as part of the Project's overall safety management system. Appropriate spill containment kits and spill control accessories will be strategically situated at the substation and may include absorbent pads, temporary berms, absorbent socks, drip pans, drain covers/plugs, appropriate neutralizers, over pack containers all for immediate use in the event of any inadvertent spills or leaks. All operators will be trained in the use and deployment of such spill prevention equipment. The Company will also have a third-party licensed spill response contractor on call as part of the Project's overall Oil Spill Response Plan.

Substation Stormwater Management

The proposed substation site has no existing impervious areas. The proposed substation will result in the creation of 1.2 acres of impervious surfaces associated with proposed buildings and paved surfaces. The proposed stormwater management system incorporates Low Impact Development (LID) strategies, which are designed to capture, treat, and recharge stormwater runoff. These measures provide a treatment train to improve the quality of stormwater runoff, reduce the quantity of stormwater runoff, and provide infiltration

and recharge to groundwater. These are considered Best Management Practices (BMPs) by the Massachusetts Department of Environmental Protection. A summary of the LID measures to be incorporated is provided below:

- Perforated under-drains will be installed throughout the site, which will collect stormwater that has percolated through the crushed rock surfaces and direct it towards the attenuation and infiltration structures. Stormwater that percolates through the crushed rock will receive a degree of filtration that removes some suspended solid pollutants.
- Some stormwater will flow overland into a riprap lined swale along the eastern side of the site, which also provides opportunity for settlement and filtration of pollutants.
- A hydrodynamic vortex separator device will be installed upstream of the proposed infiltration basin.
- There are two attenuation/detention basins proposed: an approximately 4,700 square foot sediment forebay located within the substation area, and an existing localized depression located in the north-eastern corner of the site and outside of the substation area, which will function as an infiltration basin. The sediment forebay within the substation collects a proportion of site runoff and will allow for some settlement of pollutants within the base before most of the stormwater (during extreme storm events) then overflows into the downstream manhole and towards the localized depression. The localized depression collects and infiltrates all remaining runoff from the substation site.
- A berm/dam structure will be installed within the existing localized depression area such that no outflow from the proposed substation will leave the site during storms up to and including the 50-year 24-hr design rainfall event.

The stormwater management design will meet or exceed the Massachusetts Stormwater Policy recommendations, and the Project will comply with MassDEP Stormwater Standards. In addition, the stormwater management system has been designed in consideration of the RMAT Design Standards and Guidelines. The stormwater management system has been designed to accommodate the 24-hour storm event (2-year, 10-year, 50-year (RMAT), and 100-year) using Extreme Precipitation Estimates from the Northeast Regional Climate Center.

Grid Interconnection Cable Route

The Company is still in the process of completing engineering review to identify the preferred grid interconnection route that will connect the new onshore project substation to the regional electric grid at the existing West Barnstable Substation. As such the Company is considering the following three potential options for the Project's grid interconnection route:

- Grid Interconnection Option G1 – Fire Tower Access Road to Oak Street: This option is approximately 0.4 miles in length and includes installing the grid interconnection cables within the existing Fire Tower access road off Oak Street, then north along Oak Street, then into the northern portion of the West Barnstable Substation parcel.

- Grid Interconnection Option G2 – Eversource ROW #342: This option is approximately 0.4 miles in length and includes installing the grid interconnection cables from the north to the existing electric transmission corridor (Eversource ROW #342). The route would then turn to the east and be constructed within the existing Eversource ROW #342 corridor and connect into the northern portion of the West Barnstable Substation parcel.

- Grid Interconnection Option G3 – Route 6 State Highway Layout to Oak Street: This option is approximately 0.5 miles in length and includes installing the grid interconnection cables within a new access road that would be constructed within the northern portion of the existing Route 6 State Highway Layout from Oak Street to the new on shore substation site. This route would be within this proposed access road up to the intersection with Oak Street and then would turn north onto Oak Street and would be located within Oak Street and into the northern portion of the West Barnstable Substation parcel.

See Attachment B, Figure 2.

West Barnstable Substation Modifications

Some modifications to the 345-kV West Barnstable Substation will be necessary to accommodate the interconnection from NE Wind 2 Connector. All work at the existing Eversource West Barnstable Substation will be performed by Eversource. The area required for modifications and upgrades has been estimated at up to 1.5 acres. The modifications may include upgrades for added electric grid capacity or for the physical interconnection of the Project. The Company is consulting with Eversource on the specific design and location of these modifications. The final design will need to be formulated in collaboration with Eversource, which is the entity that will perform the work and own and operate the modifications after construction. An aerial view of the 345 -kV West Barnstable Substation site is provided in Figure 7.

NE Wind 2 Connector – Alternatives Considered

Section 3 of Attachment A provides a detailed overview of the various Alternatives to the proposed Project approach considered by the Proponent, as well as the routing and siting analyses completed to determine the location of various project components currently proposed for the Project.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?
☐Yes (Specify_____)
☒**X No**
if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;
If yes, describe how the project complies with this plan. _____
Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes **X No**;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)

☒**Yes - According to the Natural Heritage and Endangered Species Program (NHESP), the OECC and the Dowses Beach Landfall Site are located within areas of Priority and Estimated Habitat for rare species including Least Tern (*Sternula antillarum*) and Piping Plover (*Charadrius melodus*). All state waters within Nantucket Sound are mapped as estimated and priority habitat. It is important to note that construction and staging activities associated with the offshore to onshore cable transition at the Dowses Beach Landfall Site will be entirely within paved areas associated with the existing parking lot. On behalf of the Company, on April 29, 2022, Epsilon Associates, Inc. (Epsilon) filed a Request for State-listed Species Information Form with the NHESP (response received May 27, 2022). The Company will continue to consult with NHESP in accordance with the Massachusetts Endangered Species Act (MESA) and will establish construction protocols and other mitigation measures to minimize potential impacts to rare species and their habitats through submission of a Project Checklist.**

HISTORICAL /ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☒**Yes - A number of properties included in the Massachusetts Historical Commission Inventory of Historic and Archaeological Assets of the Commonwealth and listed in the State and National Registers are located along the proposed onshore transmission route (see Figure 8 in Attachment B). The proposed onshore substation site does not include any structures, sites or districts listed in the MHC Inventory of Historic and Archaeological Assets of the Commonwealth. The onshore substation site is located within the Old Kings Highway Historic District (regional district established by Massachusetts Chapter 470).**

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? **The Project will be located predominantly in existing roadway layouts in which prior excavation, filling, grading, and construction activities have already created disturbance. See the Historic and Archaeological Resources Section below for more information. The Company is in consultation with MHC regarding the Project.**

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site?
___Yes **X No**; if yes, identify the ORW and its location. _____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? **X** Yes ___No; if yes, identify the water body and pollutant(s) causing the impairment: **Impaired water bodies within a half-mile include Centerville River (Estuarine Bioassessments, Total Nitrogen, and Fecal Coliform), Centerville Harbor (Estuarine Bioassessments), and North Bay (Estuarine Bioassessments and Fecal Coliform).**

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes ___No **Unknown. The Massachusetts Water Resources Commission report titled, *Stressed Basins in Massachusetts* (Approved December 13, 2001) states, "All river basins did not have adequate coverage of stream gages to be included in this analysis. The map of stress classifications shows these areas as white. No conclusions can be made about the degree of stress in these basins. In particular, the Cape and the Islands have not been included in this analysis."**

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

The infrastructure proposed at the Dowses Beach parking lot and within public roadway layouts (onshore transmission cables and grid interconnection cables) will be installed underground and mainly within existing paved surfaces and as such will have no permanent stormwater-related impacts and will not alter existing stormwater drainage patterns or management systems.

The proposed new onshore substation has been designed to meet all applicable Massachusetts Stormwater Management Standards and in consideration of the Resilient Massachusetts Action Team (RMAT) Climate Resilience Design Standards. An RMAT Report was generated for the new onshore project substation using the RMAT Climate Resilience Design Standards Tool (see Attachment G). Based on the output report generated by the RMAT Tool, the new onshore substation was identified as a Tier 3 asset and the onshore substation has been designed to include the applicable recommended design standards from the Climate Resilience Design Guidelines for a Tier 3 Project. The Company plans to provide a stormwater management report for the new onshore project substation in the DEIR.

The Proponent's objective is to minimize the potential for erosion and sedimentation impact during Project construction, and to effectively restore any disturbed areas. The Proponent will meet these objectives by implementing the erosion and sediment control measures described in this section. In general, the measures are designed to minimize erosion and sedimentation by:

- **Minimizing the quantity and duration of soil exposure;**
- **Protecting areas of critical concern during construction by redirecting and reducing the velocity of runoff;**
- **Installing, inspecting, and maintaining erosion and sediment control measures during construction until final stabilization is achieved, and final inspections completed; and**
- **Establishing vegetation where required as soon as possible following final grading.**

A Stormwater Pollution Prevention Plan (SWPPP) will be developed and maintained for the project that will identify controls to be implemented to mitigate the potential for erosion and sedimentation from soil disturbance during construction. The SWPPP will be adhered to by the contractor(s) during all phases of project construction in accordance with the conditions prescribed in the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities. The Environmental Inspector or designee (such as a construction supervisor) will provide oversight of the contractor's activities.

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ **No X** ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):_____

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ **No _X_**;
if yes, describe which portion of the site and how the project will be consistent with the AUL: _____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN?
Yes ___ No **_X_**; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

Since the Project will involve open trenching through existing public roadway layouts and at the Dowses Beach Landfall Site, there will be asphalt and possibly concrete waste generated during construction. Asphalt and concrete will be handled separately from soil to allow for recycling at an asphalt batching plant and/or recycling facility. Waste materials generated during installation of the Project will be promptly removed for recycling or proper disposal at a suitable facility.

The duct bank trench will be excavated using a "clean trench" technique, where soil will be loaded directly into a dump truck for temporary off-site stockpiling or hauling to an off-site facility for recycling, re-use, or disposal. Although not expected, if contaminated soil or other regulated materials are encountered along the route, soils will be managed pursuant to the Utility-related Abatement Measures (URAM) provisions of the Massachusetts Contingency Plan (MCP). The Proponent will contract with a Licensed Site Professional (LSP) as necessitated by conditions encountered within the Project area, consistent with the requirements of the MCP at 310 CMR 40.0460 et seq.

Packing crates and wood from equipment shipments will be reused or recycled to the extent practicable or will be disposed of appropriately.

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes ___ **No _X_**;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Describe anti-idling and other measures to limit emissions from construction equipment:

The Proponent will require contractors to turn off construction vehicles when not actively in use.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? ___Yes **_X_ No**; if yes, specify name of river and designation

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River?
Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project l result in any impacts to any of the designated "outstandingly remarkable" resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes, describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.

   See Table of Contents

2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.

   See Figure 1 in Attachment B

3. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.

   See Figure 2 in Attachment B for an overview of conditions along the onshore transmission routes, grid interconnection routes, proposed new onshore substation site, and existing West Barnstable Substation site (and Figures 5 through 9 contain additional detail).

4. Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.

   See Figure 5 in Attachment B for environmental constraints as mapped by MassGIS along the onshore transmission route, grid interconnection routes, proposed new onshore substation site, and existing Eversource West Barnstable Substation site. Chapter 91 jurisdictional areas and Article 97 lands are shown on Figure 5. Water supply protection areas are shown on Figure 9. Historic resources are shown on Figure 8. Detailed wetlands maps are provided as Figure 6 (there are no mapped wetland resource areas on or adjacent to the proposed new onshore substation site, existing Eversource West Barnstable Substation, or along the grid interconnection routes).

5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).

   The proposed onshore transmission route and grid interconnection routes are shown on Figure 2 in Attachment B; the cables will be installed entirely underground in a concrete duct bank. A general layout of the proposed new onshore substation is provided in Attachment F4. The Proponent is working with Eversource to define the modifications and upgrades required to the existing West Barnstable Substation. The final design and construction will be conducted by NSTAR Electric Company d/b/a Eversource Energy, in cooperation with the Proponent.

6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).

   See Attachment C

7. List of municipal and federal permits and reviews required by the project, as applicable.

   See Attachment D

8. Printout of output report from RMAT Climate Resilience Design Standards Tool, available here.

   See Attachment G

9. Printout from the EEA EJ Maps Viewer showing the project location relative to Environmental Justice (EJ) Populations located in whole or in part within a 1-mile and 5-mile radius of the project site.

   See Attachment B, Figure 10.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1) **X** Yes ___ No; if yes, specify each threshold:

301 CMR 11.03(1)(b)(3) : Conversion of land held for natural resources purposes in accordance with the Amendments to the Constitution of the Commonwealth Article 97 to any purpose not in accordance with Article 97 and/or 301 CMR 11.03(1)(b)(5): Release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes *(for Dowses Beach Landfall Site, onshore transmission cable route along Dowses Beach Road, Grid Interconnection Option G1 and Grid Interconnection Option G2)*

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

Note: Installation of the onshore transmission and grid interconnection cables within existing roadway layouts will not create any new impervious area or change in land use. Additionally, installation of the transition vaults within the Dowses Beach parking lot will also not create any new impervious area or change in land use. Roadways impacted by Project construction and the Dowses Beach parking lot will be repaved. After construction, the vaults within Dowses Beach and the roadway layout will be accessed via manholes covered by secure metal covers. Therefore, the calculations below are specific to the site of the proposed new onshore substation. It should also be noted that the area required for modifications and upgrades to the existing Eversource 345-kV West Barnstable Substation has been conservatively estimated at no more than 1.5 acres and is not included in the table below. The Proponent is still consulting with Eversource on the specific design and location of these modifications and upgrades.

	Existing	Change	Total
Footprint of buildings	0	0.4	0.4
Internal roadways	0	1.5	1.5
Parking and other paved areas*	0	0.02	0.02
Other altered areas - *Substation, Retention Pond, and Swale*	0	10.5	10.5
Undeveloped areas	15.2	12.4	2.8
Total: Project Site Acreage	15.2	15.2	15.2

* *The access road around the proposed onshore substation and small accommodation for parking is assumed to be gravel or crushed stone.*

B. Has any part of the project site been in active agricultural use in the last five years?
___ Yes **X** **No**; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes **X** **No**; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? **X** Yes ___ No; if yes, describe:

Dowses Beach (parcel no. 163013) is subject to Article 97 jurisdiction. Three horizontal direction drills will landfall at Dowses Beach and the physical connection between the offshore and onshore export cables will be made in three underground concrete transition vaults that will be installed within the paved parking lot of Dowses Beach. The use of the transition vaults and the onshore cables within the Dowses Beach parcel owned by the Town of Barnstable will require Article 97 authorization from the Massachusetts Legislature.

Consistent with Article 97, approval will be required from the Town of Barnstable for the disposition of new easement rights on the Dowses Beach parcel. The proposed transition vaults will be installed within the Dowses Beach parking lot and will have no permanent impact on appearance except for ground-level manhole covers (3.5 feet square) installed to access the buried vaults.

Additionally, the underground onshore transmission cable proposed to be installed from the Dowses Beach parking lot along Dowses Beach Road, to East Bay Road, within the Dowses Beach parcel (parcel no. 163013) will require Article 97 authorization.

Finally, all three of the Grid Interconnection Options still under consideration may require Article 97 land approval or authorization.

The onshore transmission cable route from Dowses Beach Landfall Site to the proposed onshore substation will be located within existing roadway layouts and will not cross any protected open spaces.

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction?
___ Yes **_X_ No**; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes **_X_ No**; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ **No _X_**; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title: **Town of Barnstable Comprehensive Plan** Date: **2010**

B. Describe the project's consistency with that plan with regard to:
1) economic development

The Town of Barnstable's Comprehensive Plan highlights the town's goals to promote sustainable development and infrastructure and encourage the growth of new economic sectors, such as marine and environmental technology and renewable energy that would increase employment opportunities.

The Project supports economic development goals by delivering approximately 1,232 MW of clean, renewable energy to Massachusetts. In addition, the Proponent anticipates negotiating and ultimately executing a Host Community Agreement (HCA) with the Town of Barnstable to provide funding to the Town.

2) adequacy of infrastructure

The Town of Barnstable's land use plan calls for future infrastructure necessary to accommodate new growth or redevelopment. Specific to energy, the plan calls for renewable energy components, and acknowledges the Town's goal to reduce greenhouse gas emissions.

The Project will provide the New England electrical grid with approximately 1,232 MW of clean, renewable energy, and will enhance the reliability and diversity of the energy infrastructure on Cape Cod and across the state. Clean, reliable electricity is necessary to maintain the economic vitality of these communities. The Project's onshore transmission route will largely be constructed within existing roadway layouts and will not strain town resources or prevent modernization or expansion.

3) open space impacts

Barnstable's land use plan calls for the implementation of land use policies to achieve a balance between the location, preservation, and protection of uses of land (including housing, commerce, recreation, open space, and natural resources) along with infrastructure necessary to support existing land uses and anticipated changes in land use.

The Project is consistent with open space-related goals, as it is predominantly located within existing roadway layouts and will not have any significant permanent impacts to designated open space. All offshore and onshore cables will be installed underground and will have no permanent effects on the use of lands through which they pass. The proposed new onshore substation site is comprised of three wooded parcels totaling approximately 15.2 acres, which would need to be cleared. The Proponent will provide, through land restriction or payment in lieu, suitable open space as mitigation for the forested upland cleared for the new onshore substation.

4) compatibility with adjacent land uses

As the Project is proposed predominantly within existing roadway layouts and the export cables will be installed underground, the majority of the Project will have no visual impacts and it is consistent with adjacent land uses in Barnstable. The only above-ground element of the Project is the proposed new onshore substation.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: **Cape Cod Commission**
Title: **Cape Cod Regional Policy Plan**
Date: **Effective February 22, 2019, amended effective March 30, 2021**

Describe the project's consistency with that plan with regard to:

1) economic development

The Cape Cod Regional Policy Plan identifies goals and recommended actions in the areas of land use, economic development, natural systems (water resources, coastal resources, wetlands protection, wildlife and plant habitat, open space protection), and human/built systems (transportation, waste management, energy, affordable housing, heritage preservation and community character). An economic development goal of the Plan is to support the development of renewable energy where appropriate.

The Project will contribute to meeting New England's growing demand for clean energy. More specifically, the Project will serve the public interest by delivering approximately 1,232 MW of power to Massachusetts. The proposed Project transmission will be located predominantly within existing roadway layouts and other ROWs, and proposed construction-related mitigation measures are consistent with goals relating to natural resources. The offshore portion of the Project also employs best management practices (BMPs) and techniques associated with cable installation to avoid and minimize potential impacts to natural resources. The only above-ground elements of the Project are the proposed new onshore substation and modifications and upgrades to the existing West

Barnstable Substation. In addition, the Project supports economic development goals and housing by improving the reliability and diversity of the energy mix on Cape Cod and in the Commonwealth of Massachusetts, hence enabling development and redevelopment.

2) adequacy of infrastructure

One goal of the Plan is to use infrastructure efficiently, minimize adverse impacts, and enhance the quality of life for Cape Cod residents. This Project is proposed to deliver approximately 1,232 MW of clean, renewable energy from offshore wind energy generation, and in so doing will improve the reliability and diversity of the energy mix on Cape Cod. Through a thorough routing analysis, the Proponent is seeking a carefully considered route to the necessary electric grid interconnection at the existing Eversource West Barnstable Substation.

3) open space impacts

According to the Plan, open space has helped define Cape Cod's heritage and economy and is one of the region's most valuable assets. Marshes, beaches, farms, and woodlands directly contribute to key industries on Cape Cod, attracting tourists and providing areas for farming and cranberry growing, hunting, fishing, and swimming.

The proposed onshore transmission cable duct bank is predominantly proposed within existing roadway layouts. All offshore and onshore cables will be installed underground and will have no permanent effects on the use of lands through which they pass. The proposed new onshore substation will require alteration of open space. Modifications to the existing Eversource West Barnstable Substation may require alteration of open space.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes ___ No **_X_ Unknown**; if yes, specify, in quantitative terms:

It is expected that the NE Wind 2 Connector Project will share the same offshore export cable corridor (OECC) as the NE Wind 1 Connector Project with the exception of where the offshore export cables branch off to the Dowses Beach Landfall Site. However, similar to the Vineyard Wind Connector 1 Project, the NE Wind 2 Connector Project also includes the potential to utilize the Western Muskeget Variant for the offshore export cables. Regardless of which OECC option is selected, installation of the three offshore export cables for the Project will temporarily disturb over two acres of priority habitat within Nantucket Sound and adjacent coastal areas in Barnstable. Note that all state waters within Nantucket Sound are mapped as estimated and priority habitat. The Company will continue to consult with NHESP to determine if the Project will result in a take of a state-listed endangered or threatened or special concern species.
(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes ___ No **_X_**
To be determined

On behalf of the Proponent, on April 29, 2022, Epsilon Associates, Inc. (Epsilon) filed a Request for State-listed Species Information Form with the NHESP. In NHESP's May 27, 2022, response, NHESP notes that the project site or a portion thereof, is located within Priority Habitat 2156 (PH 2156) and Estimated Habitat 693 (EH 693) as indicated in the Massachusetts Natural Heritage Atlas (15th Edition) for two state-listed bird species. The Proponent will continue to consult with NHESP to determine if the Project will result in a take of a state-listed endangered or threatened or special concern species.

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page) ? **_X_ Yes** ___ No.

See Attachment B, Figure 5.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? **_X_ Yes** ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? **_X_ Yes** ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species?
___ Yes **_X_ No**; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No
_X_ To be determined; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

For the Vineyard Wind Connector 1 (EEA #15787) and the NE Wind 1 Connector (formerly Vineyard Wind Connector 2) (EEA #16231), the Project Proponent and NHESP collaborated on Piping Plover Protection Plans (PPPP). NHESP's MESA Determination (NHESP File No.: 17-37398) for NE Wind 1 Connector and Vineyard Wind Connector 1 (NHESP File No.: 17-37398) stated that to avoid impacts to Piping Plovers and their habitats during the nesting season all work and activities associated with the Project shall follow the protection measures and procedures outlined in the Draft Piping Plover Protection Plan, including, all work associated with HDD cable installation shall not commence during April 1 - August 31 and HDD work initiated in advance of April 1 may continue provided the Protection Plan is fully implemented. The NE Wind 2 Connector is located within rare species habitat for the Piping Plover and Least Tern. In accordance with the MESA (321 CMR 10.14), the Company will continue to consult with NHESP to ensure that impacts to rare species are avoided and in an effort to avoid a Take for either species. Based upon MESA consultation completed for the Vineyard Wind Connector 1 and NE Wind 1 Connector, the Company anticipates the need to repeat similar protective measures for the Piping Plover at the NE Wind 2 Connector landfall site at Dowses Beach.

The NE Wind 2 Connector is solely within state waters. For context, portions of the Commonwealth Wind project located in federal waters are also located in areas that potentially serve as habitat for species listed in the federal Endangered Species Act. Potential impacts on those species will be reviewed through the BOEM federal permitting process. It is anticipated that state agencies and other interested parties will participate in this review, either directly or through the CZM consistency process. The Proponent has consulted with NHESP to discuss survey and other technical evaluations relating to listed species in federal waters. This information is included in the NE Wind COP that has been submitted to BOEM and will be evaluated as part of the federal review process. The Proponent will continue to communicate with NHESP throughout that process.

3. Which rare species are known to occur within the Priority or Estimated Habitat?
Least Tern *(Sternula antillarum) and* Piping Plover *(Charadrius melodus)*

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes **_X_ No**

5. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes **_X_ No (future filing anticipated)**; did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No **_X_ To be determined**; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat: **See A.2. above.**

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? **_X_ Yes** ___ No; if yes, specify, in quantitative terms:

Installation of the offshore export cables within state waters including dredging in areas where sand waves may be present prior to cable installation, use of Jack-up and/or anchored vessels and vessel grounding, cable installation, and cable protection in areas where target burial depth cannot be achieved will result in temporary impacts to wetlands, all of which is associated with the installation of offshore export cables in Land Under the Ocean. In areas where sand waves are present, dredging may be necessary to ensure sufficient burial depth of the export cables. Any dredged material removed from sand waves will be repositioned within the same OECC and will be deposited on a similar sandy substrate; no dumping of dredged material will be allowed on hard bottom areas. The specific thresholds exceeded are listed earlier in this ENF Form.

Table 3 summarizes the maximum lengths of the OECC corridor and the cables, as well as presents the proposed dredge volume and impacts within state waters only; including the Western Muskeget Variant options still under consideration.

Table 4 presents a summary of the total area within state waters only proposed to be impacted by cable installation, cable protection, dredging and anchoring for each of the potential OECC scenarios under consideration.

Table 3. Summary of OECC in State Waters

	State Waters
Offshore Export Cable Corridor	**miles**
Maximum Length of OECC[1]	21.9
Maximum Length of OECC[1] using the Western Muskeget Variant	19.6
Offshore Export Cables	**miles**
Maximum length of each cable within the OECC[2]	23.0
Maximum length of each cable within the OECC using the Western Muskeget Variant	20.7
Dredge Volume	**cy**
Scenario 1 – 3 cables in the OECC	91,500
Scenario 2 – 2 cables in the OECC and 1 cable in Western Muskeget Variant	124,900
Scenario 3 – 1 cable in the OECC and 2 cables in Western Muskeget Variant	131,100

Notes:

1. The length of the OECC is measured from the offshore edge of the corridor at the landfall site within state waters.
2. The offshore export cable length includes a 5% allowance for micro-siting within the OECC.

Table 4. Summary of OECC Impacts within State Waters

Activity	Scenario 1 3 Cables in OECC (acres)	Scenario 2 2 Cables in the OECC and 1 Cable in Western Muskeget Variant (acres)	Scenario 3 1 Cable the OECC and 2 Cable in Western Muskeget Variant (acres)
Offshore Export Cable Protection (within OECC)[1, 2]	29.4	32.5	35.6
Offshore Export Cable Installation (within OECC)[3, 4]	110	107	104
Dredging Prior to Cable Installation (area of impact)[5]	27	30	33
Use of Jack-up and/or Anchored Vessels and Vessel Grounding[2, 6, 7]	27	27	26
Totals[8]	180	182	183

Notes:

1. The cable protection used in limited areas to cover offshore export cable joints or cable crossings may be wider, but the total cable protection area will remain the same.
2. Anchoring estimates conservatively assumes a nine-anchor spread where each anchor impacts 323 ft^2 and two spud legs that impact 108 ft^2. Depending on the scenario, the number of anchor sets range from 263 (Scenario 3) to 278 (Scenario 1). The anchoring footprint excludes anchor sweep, which cannot be quantified at this early stage in the construction planning process.
3. Cable installation impacts assume a 13.1 ft wide disturbance zone (3.3 ft for the cable trench and 9.8 ft for skids/tracks).
4. Some pre-pass jetting may occur along limited sections of the offshore export cable route; however, impacts will occur within the same geographical space as cable installation.
5. To avoid double-counting impacts, the total area of dredging disturbance does not include the 3.3 ft wide cable installation trench and 9.8 ft skid/track width counted above. The total dredging area including the cable installation trench is approximately 67 acres. Dredge volumes are presented in Table 3.
6. Vessels may be jack-up, anchored, or dynamic positioning vessels. It is estimated that each jack-up vessel would impact approximately 0.30 acres of seafloor whereas each anchored vessel will only disturb approximately 0.19 acres, excluding anchor sweep (which cannot be quantified at this early stage in the construction planning process). Thus, the maximum seafloor disturbance is calculated assuming all vessels jack-up.
7. Grounding estimates are based on the footprint of a 492 x 164 ft vessel, with extra contingency to account for multiple groundings at the same location. A total of three groundings are assumed.
8. To avoid double-counting impacts, the total seafloor disturbance in the OECC does not include the 3.3 ft wide cable installation trench and 9.8 ft skid/track width for the length of cable covered by cable protection.

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? **_X_ Yes** ___ No; if yes, specify which permit: **Chapter 91 Waterways License and Dredge Permit, 401 Water Quality Certification, Orders of Conditions.**

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? **_X_ Yes** ___ No; if yes, has an NOI been filed? ___ Yes **_X_ No**; if yes, list the date and MassDEP file number: _____; if yes, has a local Order of Conditions been issued? ___ Yes ___ No; Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a Variance from the Wetlands regulations? ___ Yes ___ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

The following two sections provide a summary overview of the proposed temporary or permanent wetland resource area impacts associated with the offshore and onshore project elements.

Offshore Project Elements

During offshore export cable installation and depending on the scenario selected (see Table 4), use of Jack-up and/or anchored vessels and vessel grounding will affect approximately 26-27 acres and cable installation will affect approximately 104-110 acres of Land Under the Ocean within state waters in the towns of Barnstable, Edgartown, Nantucket, and Mashpee. Cable installation impacts assume a 13.1 ft wide disturbance zone (3.3 ft for the cable trench and 9.8 ft for skids/tracks). In addition, dredging prior to cable installation may temporarily affect approximately 27-33 acres in state waters depending on the scenario selected.

Furthermore, although the Proponent's priority will be to achieve adequate burial of the three offshore export cables, where it is difficult to achieve a sufficient burial depth or where cables must cross existing infrastructure, the offshore export cables may be protected by rocks, gabion rock bags, prefabricated flexible concrete coverings (referred to as concrete mattresses), half-shell pipes, or other similar product used to prevent cable damage. The target burial depth of the offshore export cables will be at least 5 ft along their entire length. The Proponent plans to use cable protection if a minimum burial depth of 5 ft is not achieved within areas of higher risk of damage from anchor strikes. These areas of higher risk are based on existing vessel traffic patterns and comprise the majority of the OECC. To minimize the use of cable protection, where the risk of anchor strike is negligible, the Proponent plans to use cable protection if a minimum burial depth of 3.3 ft is not achieved. Cable protection may also be used if the cables need to cross other infrastructure (e.g., existing cables, pipes, etc.), to secure the cable entry protection system in place, or where a cable joint requires protection. Approximately 29.4-35.6 acres of offshore cable protection in state waters is anticipated for all three cables depending on the scenario used.

Use of HDD for the transition from offshore to onshore will avoid impacts to coastal bank, coastal beach, coastal dune, and nearshore areas. The horizontal length of the three HDDs will be between approximately 2,100 ft and 2,250 ft long (see Attachment F1).

Installation of the proposed offshore export cables will have localized and temporary effects on water quality, primarily related to trenching and limited dredging where sand waves are encountered. Temporary sediment disturbance associated with Project activities will cause minor, short-term, and localized increases in total suspended solids (TSS) along the OECC. Jet plowing and minimizing the amount of sand wave dredging will minimize sediment disturbance.

To assess the potential impacts of cable installation activities, sediment dispersion modeling was conducted. The sediment dispersion modeling assessment is included as Attachment I. The cable installation methods may vary along the route depending on subsurface conditions; the installation methods are described in detail in Attachment I and the details of the assumed modeling parameters are also documented within the sediment dispersion modeling assessment report. The assessment completed simulated multiple scenarios to capture the maximum design scenario and range of effects associated with the installation of offshore export cables in the OECC, including dredging to clear sand waves and various cable installation methods.

Onshore Project Elements

The Dowses Beach Landfall Site is located within Land Subject to Coastal Storm Flowage (LSCSF) otherwise, onshore, HDD construction work areas will be sited to avoid wetland resource areas including coastal bank, coastal beach, and coastal dune. HDD construction activities at Dowses Beach will occur entirely within the existing paved parking lot and the parking lot will be repaved following construction. The onshore transmission route passes through approximately 0.3 miles (1,514 linear feet) of LSCSF along Dowses Beach Road and East Bay Road, crosses approximately 0.2 miles (872 linear feet) of Riverfront Area (RFA) along Old Falmouth Road and Oak Street, and crosses approximately 0.5 miles (2,447 linear feet) of buffer zone (see Attachment B, Figure 6). These temporary impacts will occur entirely within the

paved surfaces of existing roadways. Roadways impacted by Project construction will be repaved. There are no mapped wetland resource areas along the grid interconnection routes from the proposed new onshore substation to the existing West Barnstable Substation.

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean	(364,320 lf) (23 miles/183 acres (see Table 3)	Temporary
Designated Port Areas	0 sf	
Coastal Beaches	0 sf	
Coastal Dunes	0 sf	
Barrier Beaches	0 sf	
Coastal Banks	0 sf	
Rocky Intertidal Shores	0 sf	
Salt Marshes	0 sf	
Land Under Salt Ponds	0 sf	
Land Containing Shellfish	63,418 lf	
(DMF Shellfish Suitability Areas	209,279 sf (7.1 acres) (3.3 ft wide cable trench)	
Within the OECC for the Eastern	621,496 sf (14.3 acres)(9.8 ft for skids/tracks)	
And Western Muskeget, respectively)		Temporary
Fish Runs	0 sf	
Land Subject to Coastal Storm Flowage	1,514 lf (19,682 sf)*	Temporary
Inland Wetlands		
Bank (lf)	0 lf	
Bordering Vegetated Wetlands	0 sf	
Isolated Vegetated Wetlands	0 sf	
Land under Water	0 sf	
Isolated Land Subject to Flooding	0 sf	
Bordering Land Subject to Flooding	0 sf	
Riverfront Area	872 lf (11,336 sf)	Temporary

* Assumes a 13-foot-wide trench for an approximate 12 foot wide, 7-foot-deep duct bank.

D. Is any part of the project:

1. proposed as a **limited project**? **_X_ Yes** __ No; if yes, what is the area (in sf)?____

All project components located within state jurisdictional wetland resource areas qualify for limited project status. Although the Project will qualify as a limited project the Project has been designed to comply with all applicable performance standards in 310 CMR 10.00 (Wetlands Protection Act Regulations).

2. the construction or alteration of a **dam**? ___ Yes **_X_ No**; if yes, describe:

3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes **_X_ No**; **The onshore transmission cables will be buried below grade in a concrete duct bank.**

4. dredging or disposal of dredged material? **_X_ Yes __** No; if yes, describe the volume of dredged material and the proposed disposal site:

The Project may involve dredging of up to approximately 131,100 cy in state waters for all three cables depending on the final scenario employed. See Table 3 for all scenarios. The dredge volumes are dependent on the final route and cable installation method; a cable installation method that can achieve a deeper burial depth will require less dredging. Some areas of Nantucket Sound have areas of complex bottom composed of mobile sand waves, which the Proponent has assessed over multiple seasons of marine surveys. As a result, where sand waves are large, it may be necessary to perform pre-cable-laying dredging to remove the tops of these features along the cable alignment to ensure sufficient burial within the underlying stable seabed.

The stretch of the OECC where sand wave dredging may be needed is largely coincident with areas mapped as complex bottom as shown on the plan set in Attachment E. It is important to note that dredging, if performed, would not occur along the entire stretch where sand waves may be present; rather, dredging would only be performed to remove the tops of each sand wave to the extent needed at the time of construction to ensure sufficient burial within the stable seabed. Additionally, any dredged material removed from sand waves will be repositioned within the same OECC and will be deposited on a similar sandy substrate; no dumping of dredged material will be allowed on hard bottom areas.

<u>Dredging Impacts</u>

Dredging will be limited to only the extent required to achieve adequate cable burial depth during cable installation. Where dredging is necessary, it is conservatively assumed that the dredged area will be approximately 50 feet wide at the bottom (to allow for equipment maneuverability) with approximately 1V:3H side slopes for each of the three cables. The depth of dredging will vary with the height of sand waves, and hence the dimensions of the side slopes will likewise vary with the depth of dredging and sediment conditions. The estimated area of dredging impacts is approximately 27-33 acres in state waters (including side slopes) depending on the scenario used. The dredge corridor includes the up to approximately 3.3-foot-wide (1-m-wide) cable installation trench and the up to approximately 10-foot-wide (3-m-wide) temporary disturbance zone from tool skids/tracks, and hence the dredge impact area excludes these impacts to avoid double-counting.

With respect to potential habitat impacts, sand wave areas are intrinsically dynamic and unstable, and while dredging will be avoided and minimized wherever possible, those areas, which may necessitate dredging, are typically sub-optimal areas for benthic organisms.

<u>Dredging Methods</u>

Dredging could be accomplished by several techniques, such as trailing suction hopper dredge (TSHD) or jetting by controlled flow excavation. Where a TSHD is used, it is anticipated that the TSHD would dredge along the cable alignment until the hopper is filled to an appropriate capacity, then the TSHD would sail several hundred meters away and deposit the dredged material within an area of the OECC that also contains sand waves; such depositing of dredged material would be prohibited within areas identified as hard bottom (see Attachment E). With jetting by controlled flow excavation, a stream of water fluidizes the sediments around the cable, which allows the cable to settle into the trench. This process causes the top layer of sediments to be side cast to either side of the trench. A TSHD can be used in sand waves of most sizes, whereas the controlled flow excavation technique is most likely to be used in areas where sand waves are less than 6.6 feet high. Therefore, the sand wave dredging could be accomplished entirely by the TSHD on its own, or the dredging could be accomplished by a combination of controlled flow excavation and TSHD, where controlled flow excavation would be used in smaller sand waves and the TSHD would be used to remove the larger sand waves.

No dredging is proposed in hard-bottom areas (e.g., boulders, cobble bottom). The only dredging proposed for the Project is where large sand waves, features that can be considered "complex" due to their bathymetric relief, necessitate pre-cable-laying dredging to ensure that the necessary burial depth can be achieved. As noted previously, sand waves, although they do provide bathymetric variability, are seafloor features that change quickly and hence do not enable the formation of complex benthic communities.

The dredging impacts estimated above are for NE Wind 2 Connector, the portion of the project located within Massachusetts. Additional sand wave dredging is also expected to be necessary in federal waters, and those impacts are discussed below in the context of federally protected wetlands.

5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? ___ Yes **_X_ No**

6. subject to a wetlands restriction order? ___ Yes **_X_ No**; if yes, identify the area (in sf):

7. located in buffer zones? **_X_ Yes** ___ No; if yes, how much (in sf): **31,811 sf***
* Assumes a 13-foot-wide trench for an approximate 11.5-foot-wide duct bank.

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? **_X_ Yes** ___ No

2. alter any federally protected wetlands not regulated under state law? ___ Yes **_X_ No**; if yes, what is the area (sf)?

The NE Wind 2 Connector is located solely within state waters and will not alter any federal wetlands that are not regulated under state law. However, for context, the Proponent notes there will be impacts from Commonwealth Wind in federal wetlands outside of Massachusetts in resources that are not regulated under Massachusetts law. Section 2.0 in Attachment A presents an overview of the Commonwealth Wind Project components and impacts within both state and federal waters.

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? **_X_ Yes** ___ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? **_X_ Yes** ___ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

September 23, 2004; License No. 10077 (Tidal culvert with associated wing walls, stone protection, and fill) (see Attachment B, Figure 5). The Project will also require a new License and Dredge Permit.

B. Does the project require a new or modified license or permit under M.G.L.c.91? **_X_ Yes** ___ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use?

Current **_0_** Change **_0_** Total **_0_**

The NE Wind 2 Connector is presumptively water-dependent: the Massachusetts regulations at 310 CMR 9.12(2)(e), provide that "in the case of a facility generating electricity from wind power (wind turbine facility) or any ancillary facility therefore, for which an EIR is submitted, the Department shall presume such facility to be water dependent if the Secretary has determined that such facility requires direct access to or location in tidal waters." As indicated in Waterways License #15011 granted on March 10, 2020, the similar Vineyard Wind Connector 1 was determined to be water dependent. Similarly, MADEP confirmed that the NE Wind 1 Connector is presumed to be water dependent in their comment letter related to the ENF filed for that Project dated July 28, 2020.

If yes, how many square feet of solid fill or pile-supported structures (in sf)?

No pile-supported structures are proposed within state waters. While the priority will be to achieve sufficient burial depth for the offshore export cables, if burial is unsuccessful, it may be necessary to use cable protection, which as described above could be rocks, gabion rock bags, concrete mattresses, or half-shell pipes. The Proponent will seek to avoid the use of such cable armoring, but if it is necessary will minimize its application.

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site:_____
Area of filled tidelands covered by buildings:_____
For portions of site on filled tidelands, list ground floor uses and area of each use:
_____
Does the project include new non-water-dependent uses located over flowed tidelands?
Yes ___ No ___
Height of building on filled tidelands_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes **_X_ No**; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes **_X_ No**; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? __ Yes **_X_ No**;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? **_X_ Yes ___** No; if yes, answer the following questions:
What type of dredging? **Improvement _X_** Maintenance ___ Both ___:

As described above, sand waves are present across portions of the OECC, and pre-cable-laying dredging of the tops of sand waves may be needed to ensure sufficient cable burial within the stable seabed; material removed from sand waves will be repositioned within other areas of sand waves inside the surveyed OECC and will be deposited on a similar sandy substrate; no dumping of dredged material will be allowed on hard bottom areas.

What is the proposed dredge volume, in cubic yards (cy):

Depending on the actual forms of sand waves at the time of installation, the Project may involve dredging of up to approximately 91,500 cubic yards in state waters for all three offshore export cables combined when utilizing the Eastern Muskeget Channel option.

What is the proposed dredge footprint ___length (ft) __width (ft)___depth (ft); **See below**

Where dredging is necessary, it will be centered on each cable alignment and will consist of an approximately 50-foot-wide dredge cut as measured at the bottom, with approximately 1V:3H side slopes. Therefore, excluding the 3.3 ft wide zone of disturbance for the trench itself and the approximately 9.8 ft wide impact area from skids/tracks on the installation equipment, the area impacted by dredging would be up to approximately 27 acres in state waters (inclusive of side slopes) (see the Project Narrative in Attachment A for additional details). Locations where dredging may be necessary are generally coincident with where complex seafloor/bedforms are shown on the plan set included in Attachment E.

Will dredging impact the following resource areas?
Intertidal Yes___ **No _X_**; if yes, ___ sq ft
Outstanding Resource Waters Yes__ **No _X_**; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ **No _X_**; if yes __ sq ft

If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?

No impacts to the specified resource areas are anticipated from dredging because dredging is expected to be located well offshore and away from intertidal zones, outstanding resource waters, and eelgrass beds. In 2017, 2018, 2019, 2020, and 2021 the Proponent or its affiliated predecessors performed marine surveys to identify feasible routes for the proposed offshore export cables that would avoid and minimize impacts to resources, including eelgrass. The OECC does not cross any eelgrass habitat mapped in the Massachusetts Ocean Management Plan or by MassDEP surveys (see Attachment E). Offshore export cable installation, including dredging, may result in some temporary impacts to shellfish in the area immediately along the installation path, but since sand waves are mobile features they are typically not high-quality benthic habitat.

Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.

Marine surveys completed in 2017, 2018, and 2019 confirmed that portions of the OECC contain sand waves. Portions of the sand waves may be mobile over time; therefore, the upper portions of the sand waves may need to be removed via dredging so the cable-laying equipment can achieve the proper burial depth below the stable seabed to ensure cables stay buried. Material removed from sand waves will be repositioned within other areas of sand waves inside the surveyed OECC and will be deposited on a similar sandy substrate; no dumping of dredged material will be allowed on hard bottom areas.

Sediment Characterization
Existing gradation analysis results? **X Yes** ___No: if yes, provide results.

Areas identified in marine surveys for potential dredging along the OECC are all located within bedform fields (sand waves, >1.5 m height) and specifically will include the top portions of individual sand waves. Sediment grain size in these areas falls between fine sand and coarse sand with gravel and shells common. Grain size analyses were completed on grab samples and vibracore subsamples to define the surficial sediment classification. Gravel, shell material, and occasional cobbles often outcrop in the troughs between crests and may constitute a coarse lag surface underlying the mobile sand layer in places. A narrow swath is proposed for dredging, up to approximately 50 feet wide, such that the cable can be embedded below the mobile sand layer in the underlying stable seabed. This will reduce risk to the transmission line over the life span of the system.

Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes **X No**; if yes, provide results.

Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Material dredged from mobile sand waves will be deposited within other areas of sand waves inside the surveyed OECC.

Beach Nourishment 0
Unconfined Ocean Disposal 0
Confined Disposal:
Confined Aquatic Disposal (CAD) 0
Confined Disposal Facility (CDF) 0
Landfill Reuse in accordance with COMM-97-001 0

Shoreline Placement __0
Upland Material Reuse __0
In-State landfill disposal __0
Out-of-state landfill disposal __0
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? **_X_ Yes** ___ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

A Federal Consistency Statement for the entirety of New England Wind, which includes the Park City Wind and Commonwealth Wind projects, has been submitted to CZM which identifies Commonwealth Wind's consistency with the policies of MA CZM including the Ocean Management Plan

The jurisdiction of the OMP covers the area from a nearshore boundary that lies approximately 0.3 miles seaward from Mean High Water to the seaward limit of state waters (generally three miles offshore). The OMP is incorporated into the Massachusetts Coastal Zone Management Plan, and therefore requires that all federal actions, including the Project, be consistent with the OMP to the maximum extent practicable.

In accordance with the OMP and relevant OMP Regulations [301 CMR 28.00], the Project is subject to the siting and performance standards associated with allowable uses as it is located in the "Multi-Use Area" of the OMP, which covers most of the jurisdictional planning area. Allowable uses are governed by the Ocean Sanctuaries Act, as modified by the Oceans Act, and include power and communications cables. Moreover, to comply with the OMP, the Project is required to demonstrate that its public benefits outweigh any public detriments to Special, Sensitive or Unique (SSU) Estuarine or Marine Life Habitat and other resource areas, and that all practicable measures have been taken to avoid damage to SSU resources in the case where no less environmentally damaging practicable alternative exists.

Through careful technical studies and multiple consultations, the Project, which is consistent with the OMP has been selected. The Project is the least environmentally damaging practicable, avoiding impacts to the North Atlantic Right Whale core habitat and mapped eelgrass beds. The Project avoids to the maximum extent practicable areas of hard/complex bottom, only passing through these areas where there is no less damaging practicable alternative. Where passage through hard/complex bottom is necessary, all practicable measures will be taken to avoid and minimize impacts to those resources. The Project is consistent with siting and performance standards for cables and provides public benefits that outweigh any detriments to SSU and other resource areas. Potential impacts to SSUs will be identified in the DEIR.

See Attachment H for a description of the potential effects and the project's consistency with the policies of CZM.

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes **_X_ No**; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes **_X_ No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	_____	_____	_____
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. _____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? _____Will the project require an increase in that withdrawal? ___Yes ___No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_____	_____	_____	_____
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes ___ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes **_X_ No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	Existing	Change	Total
Discharge to groundwater	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Discharge to municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	_____	_____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?
(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or another Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? __ Yes **_X_ No (other than road crossing permit(s) to allow installation of underground cables, discussed in the following section)**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

E. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes ____ No; if yes, describe if and how will the project will participate in the TMA:

F. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ____ Yes ____ No; if yes, generally describe:

G. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? **_X_ Yes** ___ No; if yes, specify which permit: **Access Permit(s)**

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

The onshore transmission cable routing for the Project is proposed entirely underground and predominantly within existing public roadway layouts. In most cases, these roads are maintained by the Town of Barnstable. The onshore transmission route crosses state highways at two locations: an open trench crossing of MassDOT jurisdictional Route 28 (Falmouth Road) at Osterville West Barnstable Road, and the trenchless crossing under Route 6 approximately ½ mile west of the Oak Street Bridge overpass in West Barnstable. Along its entire length, the onshore transmission route is located within Town of Barnstable Designated Scenic Roads.

Impacts to transportation facilities will be temporary in nature and limited to the construction phase of the Project. Draft Traffic Management Plans for the onshore transmission cable route are included in Attachment F2. The Proponent will work closely with the Town of Barnstable on the TMP for construction including submittal of the TMPs for review and approval by appropriate municipal authorities (typically DPW/Town Engineer and Police). A TMP will also be prepared and submitted to MassDOT. In addition, the Proponent will work with community members, including local business owners to minimize construction period traffic related impacts.

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? **Yes (to be determined)**
2. Cutting of living public shade trees (number)? **Yes (number to be determined)**
3. Elimination of stone wall (in linear feet)? **0 If**

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan: **N/A**

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))?
X Yes ___ No; if yes, specify, in quantitative terms:

301 CMR 11.03(7)(a)(4): Construction of electric transmission lines with a Capacity of 230 or more kV, provided the transmission lines are five or more miles in length along New, unused, or abandoned right of way.

B. Does the project require any state permits related to **energy**? **X Yes** ___ No; if yes, specify which permit: **Energy Facilities Siting Board under MGL c. 164 Sections 69 and 72, Zoning Exemption under MGL c. 40A §3.**

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	0	N/A	N/A*
Length of fuel line (in miles)	0	0	0
Length of transmission lines (in miles)	0	76.2[12]	76.2
Capacity of transmission lines (in kilovolts)	0	275/345	275/345

* The offshore wind energy generation facility (Commonwealth Wind) is located in federal waters.

B. If the project involves construction or expansion of an electric generating facility, what are:
1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

The Project involves installation of export cables from an offshore wind energy generation facility (Commonwealth Wind) being constructed in Federal waters.

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? **X Yes** ___ No; if yes, please describe:

Although the onshore transmission cables will be installed within existing roadway layouts and other rights of way (e.g., utility ROW), the offshore export cables will be installed within the marine environment where no existing right of way exists. As noted previously, the NE Wind 2 Connector offshore export cables will be located within the same OECC as NE Wind 1 Connector and Vineyard Wind Connector 1 with the exception of where the offshore export cables branch off to the Dowses Beach Landfall Site.

[12] 76.2 miles is based on approximately 6.7 miles for the onshore transmission route, approximately 0.5 miles for the grid interconnection route, and approximately 69 miles (23 miles per cable) for all three offshore export cables within state waters within the Primary OECC.

D. Describe the project's other impacts on energy facilities and services:

The Project will serve the public interest by delivering approximately 1,232 MW of power to the New England energy grid, thus increasing reliability on Cape Cod, and making a substantial contribution to meeting individual New England state renewable energy requirements.

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

The Project is consistent with, and advances, the Commonwealth's policies for the development of offshore wind energy resources. In 2016, the Commonwealth enacted legislation to bring about the development of offshore wind energy generation projects such as those that would be enabled by the NE Wind 2 Connector. This new supply of offshore wind power will advance the Commonwealth's goal of contracting a total of 5,600 MW of offshore wind energy to reach the net-zero greenhouse gas emissions goals by 2050, established by the Legislature in the Massachusetts 2050 Decarbonization Roadmap.

The Proponent has secured multiple Power Purchase Agreements (PPAs) totaling 1,200 MW of power to the ISO-NE electric grid under agreements with Massachusetts entities in accordance with the states' respective renewable energy requirements. Additional PPAs of approximately 32 MW may also be secured with MLPs or other offtakers. As described in Section 1.2 of Attachment A, since New England has a shared regional electric grid, the states have an opportunity to collaborate productively in support of this industry and maximize its benefits for the entire region. The NE Wind 2 Connector and the associated Commonwealth Wind project in federal waters will be an additional step forward in meeting the region's growing demand for clean energy.

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8)) ? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes **_X_ No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9)) ? ___ Yes **_X_ No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes **_X_ No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos? ___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? **_X_ Yes** __ No; if yes, attach correspondence.

See Attachment K for a copy of the Project Notification Form (PNF) filed with MHC.

For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? **_X_ Yes** __ No; if yes, attach correspondence.

Gray & Pape, Inc. (Gray & Pape), the marine archaeological consultant, contracted by the Proponent filed for and obtained a Special Use Permit (SUP) from the Massachusetts Board of Underwater Archaeological Resources (MBUAR) which included the proposed NE Wind 2 Connector Primary OECC and the Western Muskeget Variant. Specifically, the SUP was issued for offshore surveys within State Waters of the New England Wind OECC including the Nantucket Sound OECC extending from Centerville Harbor offshore (including the area off of Dowses Beach) and the Western Muskeget Variant. Survey activities took place over five seasons from 2016 to 2020 with the 2020 survey season extending into February 2021. All offshore and onshore elements of the Commonwealth Wind Project are subject to review under federal processes coordinated by BOEM including Section 106 of the National Historic Preservation Act (NHPA) (Title 54 U.S.C. § 306108). The marine archaeological resources assessment (MARA) for New England Wind (collectively the Park City Wind Project and the Commonwealth Wind Project) was included in the NE Wind Project COP that has been submitted to BOEM. MBUAR is a consulting party in the Section 106 process led by BOEM.

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes **_X_ No**; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes **_X_ No**; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? **_X_ Yes** ___ No; if yes, does the project involve the destruction of all or any part of such archaeological site? **_X_** Yes ___ No; if yes, please describe:

The Project passes through and/or adjacent to previously recorded archaeological sites.

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

Installation of the Project's infrastructure at the landfall and along the onshore electric transmission cable route will involve excavation primarily in previously disturbed roadway layouts that will pass by and through documented archaeological sites. The Project will be predominantly in existing roadway layouts in which prior excavation, filling, grading, and construction activities have already created disturbance. The proposed landfall location and the onshore transmission cable route have been examined for archaeological impacts through archaeological reconnaissance surveys. The results of the archaeological reconnaissance surveys indicate varying levels of archaeological sensitivity along the routes from low to high. No impacts to historic buildings are anticipated from the cable routes, as they will be located underground within existing ROWs.

The new onshore project substation and all of the grid interconnection routes still under consideration will pass through portions of the Old Kings Highway Regional Historic District/BRN.O (see Attachment B, Figure 8). No impacts to historic buildings are anticipated from the grid interconnection cables, as they will be located underground within existing roadway layouts and the new substation site does not contain any historic buildings. The majority of the proposed onshore substation parcels will be cleared for construction and operation. The Proponent will continue to consult with MHC with regard to potential impacts on historic and archaeological resources for the Project.

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

Further consultation will be undertaken with the MHC pursuant to Chapter 254 (State Register Review). The Proponent's archaeology consultant, the Public Archaeology Laboratory (PAL), obtained permits to conduct reconnaissance-level survey of potential affects to archaeological sites along the onshore transmission and grid interconnection routes and a permit to conduct archaeological investigation of the proposed onshore substation site. PAL and/or the Proponent will continue to coordinate with Tribal Historic Preservation Office (THPO) staff, to arrange for tribal monitors, if requested. Technical reports of the reconnaissance level surveys, and archaeological investigation have been or will be submitted to MHC. In addition, local historical commissions will be consulted as needed regarding results of the archaeological survey and potential effects.

Marine Archaeological Resource Assessment Reports detailing potential marine archaeological impacts under Section 106 of the National Historic Preservation Act were filed with BOEM as the lead federal agency under Section 106. As the lead federal agency, BOEM will coordinate with consulting parties including MHC. The Company is developing and will submit a state waters specific marine archaeology assessment report to MBUAR.

CLIMATE CHANGE ADAPTATION AND RESILIENCY SECTION

This section of the Environmental Notification Form (ENF) solicits information and disclosures related to climate change adaptation and resiliency, in accordance with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency (the "MEPA Interim Protocol"), effective October 1, 2021. The Interim Protocol builds on the analysis and recommendations of the 2018 Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) and incorporates the efforts of the Resilient Massachusetts Action Team (RMAT), the inter-agency steering committee responsible for implementation, monitoring, and maintenance of the SHMCAP, including the "Climate Resilience Design Standards and Guidelines" project. The RMAT team recently released the RMAT Climate Resilience Design Standards Tool, which is available here.

The MEPA Interim Protocol is intended to gather project-level data in a standardized manner that will both inform the MEPA review process and assist the RMAT team in evaluating the accuracy and effectiveness of the RMAT Climate Resilience Design Standards Tool. Once this testing process is completed, the MEPA Office anticipates developing a formal Climate Change Adaptation and Resiliency Policy through a public stakeholder process. Questions about the RMAT Climate Resilience Design Standards Tool can be directed to rmat@mass.gov.

All Proponents must complete the following section, referencing as appropriate the results of the output report generated by the RMAT Climate Resilience Design Standards Tool and attached to the ENF. In completing this section, Proponents are encouraged, but not required at this time, to utilize the recommended design standards and associated Tier 1/2/3 methodologies outlined in the RMAT Climate Resilience Design Standards Tool to analyze the project design. However, Proponents are requested to respond to a respond to a user feedback survey on the RMAT website or to provide feedback to rmat@mass.gov, which will be used by the RMAT team to further refine the tool. Proponents are also encouraged to consult general guidance and best practices as described in the RMAT Climate Resilience Design Guidelines.

Climate Change Adaptation and Resiliency Strategies

I. Has the project taken measures to adapt to climate change for all of the climate parameters analyzed in the RMAT Climate Resilience Design Standards Tool (sea level rise/storm surge, extreme precipitation (urban or riverine flooding), extreme heat)? **X Yes** __ No

Note: Climate adaptation and resiliency strategies include actions that seek to reduce vulnerability to anticipated climate risks and improve resiliency for future climate conditions. Examples of climate adaptation and resiliency strategies include flood barriers, increased stormwater infiltration, living shorelines, elevated infrastructure, increased tree canopy, etc. Projects should address any planning priorities identified by the affected municipality through the Municipal Vulnerability Preparedness (MVP) program or other planning efforts, and should consider a flexible adaptive pathways approach, an adaptation best practice that encourages design strategies that adapt over time to respond to changing climate conditions. General guidance and best practices for designing for climate risk are described in the RMAT Climate Resilience Design Guidelines.

A. If no, explain why.

B. If yes, describe the measures the project will take, including identifying the planning horizon and climate data used in designing project components. If applicable, specify the return period and design storm used (e.g., 100-year, 24-hour storm).

Governor Baker's Executive Order 569, which directs the Executive Office of Energy and Environmental Affairs ("EEA") and the Executive Office of Public Safety and Security ("EOPSS") to coordinate efforts across the Commonwealth to strengthen the resilience of communities, prepare for the impacts of climate change, and proactively plan for and mitigate damage from extreme weather events. The MEPA Interim Protocol on Climate Change Adaptation and Resiliency ("Climate and Resiliency Interim Protocol") prescribes that all new projects filing with the MEPA Office will be required to print the output report generated from the RMAT Climate Resilience Design Standards Tool and submit it as an attachment to an Environmental Notification Form (ENF) or Expanded Environmental Notification Form (EENF) submittal. A copy of the RMAT report generated for the Project is included as Attachment G.

The Climate and Resiliency Interim Protocol encourages, but does not require, project proponents to utilize the recommended design standards and associated methodologies associated with Tier 1/2/3 classified projects. As per the RMAT report, the Project is classified as a Tier 3 Project. The Project has been sited and is being designed in consideration of the RMAT Climate Resilience Design Guidelines (methodologies outlined in the *Climate Resilience Design Standards & Guidelines*, dated April 1, 2021).

The following sections provide an overview of how the Proponent has or will consider various climate parameters relevant to the Project.

Extreme Precipitation and Heat

The Climate and Resiliency Interim Protocol encourages, but does not require, project proponents to utilize the recommended design standards and associated methodologies associated with Tier 1/2/3 classified projects. As per the RMAT report, the onshore substation is classified as a Tier 3 asset (see Attachment G). The substation design will include the applicable recommended design standards from the Climate Resilience Design Guidelines for a Tier 3 Project and has designed the Project in consideration of Extreme Precipitation. The proposed stormwater management system for the new onshore substation will be designed utilizing the methodology prescribed for Tier 3 projects to consider future storm intensity and frequency from climate change. Specifically, the stormwater management system has been designed to accommodate the 24-hour storm event (2-year, 10-year, 50-year (RMAT), and 100-year) using Extreme Precipitation Estimates from the Northeast Regional Climate Center.

As shown in the RMAT Report generated for the Project (Attachment G), the Project was also identified as having potential for impact from Extreme Heat. Based upon the Company's review of the Climate Resilience Guidelines, there is no formal definition of Extreme Heat and there are no current design standards for Extreme Heat. However, according to a review of definitions of Extreme Heat on the Commonwealth of Massachusetts website (https://www.mass.gov/info-details/extreme-heat-safety-tips), Extreme Heat is defined as "a prolonged period of very hot weather, which may include high humidity. In Massachusetts, a "heat wave" is usually defined as a period of three or more consecutive days above 90 degrees Fahrenheit. In general, the substation equipment selected will be designed for the selected site and various operating scenarios including operation under Extreme Heat conditions.

Sea Level Rise, Storm Surge, and Shoreline Change/Coastal Erosion

While the proposed substation is located inland and well outside of any areas that could experience sea level rise or be affected by coastal storm surges, the Project includes underground infrastructure including cables, duct bank, and transition vaults which are proximate to the shoreline and within the existing and future flood zone. It is important to note that due to the nature of the project, offshore to onshore cable transition must be located on the coastline and in areas that could be affected by climate change. There are no above ground facilities proposed for the Project in the coastal zone, including the existing and future flood zone. The existing flood zone is depicted in Figure 6. Potential for sea level rise inundation resulting from projected 1 to 10 feet rise in sea level above current Mean Higher High Water (MHHW) conditions as prepared by National Oceanic and Atmospheric Administration Office for Coastal Management is identified in Attachment B, Figure 11. The transition vaults within the Dowses Beach paved parking area will be installed to a maximum depth of approximately 8.5 feet and the top of the vaults will be approximately 2 feet below the parking lot surface. Within the parking lot, the only visible components of the cable system will be the manhole covers (two per vault) which will be used to access the transition vaults. The offshore cables will be installed at a depth of approximately 35 to 50 feet below the existing land surface and underneath the existing Coastal Dune and Coastal Beach. The onshore cables will be installed within an underground duct bank and manhole system with a depth of approximately 11.5 feet and an average of 3.5 feet below the surface. Attachments F1 and F2 provide specific details for the proposed activities at the Dowses Beach Landfall site and for the onshore cable duct bank, respectively.

When properly installed according to industry standards, underground cable systems are not negatively impacted by flooding and weather events. Cables and splices are designed to be sealed from water intrusion. The cables are designed to be able to function in inundated and submerged conditions. The RMAT Report completed for the Project, included as Attachment G, provides baseline data for the potential for sea level rise design criteria to be considered for each of the assets associated with the Project. As noted on the RMAT Report, tidal datum values provided are based on the MC-FRM, developed by Woods Hole Group in coordination with UMass Boston. However, as noted above, the nature of the project requires installation of infrastructure below the existing surface.

Figure 12 in Attachment B depicts the worst-case hurricane surge inundation for the area, as developed by the U.S. Army Corps of Engineers (USACE) Dowses Beach is a Barrier Beach system and has Coastal Dunes and Coastal Bank associated with it. All of these features provide storm damage prevention and flood control functions by providing a buffer to storm waves and to sea levels elevated by storms. Under proposed conditions, these features are anticipated to continue to provide these functions. The Project will comply with all applicable performance standards for these coastal wetland resource areas required in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00).

With regard to shoreline change/coastal erosion, according to CZM's Shoreline Change Project, Dowses Beach is relatively stable and the portion of the beach in the vicinity of the Project is accreting (see Attachment B, Figures 13A, 13B, and 13C). As discussed above, the transition vaults will be installed within the paved parking lot area and the cables installed via HDD will be approximately 35 to 50 ft below the surface of the beach, decreasing the probability of exposure during a storm event. As the Project design

advances and to ensure that proposed onshore infrastructure associated with the Project (e.g., manholes and associated electrical infrastructure) will not be vulnerable to the effects of climate change including shoreline erosion, storm inundation and sea level rise. The results of this analysis would be presented in the DEIR.

C. Is the project contributing to regional adaptation strategies? **X Yes** __ No; If yes, describe.

The Project will reduce greenhouse gas (GHG) emissions in the New England region by offsetting emissions from higher-polluting conventional power generation facilities. The Project is expected to reduce regional GHG emissions by approximately 2.34 million tons per year, representing a significant step toward achieving the ambitious GHG reduction goals set by New England states.

II. Has the Proponent considered alternative locations for the project in light of climate change risks?
X Yes No

A. If no, explain why.

B. If yes, describe alternatives considered.

In summary, the Proponent completed an analysis of potential landfall sites for the Project to the stretch of the south coast of Cape Cod in Barnstable, particularly to the area of the Centerville Harbor Bight located to the west of Craigville Beach. As stated above, this project needs to be located on the immediate coastline and in areas that could be affected by climate change. Section 3.2 in Attachment A provides a detailed discussion of the alternatives analysis completed for the proposed Project landfall location. Dowses Beach parking lot, the proposed landfall location for the Project is an ideal location for the Project given the availability of land (parking lot) and the relatively stable shoreline around the parking lot.

III. Is the project located in Land Subject to Coastal Storm Flowage (LSCSF) or Bordering Land Subject to Flooding (BLSF) as defined in the Wetlands Protection Act? **X Yes** ____No

If yes, describe how/whether proposed changes to the site's topography (including the addition of fill) will result in changes to floodwater flow paths and/or velocities that could impact adjacent properties or the functioning of the floodplain. General guidance on providing this analysis can be found in the CZM/MassDEP Coastal Wetlands Manual, available here.

The Dowses Beach Landfall Site, Dowses Beach Road and East Bay Road are located in an area of LSCSF. (see Attachment B, Figure 6). The underground onshore transmission cable duct bank system is not affected by flooding and will not cause flooding or exacerbate existing flooding. The Project does not involve any fill or permanent aboveground structures, resulting in no loss of flood storage or redirection of flood flow.

ENVIRONMENTAL JUSTICE SECTION

I. Identifying Characteristics of EJ Populations

A. If an Environmental Justice (EJ) population has been identified as located in whole or in part within 5 miles of the project site, describe the characteristics of each EJ populations as identified in the EJ Maps Viewer (i.e., the census block group identification number and EJ characteristics of "Minority," "Minority and Income," etc.). Provide a breakdown of those EJ populations within 1 mile of the project site, and those within 5 miles of the site.

The Project is not located within 1 mile of any EJ populations in whole or in part.

The Project is located within 5 miles of the 14 following census block groups on the EJ Maps Viewer:

Block Group 1, Census Track 141 in Sandwich with the EJ criteria "Income"

Block Group 1, Census Track 150.02 in Mashpee with the EJ criteria "Income"
Block Group 2, Census Track 150.02 in Mashpee with the EJ criteria "Minority"

Block Group 2, Census Track 126.01 in Barnstable with the EJ criteria "Minority"
Block Group 1, Census Track 126.02 in Barnstable with the EJ criteria "Minority" and "Income"
Block Group 4, Census Track 126.02 in Barnstable with the EJ criteria "Minority"
Block Group 3, Census Track 125.02 in Barnstable with the EJ criteria "Minority"
Block Group 3, Census Track 126.02 in Barnstable with the EJ criteria "Minority"
Block Group 4, Census Track 125.02 in Barnstable with the EJ criteria "Minority"
Block Group 2, Census Track 126.02 in Barnstable with the EJ criteria "Minority" and "Income"
Block Group 3, Census Track 153 in Barnstable with the EJ criteria "Minority" and "Income"
Block Group 2, Census Track 153 in Barnstable with the EJ criteria "Minority" and "Income"

Block Group 2, Census Track 121.01 in Yarmouth with the EJ criteria "Minority"
Block Group 3, Census Track 121.02 in Yarmouth with the EJ criteria "Income"

B. Identify all languages identified in the "Languages Spoken in Massachusetts" tab of the EJ Maps Viewer as spoken by 5 percent or more of the EJ population who also identify as not speaking English "very well." The languages should be identified for each census tract located in whole or in part within 1 mile and 5 miles of the project site, regardless of whether such census tract contains any designated EJ populations.

Within 1 mile, the following languages are spoken by 5 percent or more of the population who do not speak English very well:

- **Census Tract 153 in Barnstable – Portuguese or Portuguese Creole, 7.1%**

In addition to the group listed above, the Project is located within 5 miles of the following census tracts:

- **Census Tract 126.02 in Barnstable – Portuguese or Portuguese Creole, 8.3%**

See Attachment B, Figure 10.

C. If the list of languages identified under Section I.B. has been modified with approval of the EEA EJ Director, provide a list of approved languages that the project will use to provide public involvement opportunities during the course of MEPA review. If the list has been expanded by the Proponent (without input from the EEA EJ Director), provide a list of the additional languages that will be used to provide public involvement opportunities during the course of MEPA review as required by Part II of the MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Public Involvement Protocol"). If the project is exempt from Part II of the protocol, please specify.

Based on consultation with the Barnstable school district, the project will use the following languages to provide public involvement opportunities during the course of MEPA review:

- **English**
- **Brazilian Portuguese**
- **Spanish**

II. Potential Effects on EJ Populations

A. If an EJ population has been identified using the EJ Maps Viewer within 1 mile of the project site, describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

The Project is not located within 1 mile of any EJ populations in whole or in part.

B. If an EJ population has been identified using the EJ Maps Viewer within 5 miles of the project site, will the project: (i) meet or exceed MEPA review thresholds under 301 CMR 11.03(8)(a)-(b) __ Yes **X No**; or (ii) generate150 or more new average daily trips (adt) of diesel vehicle traffic, excluding public transit trips, over a duration of 1 year or more. ___ Yes **X No**

C. If you answered "Yes" to either question in Section II.B., describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

III. Public Involvement Activities

A. Provide a description of activities conducted prior to filing to promote public involvement by EJ populations, in accordance with Part II of the MEPA EJ Public Involvement Protocol. In particular:

See Attachment A, Section 6.

1. If advance notification was provided under Part II.A., attach a copy of the Environmental Justice Screening Form and provide list of CBOs/tribes contacted (with dates). Copies of email correspondence can be attached in lieu of a separate list.

Voluntary advance notification of the ENF Filing was provided to CBOs and tribes. See Attachment J for a copy of the Advance Notice that was provided in English, Brazilian Portuguese, and Spanish as well as a list of organizations the notice was sent to.

2. State how CBOs and tribes were informed of ways to request a community meeting, and if any meeting was requested. If public meetings were held, describe any issues of concern that were raised at such meetings, and any steps taken (including modifications to the project design) to address such concerns.

See Attachment A, Section 6.

3. If the project is exempt from Part II of the protocol, please specify.

The Project is not located within 1 mile of any EJ populations in whole or in part and is therefore exempt from Part II.

B. Provide below (or attach) a distribution list (if different from the list in Section III.A. above) of CBOs and tribes, or other individuals or entities the Proponent intends to maintain for the notice of the MEPA Site Visit and circulation of other materials and notices during the course of MEPA review.

See Attachment J.

C. Describe (or submit as a separate document) the Proponent's plan to maintain the same level of community engagement throughout the MEPA review process, as conducted prior to filing.

The Company will continue to notify CBO's that the Advance Notice was sent to. See Attachment A, Section 6 for an overview of outreach that has been done for the project to date.

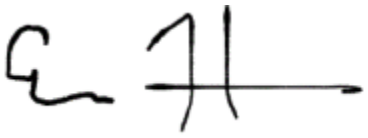
CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   Cape Cod Times, September 30, 2022
   Inquirer and Mirror, September 29, 2022
   Vineyard Gazette, September 30, 2022

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
9/30/2022		9/30/2022	

Erin Harizi
State Permitting Manager
Commonwealth Wind LLC
125 High Street, 6th Floor
Boston, MA 02110

Marc Bergeron
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754
(978) 897-7100

Attachment A

Supporting Narrative

ATTACHMENT A SUPPORTING NARRATIVE

This supporting narrative is being submitted with the Environmental Notification Form (ENF) to provide additional context, background, and details related to the New England Wind 2 Connector Project (NE Wind 2 Connector or the Project).

Please refer to the ENF Form for a detailed project description and a summary of the existing conditions along the onshore portion of the Project and Attachment B for accompanying figures of the Project identifying environmental constraints along the project corridor. The following sections provide supplemental information related to the following subject matter; Project Need and Benefits (Section 1.0), a summary overview of the Commonwealth Wind Project features in federal waters and an overview of the federal permitting process (Section 2.0), a summary of project alternatives considered to the Project, as well as the routing and siting analyses completed to determine the location of various Project components currently proposed for the Project (Section 3.0), a detailed discussion on anticipated construction mitigation, compliance and monitoring (Section 4.0) for the Project, details related to general Project schedule considerations (Section 5.0), a summary overview of agency and community outreach completed by the Company to date (Section 6.0), and an introduction to the Company's Project Team (Section 7.0).

1.0 Project Need and Benefits

1.1 Project Need

Section 83C of Chapter 169 of the Acts of 2008, as amended by Chapter 188 of the Acts of 2016, An Act to Promote Energy Diversity, Chapter 8 of the Acts of 2021, An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, Chapter 24 of the Acts of 2021, An Act Making Appropriations for the Fiscal Year 2022, and Chapter 179 of the Acts of 2022, An Act Driving Clean Energy and Offshore Wind, is intended to ensure a diversified electrical energy portfolio for the Commonwealth while strengthening the Massachusetts clean energy economy, and to better ensure that the greenhouse gas reduction requirements under the Commonwealth's 2008 Global Warming Solutions Act (GWSA), as recently amended by An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, are achieved. Section 83C does this by requiring the solicitation and procurement of 5,600 MW of offshore wind energy generation by June 30, 2027.

On May 7, 2021, in coordination with the Massachusetts Department of Energy Resources (DOER), investor-owned Electric Distribution Companies (the EDCs) serving the ratepayers of Massachusetts issued a third request for proposals (RFP or 83C III solicitation) in response to the DOER's direction to solicit 1,600 MW of Offshore Wind Energy Generation. In late 2021, after a bid evaluation process, the EDC's and DOER selected the Commonwealth Wind Project (the CWW Project) as part of its third offshore wind competitive procurement process to advance contract negotiations. The NE Wind 2 Connector is comprised of those elements of the broader CWW Project that are subject to state jurisdiction, which includes components proposed within state waters and onshore.

In April 2022, the Company executed power purchase agreements (PPAs) with the EDCs for the output of 1,200 MW of Commonwealth Wind. In May 2022 the EDCs filed the PPAs with the Massachusetts Department of Public Utilities (DPU). The remaining 32 MW is anticipated to be contracted separately with municipal light plants (MLPs) or other offtake users in Massachusetts.

Commonwealth Wind's wind development area (WDA) is located within federal waters. As described in more detail in Section 2.0, the Company is in the process of permitting the Commonwealth Wind Project at the federal Level. The location of the Massachusetts offshore wind lease areas, including the lease area to be occupied by Commonwealth Wind (Lease Area OCS-A 0534), was determined through a process undertaken by the BOEM that involved significant public input over a period of several years. Currently, there is no existing transmission to connect this new wind energy generation project to the ISO-New England (ISO-NE) regional electric grid. Therefore, the transmission proposed as the NE Wind 2 Connector is needed to deliver power generated at the federal lease area to the ISO-NE electrical grid.

1.2 Project Benefits

The NE Wind 2 Connector/Commonwealth Wind Project are expected to create a range of environmental and economic benefits for southeastern Massachusetts, the Commonwealth as a whole, and the entire New England region. These benefits will extend across the design, environmental review, and permitting phase, the procurement, fabrication, and construction/commissioning phase, the multi-decade operating phase, as well as the future decommissioning effort.

Project benefits are expected to include:

- Clean renewable energy at large scale and a high-capacity factor: The location of the associated wind turbine generators (WTGs) well offshore in a favorable wind regime, coupled with the efficiency of the WTGs, will enable the Project to deliver substantial quantities of power on a reliable basis, including during times of peak grid demand. The WTGs for the Project will be among the most efficient models currently available for offshore use. It is expected that the WTGs will be capable of operating with an annual capacity factor of approximately 50%. Assuming a Project generating capacity of approximately 1,232 MW, WTGs of this efficiency and capability will reduce ISO-NE CO_2e emissions by approximately 2.35 million tons per year (tpy). In addition, NOx emissions across the New England grid are expected to be reduced by approximately 1,255 tpy with SO_2 emissions being reduced by approximately 666 tpy.

- Reducing winter energy price spikes: The Project adds high and stable winter capacity factor offshore wind generation to the region, increasing resources available to meet electric demand needs with offshore wind-generated energy, freeing up natural gas resources to be used for necessary home heating demands. The Project will therefore be unaffected by the risk of potential fossil fuel constraints and will help to alleviate price

volatility. The Project could reduce the need for the gas- and oil-burning Canal Units 1 and 2 to run, especially during winter peak events when winds are high and conditions ideal for wind energy generation.

- Improving the reliability of the electric grid in Southeastern Massachusetts: The Project will connect to the bulk power system on Cape Cod, and thus will increase the supply of power to Barnstable County and other parts of southeastern Massachusetts, an area which has experienced significant recent (and planned) generation unit retirements. Because of its interconnect location and generation type, adding an additional approximately 1,232 MW of offshore wind generation to the current power generation portfolio will provide fuel diversification and enhance the overall reliability of power generation and transmission in the region and in particular the Southeast Massachusetts (SEMA) area, which has seen, and will continue to see, substantial changes in generation capacity. This will mitigate future costs for ensuring reliable service for Massachusetts customers.

- Additional economic benefits for the region: Project construction will generate substantial economic benefits, including opportunities for regional maritime industries (tug charters, other vessel charters, dockage, fueling, inspection/repairs, provisioning).

- New employment opportunities: The Company is committed to spurring and facilitating the creation, development, growth, and sustainability of a long-term offshore wind industry in New England, including a robust local supply chain, a well-trained local workforce throughout development, construction, and operations activities, local port facilities capable of fabrication and construction of key project components, and advanced manufacturing capabilities, all of which will cement New England as a leader in offshore wind. Commonwealth Wind estimates the Project will create 11,000 full time equivalent (FTE) direct job years.

- Support for Massachusetts policies: The Project is entirely consistent with the Commonwealth's GWSA goals because supplying emissions-free energy to the New England electric grid will displace fossil fuel sources, including in Massachusetts, which would otherwise operate to supply that power.

The following sections present these project benefits in more detail.

1.2.1 Energy Reliability Benefits

The proposed NE Wind 2 Connector would enhance the reliability and diversity of the energy mix on Cape Cod and in the Commonwealth of Massachusetts. This is particularly important given that several base load/cycling plants have already retired or are slated for retirement, including:

- Brayton Point Power Plant (Somerset, MA): 1,600 MW, shut down in 2017;

- Pilgrim Nuclear Power Plant (Plymouth, MA): 690 MW, shut down in 2019;

- Vermont Yankee Nuclear Power Plant (Vernon, VT): 620 MW, shut down in 2014;
- Montaup Power Plant (Somerset, MA): 174 MW, shut down in 2010;
- Mt. Tom Station (Holyoke, MA): 136 MW, shut down in 2014; and
- Mystic Station (Everett, MA): 2,000 MW, planned for closure in 2024.

In addition, other plants such as Canal Generating Station (1,200 MW, oil/natural gas-fired, two units commissioned in 1968 and 1976), located in Sandwich, are approaching their normal end of life, making it important for other energy generation alternatives to fill the gap.

Between the decommissioning of nuclear power plants at Pilgrim and Vermont Yankee and the 1990s closings of Yankee Rowe (185 MW) and Maine Yankee (900 MW), New England has lost or is about to lose a significant portion of its large "zero-carbon" base load plants.

Lastly, Cape Cod is at the outer edge of the regional transmission system. The Cape is essentially supplied by one 345-kV and two 115-kV radial feeds. While recent significant investments in transmission reliability have strengthened the electricity supply to Cape Cod, the NE Wind 2 Connector would further improve reliability by feeding power into the center of the Cape transmission system. Connecting a substantial electricity supply to Cape Cod will mitigate future costs for ensuring reliable service to Massachusetts customers.

1,232 MW can supply almost double peak load for all of Cape Cod. As the offshore wind industry has developed, wind turbines have moved further offshore. When coupled with higher hub heights and longer, more efficient blades, the WTGs will take full advantage of a superior wind regime that is found far from shore. Moreover, summer offshore wind patterns will allow Commonwealth Wind to produce substantial power during summer afternoons/early evenings, which coincides with typical peak power demand periods on the Cape and the Islands.

The NE Wind 2 Connector will also reduce winter electricity price spikes because of Commonwealth Wind's high and stable winter capacity factor. It will enhance energy supply diversity, and as a wind project will not be affected by possible cold weather gas limitations or supply shortages. As such, it will help to promote price stability and energy security.

1.2.2 Community and Economic Benefits

The Project is expected to generate numerous economic benefits in Massachusetts and across New England. Economic benefits will be realized throughout the preconstruction, construction, operations and maintenance, and decommissioning phases, and including the following:

- **Host Community Agreement**: The Company expects to negotiate and ultimately execute a Host Community Agreement (HCA) with the Town of Barnstable to provide funding to the Town to offset potential impacts associated with hosting the Project. The Company also intends to coordinate with the Town on the planned installation of a municipal sewer line along segments of the onshore cable route.

- **Investment in Diversity Equity and Inclusion (DEI):** The DEI Plan for the NE Wind 2 Connector/Commonwealth Wind Project includes $15 million to fund DEI, workforce, and supply chain initiatives that will support local content, increase diversity in the industry, and provide Environmental Justice (EJ) Population residents and other underrepresented populations real opportunities to join the offshore workforce and supply chain. To execute the DEI Plan, the Company has partnered with a diverse group of nonprofit partners located throughout Massachusetts. As part of the DEI Plan, the Company will also leverage its "buying power" through Commonwealth Wind's procurement process to ensure DEI is advanced by its industry partners and becomes a core value of the offshore wind sector as it is established in the U.S.

- **Funding Commitment:** The Company includes an investment of up to $35 million in local partnerships and programs. These programs include a robust DEI Plan aimed at building a diverse, equitable, and inclusive offshore wind sector as well as a range of community benefits, environmental benefits, and innovation initiatives.

- **Community Benefits, Environmental Benefits, and Innovation Initiatives:** The Company includes an investment of $20 million in education, innovation, and environmental initiatives to benefit local communities. The Company has developed meaningful partnerships, including several with local nonprofits, to provide wide-ranging economic and job opportunities as well as new opportunities for EJ Population residents to directly benefit from offshore wind.

- **Additional economic benefits for the region:** Project construction will generate more localized economic benefits, including opportunities for regional maritime industries.

- **New employment opportunities:** The Company is committed to spurring and facilitating the creation, development, growth, and sustainability of a long-term offshore wind industry in New England, including a robust local supply chain, a well-trained local workforce throughout development, construction, and operations activities, local port facilities capable of fabrication and construction of key project components, and advanced manufacturing capabilities, all of which will cement New England as a leader in offshore wind. The Company estimates the Project will create 11,000 full time equivalent (FTE) direct job years.

1.2.3 Environmental Benefits

Emissions

Table 1-1 quantifies the emissions associated with conventional power generation that would be avoided by using electricity generated from the approximately 1,232 MW offshore wind project. The displacement analysis uses Northeast Power Coordinating Council (NPCC) New England air emissions data from EPA's Emissions & Generation Resource Integrated Database (eGRID2018(v2)). The avoided emissions analysis conservatively assumes an annual capacity factor of 50% with a capacity of 1,200 MW. Constituents included in the analysis are CO_2, NOx, and SO_2.

Table 1-1 Avoided Air Emissions in New England (estimated)

Pollutant	*CO_{2e}*	*NOx*	*SO_2*
Annual Avoided Emissions (tons/year)	2.35 million	1,255	666

The Project would result in substantial avoided emissions in the New England region. The Project will significantly decrease the region's reliance on fossil fuels and enhance the reliability and diversity of the energy mix on Cape Cod, in the Commonwealth of Massachusetts, and across New England. Thus, the potential Project-related impacts should be considered in conjunction with the Project's energy reliability, economic, and environmental benefits.

Accelerated Water Quality Improvements

The Town of Barnstable is implementing a Comprehensive Wastewater Management Plan (CWMP) to protect the Town's coastal waters, ponds and drinking water by managing nutrient pollution from wastewater. The CWMP includes the expansion of the Town's sewer system to mitigate negative wastewater quality impacts to the regional watershed which is primarily caused by septic systems. The 30-year plan is comprised of three 10-year phases, predominantly focused on sewer expansion. The plan is designed to reduce nutrient pollution in embayments to a level consistent with regulatory thresholds known as Total Maximum Daily Loads (TMDLs). By reducing nutrient pollution in embayments, the plan also protects water quality in ponds, and drinking water sources. Currently, sewering along Main Street in Osterville is in phase 2 of the plan, to be done in 2031-2040 (see Attachment B, Figure 14). The Preferred Onshore Transmission Route proposed for the Project (Main Street Route) presents a significant opportunity to coordinate the construction of the Project with installation of gravity sewer mains within areas of Osterville proposed for sewering in Phase 1 and Phase 2 of the CWMP, similar to coordination on sewer line installation done for Vineyard Wind 1 Connector and NE Wind 1 Connector. This coordination could reduce construction-related disruption to local roads and neighborhoods and potentially save the Town of Barnstable millions of dollars as a result of the Company undertaking early

survey and utility location work, the road opening, necessary utility relocation and final road resurfacing. Additionally, the coordination presents the opportunity to accelerate Phase 2 of the sewer program so that water quality improvements can be realized sooner than originally anticipated. While Phase 1 is anticipated to be implemented between 2020-2030, Phase 2 was originally anticipated to be implemented between 2031-2040, resulting in an almost 10-year acceleration for the downtown Osterville area, a main contributor of wastewater to the surrounding watershed.

2.0 Summary of Federal Permitting Process, Overview of Project Components in Federal Waters, and Port Facilities for the Commonwealth Wind Project

For background and context, the following sections describe the federal permitting process and the components in federal waters, as well as port facilities for the Commonwealth Wind Project.

2.1 Commonwealth Wind Project Federal Permitting Summary

The federal permitting process for the Commonwealth Wind commenced in July 2020 with the filing of the phased Construction and Operations Plan (COP) for New England Wind with BOEM. New England Wind encompasses Lease Area OCS-A 0534 as well as portions of Lease Area OCS-A 0501. New England Wind includes two phases of development and both Park City Wind and Commonwealth Wind are included within the identified phases. Commonwealth Wind is located within the southwestern section of Lease Area OCS-A 0534. BOEM is the lead federal agency and the agency responsible for completing the National Environmental Policy Act (NEPA) process. Progress towards the Record of Decision (ROD) is ongoing. On June 30, 2021, BOEM published a Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for New England Wind. Two COP updates were filed with BOEM in Fall 2021 and Spring 2022. In its review of the COP, BOEM must comply with its obligations under NEPA, the National Historic Preservation Act (NHPA), the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), the Migratory Bird Treaty Act (MBTA), the Clean Air Act (CAA), and the Endangered Species Act (ESA). Thus, BOEM coordinates and consults with numerous other federal agencies including the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFW), the U.S. Environmental Protection Agency (EPA), and the U.S. Coast Guard (USGC) during the review process. BOEM also coordinates with the Commonwealth under the Coastal Zone Management Act (CZMA) to ensure that the project is consistent with the state's coastal zone management program. All of these coordination and consultation processes are underway. On July 20, 2022, NMFS deemed the Application adequate and complete. The Company anticipates that BOEM will issue a Record of Decision (ROD) within several months after the issuance of a Final EIS under NEPA.

2.2 Commonwealth Wind Project Components in Federal Waters

2.2.1 Offshore Wind Generation Facilities

Commonwealth Wind's offshore renewable wind energy facilities are located in the southwestern portion of Lease Area OCS-A 0534 within federal waters. The area to be occupied by Commonwealth Wind within Lease Area OCS-A 0534 is expected to be 54,857 to 74,873 acres. The key components of the energy generation portion of the facilities include: Wind Turbine Generators (WTGs), Electrical Service Platforms (ESPs), and associated foundations. The total number of WTG/ESP positions expected to be available for Commonwealth Wind ranges from 64 to 88. The windfarm layout will be oriented in an east-west, north-south grid pattern with one nautical mile (approximately 1.15-mile) spacing between positions. WTG foundations may be monopiles, jackets (piled), or bottom-frame foundations (piled, or gravity pad). The nearest WTG to the Cape Cod mainland is a straight-line distance of approximately 36.5 miles.

Up to three ESP(s) will serve as the common interconnection point(s) for the WTGs. The ESP(s) would be supported by a monopile, piled jacket (with 3–12 piles), or suction bucket jacket foundation.

Additionally, inter-array cables (66-kV to 132-kV) will be buried beneath the seafloor and connect radial "strings" of WTGs to a shared ESP.

2.2.2 Offshore Export Cables

Three 275-kV HVAC offshore export cables will deliver power from the Commonwealth Wind offshore wind energy generation facility to the landfall site at Dowses Beach in Barnstable. A portion of those cables will be located exclusively in federal waters.

In summary, the Offshore Export Cable Corridor (OECC) is approximately 47.2 miles in federal and state waters. The offshore export cables will cross through federal waters within Nantucket Sound for approximately 25.3 miles. The area directly impacted by trenching to bury each cable is expected to be approximately 3.3 feet wide. In addition, up to a 9.8-foot-wide temporary disturbance zone for the tracks or skids of the cable installation equipment is anticipated. See Table 2-1 for a summary of impacts associated with cable installation activities in both state and federal waters.

Additional impacts associated with cable installation in federal waters will also occur during sand wave dredging and possibly cable protection. Table 2-2 provides a summary of OECC dredge quantities within federal and state waters. It is not anticipated that activities in federal waters outside of the state geographic boundaries will have any impact on state-jurisdictional resources.

Table 2-1 Summary of OECC Cable Installation and Protection Impacts within Federal and State Waters (see also ENF Table 4-Summary of OECC Impacts in State Waters)

Activity	Scenario 1 3 Cables in OECC			Scenario 2 2 Cables in the OECC and 1 Cable in Western Muskeget Variant			Scenario 3 1 Cable the OECC and 2 Cable in Western Muskeget Variant		
	Federal	State	Total	Federal	State	Total	Federal	State	Total
	Acres			Acres			Acres		
Offshore Export Cable Protection (within SWDA and OECC)[1, 2, 3]	7.2	29.4	36.6	7.2	32.5	39.7	7.2	35.6	42.8
Offshore Export Cable Installation (within SWDA and OECC)[4, 5]	242	110	352	242	107	349	242	104	346
Dredging Prior to Cable Installation[6]	40	27	67	43	30	73	40	33	73
Use of Jack-up and/or Anchored Vessels and Vessel Grounding[3, 7, 8]	43	27	70	43	27	70	43	26	69
Totals[6]		180			182			183	

Notes:

1. The estimate of cable protection in the SWDA assumes 2% of export, inter-array, and inter-link cables require protection and that it is 29.5 ft wide. The estimate of inter-array cable protection includes any length of the cable entry protection system beyond the scour protection.
2. The cable protection used in limited areas to cover offshore export cable joints or cable crossings may be wider, but the total cable protection area will remain the same.
3. Anchoring estimates conservatively assumes a nine-anchor spread where each anchor impacts 323 ft^2 and two spud legs that impact 108 ft^2. The following number of anchor sets are assumed: 150 for inter-link cable installation, 275 for offshore export cable installation within the SWDA, and 615 for offshore export cable installation outside the SWDA. The anchoring footprint excludes anchor sweep, which cannot be quantified at this early stage in the construction planning process.
4. Cable installation impacts assume a 13.1 ft wide disturbance zone (3.3 ft for the cable trench and 9.8 ft for skids/tracks).
5. Some pre-pass jetting may occur along limited sections of the offshore export cable route; however, impacts will occur within the same geographical space as cable installation.
6. To avoid double-counting impacts, the total area of dredging disturbance does not include the 3.3 ft wide cable installation trench and 9.8 ft skid/track width counted above. The total dredging area including the cable installation trench is approximately 67 acres.
7. Vessels may be jack-up, anchored, or dynamic positioning vessels. It is estimated that each jack-up vessel would impact approximately 0.30 acres of seafloor whereas each anchored vessel will only disturb approximately 0.19 acres, excluding anchor sweep (which cannot be quantified at this early stage in the construction planning process). Thus, the maximum seafloor disturbance is calculated assuming all vessels jack-up.
8. Grounding estimates are based on the footprint of a 492 x 164 ft vessel, with extra contingency to account for multiple groundings at the same location. A total of three groundings are assumed.

Table 2-2 Summary of OECC Dredge Volumes within Federal and State Waters (see also ENF Table 3-Summary of OECC in State Waters)

	Federal Waters	State Waters	Total
Dredge Volume	**cy**	**cy**	**cy**
Scenario 1 – 3 cables in Eastern Muskeget	144,000	91,500	235,400
Scenario 2 – 2 cables in Eastern Muskeget and 1 cable in Western Muskeget	144,000	124,900	268,800
Scenario 3 – 1 cable in Eastern Muskeget and 2 cables in Western Muskeget	143,800	131,100	274,800

2.2.3 Commonwealth Wind Project Port Facilities

The harbors of Bridgeport, CT, Salem, MA, New Bedford, MA, and New London, CT are expected to be used as the main construction ports for CWW. The Company is aware of the intentions of the Crowley Maritime Corporation, through its subsidiary Crowley Wind Services, to purchase 42 acres surrounding Salem Harbor Station, currently owned by a subsidiary of Footprint Power LLC, to make upgrades to the site for use as an offshore wind port facility. Crowley Wind Services intends to be the long-term offshore wind port operator for the site with the intention of serving the regional offshore wind industry, and the Company hopes to lease space from the facility for a period of approximately three years, after which the expecation is that the facility will be used by other wind developers.

Long-term operations and maintenance (O&M) of the Project will be required and will likely be done in conjunction with other offshore wind projects. The Company is considering several locations for O&M operations within New Bedford and Southeastern Massachusetts, Vineyard Haven, MA and Bridgeport, CT, where facilities for crew transfer vessels, accommodations, warehouses etc. may be located. As the Project is in the preliminary stages of the state and local permitting process, details are not yet available for the siting of the O&M facilities; however, the Company will not develop the facilties, but intends to be leasee along with other potential leasee's of the space.

3.0 Alternatives

This section provides a summary of project alternatives considered to the Project (Section 3.1), as well as the routing and siting analyses completed to determine the various Project components currently proposed for the Project (Section 3.2).

3.1 Project Alternatives

3.1.1 No Build

With respect to project alternatives, the NE Wind 2 Connector is being proposed in response to a specific Legislative mandate. As described in Section 1, Section 83C requires that the Commonwealth's electric distribution companies enter into agreements for the long-term purchase of 5,600 MW of offshore wind energy with eligible projects via a series of competitive procurements. Given that NE Wind 2 Connector is tailored to meet specific legislative requirements for offshore wind energy under Section 83C, typical project alternatives (i.e., non-transmission alternatives such as energy efficiency, large-scale demand response, solar, onshore wind, combustion-based generation) are only briefly addressed in this section as none would meet the Project purpose.

Under the No-Build Alternative, the Company would not pursue the NE Wind 2 Connector, preventing the delivery of approximately 1,232 MW of essential zero-carbon energy to the ISO-NE regional electrical grid. This would preclude the realization of the Project's extensive environmental and economic benefits, which are discussed in detail in Section 1.2. It would also not contribute to, in fact would frustrate, attainment of the requirements set forth in Section 83C. In addition, the No Build would not provide the opportunity to coordinate accelerated sewer main installation within the Town of Barnstable.

Similarly, non-transmission alternatives, sources of power other than offshore wind, and load management would not allow the delivery of offshore wind energy to the regional grid nor contribute to meeting the requirements and objectives of Section 83C. None of these alternatives would meet the region's offshore wind energy generation requirements and none would satisfy Section 83C. For these reasons, they were not considered further.

3.1.2 HVDC Alternative

The NE Wind 2 Connector will employ high voltage alternating current (HVAC) technology for the proposed transmission. HVAC is preferred to high-voltage direct current (HVDC) transmission for the project because it is more cost effective, highly reliable, consistent with the cable technology approved for the Vineyard Wind 1 Connector and proposed for the NE Wind 1 Connector, and available within a timeframe consistent with the schedule for NE Wind 2 Connector. HVDC is used successfully for long-distance power transmission in overseas markets. HVDC has been proposed for long-distance projects in the Northeast such as the Champlain Hudson Power Express and Clean Path New York; however, neither of these projects include offshore wind energy

generation.[1] HVDC requires large and expensive converter stations at both ends of the HVDC cable system and has not historically been economically competitive with HVAC over distances that can be spanned with HVAC options. Additionally, manufacturing capacity for HVDC cables is limited, which imposes significant lead-time requirements. In contrast, the cable manufacturer for NE Wind 2 Connector, Prysmian, is developing a Massachusetts manufacturing facility that is intended to be used to manufacture the HVAC offshore cables for the NE Wind 2 Connector on a timeframe consistent with the expected schedule for the Project.

For the NE Wind 2 Connector, HVDC and the associated costs and risks, is not necessary based on distance between the offshore ESP and the grid interconnection point. That distance can be spanned with the proposed HVAC cables. Furthermore, the higher cost of an HVDC system is not necessarily compatible with state procurement processes that are seeking and selecting cost-competitive projects. The Company's successful bid into the Massachusetts 83C procurement was based on AC cable technology.[2]

3.1.3 Shared Transmission Alternative

The Project is utilizing a generator lead line. A shared transmission alternative would involve combining the offshore transmission components of two offshore wind generation projects. The current maximum loss of source for a Normal Design Contingency, utilized for planning purposes in ISO-NE, is 1,200 MW. This effectively limits the amount of capacity that can interconnect to the grid from a single source to 1,200 MW regardless of whether transmission is independently developed or a project-specific generator lead line.[3] To comply with this limit, a shared transmission infrastructure designed to support 2,000 MW of offshore wind capacity would, at a minimum, have to include two sets of two export cables to interconnect at two separate points of interconnection, likely through separate onshore landings and onshore transmission routes. To the extent that shared transmission infrastructure is likely to increase complexity and

---

[1] According to the website for the Champlain Hudson Power Express, that project would be a "$4.5 billion infrastructure project" and would accommodate 1, 250 MW, with a total length of 339 miles (in waterways and underground). See Champlain Hudson Power Express, available at https://chpexpress.com/ (last accessed Sept. 14, 2022). According to the website for Clean Path New York, that project would be an $11 billion infrastructure project that includes generation assets and a 175-mile, underground and underwater transmission line. See Clean Path New York, available at https://www.cleanpathny.com/ (last accessed Sept. 14, 2022).

[2] The majority of offshore wind projects in advanced states of development in the region will be HVAC. The only exceptions among projects that have met the milestone of being selected through competitive solicitations to date are a project proposed by Mayflower Wind (see *Mayflower Wind Energy LLC*, EFSB 22-04) and the Beacon Wind project, proposed by Equinor Wind US LLC. Both of these projects require longer cable lengths than the NE Wind 2 Connector.

[3] This limitation also means that the NE Wind 2 Connector could not be used to interconnect the power from any other offshore wind generation resources at its proposed point of interconnection because the Commonwealth Wind Project is already approximately 1,200 MW.

development timelines for offshore wind deployment, it would delay and potentially frustrate the region's efforts to reduce greenhouse gas emissions in line with state-mandated targets leading to greater environmental impacts.

Shared transmission will likely be considered in future Massachusetts solicitations. In 2018, Massachusetts passed an Act to Advance Clean Energy. In response to this legislation, DOER published an Offshore Wind Study in May 2019 that concluded, among other things, that shared transmission should be considered for future solicitations, but that transmission only solicitations would need to be conducted prior to soliciting the associated generation. A transmission only solicitation has not occurred in Massachusetts.

3.2 Onshore Project Components Alternatives Considered

The following sections provide details regarding the routing and siting analyses completed to determine the various Project components currently proposed for the Project.

3.2.1 Landfall Location Alternatives Considered

The potential landfall location for the NE Wind 2 Connector Project is dictated by several key factors. During the previously completed siting and permitting process for the Lease Area, it was determined that the proposed Offshore Export Cable Corridor (OECC) allowed for less environmental impacts than any other alternative evaluated due to its direct route to the mainland from the Lease Area. Additionally, the direct route of the OECC results in less electrical line losses (i.e. higher reliability) and lower installation and operational costs than any other alternative evaluated. The OECC proposed for the New England Wind 1 Connector Project utilized the same OECC as the Vineyard Wind 1 Connector Project, with some minor expansions, thus creating a shared OECC approach to these two offshore wind generation projects which both have interconnection points in Barnstable with landfall sites in close proximity to each other in Centerville Harbor (Covell's Beach and Craigville Beach).

Secondly, there are limited electrical substations within reasonable proximity to Lease Area OCS-A 0534 and OECC that can accommodate the power generated from Commonwealth Wind. The Company has a queue position to connect 1,200 MW at the West Barnstable Substation, meaning, it is ahead in line of any other entity that would seek to use the capacity currently available at this substation. This will allow for the offshore export cables to bring power from the Lease Area to a landfall site within reasonable proximity to the existing West Barnstable Substation for the NE Wind 2 Connector Project.

Based on the location of the OECC and the que position at the West Barnstable Substation, the Company then identified a study area for the potential NE Wind 2 Connector Landfall Site that extended along the Barnstable coastline from Covell's Beach in Centerville Harbor to Meadow Point in Cotuit Bay and identified potential landfall sites with the following required engineering and environmental characteristics/criteria:

- A beach-front public parking area or similar available land with an appropriate area available to accommodate the offshore-to-onshore transition facilities required for the Project;
- Technically feasible egress onto a public roadway layout of sufficient width to accommodate the onshore duct bank component of the Project;
- Enough space to accommodate the entry pit and drilling equipment associated with HDD;
- Sufficient water depths (of 10 to 20 feet) within approximately 3,000 feet offshore to accommodate the required support barges for the Horizontal Directional Drill (HDD) transition in the nearshore area to make the transition from the offshore export cables to the onshore export cables;
- Surrounding land uses, if residential, either set back from the landfall location or characterized as seasonal, rather than year-round, to avoid and minimize construction-period impacts to the public;
- Environmental considerations avoided and minimized to the extent practicable such as impacts to wetland resource areas and mapped eelgrass habitat; and
- Minimization of onshore export cable duct bank route length.

The Company identified nine potential landfall sites along the Barnstable coastline for consideration and completed additional engineering, environmental and constructability evaluations for each. Figure 15 in Attachment B provides the location of each of these potential landfall sites and Table 3-1 below provides a summary of the result of the Company's evaluation. As presented in the table and in the following paragraphs, the Company concluded that Dowses Beach in Osterville is the most suitable landing site for the Project and selected it as the Preferred Landfall Site for the NE Wind 2 Connector Project.

Table 3-1 Summary of Potential Landfall Sites

Figure ID	*Name*	*Comments*
A	Loop Beach	Insufficient space in parking area for offshore to onshore transition facilities and shallow offshore water depths insufficient for the HDD transition operations in the nearshore area.
B	Cotuit Landing	Conflicts with moorings and shallow offshore water depths insufficient for the HDD transition operations in the nearshore area.
C	Prince's Cove	Would result in direct impacts to estuarine habitat, conflicts with moorings, and shallow offshore water depths insufficient for the HDD transition operations in the nearshore area.
D	Dowses Beach	Sufficient space for offshore to onshore transition facilities, technically feasible egress for onshore duct bank to public roadway layouts with sufficient width and available space to accommodate the onshore duct bank route, the existing parking area is set back from residences allowing for minimization of construction period impacts, has ability to avoid impacts to any environmentally sensitive areas, and has a direct route to point of interconnection.

Table 3-1 Summary of Potential Landfall Sites (Continued)

Figure ID	*Name*	*Comments*
E	East Bay Boat Ramp	Insufficient space for offshore to onshore transition facilities
F	McCarthy's Landing	Insufficient space for offshore to onshore transition facilities. Would result in direct impacts to estuarine habitat and has conflicts with boating interests.
G	Craigville Beach	New England Wind 1 Connector landfall site. Insufficient space in roadway layouts from landfall for the onshore transmission cable duct bank to the West Barnstable Substation.
H	Covell's Beach	Vineyard Wind 1 Connector landfall site. Transition vaults for that project installed in April 2022. Insufficient space for offshore to onshore transition facilities for 1,200 MW Project at this landfall location and insufficient space in roadway layouts for the onshore transmission cable duct bank to the West Barnstable Substation.
I	Wianno Avenue	Insufficient space for offshore to onshore transition facilities.

In summary, five of the potential landfall sites were eliminated from further consideration because they lacked sufficient space for the offshore to onshore transition facilities (Loop Beach, East Bay Boat Ramp, McCarthy's Landing, Covell's Beach, and Wianno Avenue). Craigville Beach was eliminated because there is insufficient space in the roadway layouts from this landfall location for the onshore transmission cable duct bank to be constructed to the West Barnstable Substation. Cotuit Landing and Prince's Cove were eliminated from further consideration because use of these locations would result in direct impacts to estuarine habitats and there are conflicts with existing moorings and boating interests. In conclusion, Dowses Beach was selected as the preferred landfall option because it has an existing paved beach-front public parking area which has sufficient space for the offshore to onshore transition facilities; it has sufficient offshore water depths (10 to 20 feet) within approximately 3,000 feet of the shoreline for the HDD operation; it avoids any impacts within sensitive environmental resources in the nearshore and onshore; residences are located away from the landing areas; this location has a technically feasible option to install the onshore duct bank route from the parking area to public roadway layouts; and the public roadway layouts have sufficient width and space available and provide relatively direct routes of reasonable length to the point of interconnection to the West Barnstable Substation from this location.

3.2.2 East Bay Crossing Alternatives Considered

The Company completed detailed engineering and environmental evaluations for three potential alternatives for the onshore duct bank route egress from the Dowses Beach Landfall Site parking area to public roadway layouts. The three alternatives included; (1) installing the onshore cables in a single duct bank from the existing parking lot along Dowses Beach Road Causeway to East Bay Road, (2) installing the onshore cables under East Bay via micro tunnel technology, and (3) installing the onshore cables under East Bay via Horizontal Directional Drill technology.

Single Duct Bank Along Dowses Beach Road Causeway to East Bay Road (Preferred Alternative)

The installation of the onshore cable duct bank from the Dowses Beach Landfall Site parking area would consist of routing each onshore cable from its respective transition joint bay in the parking lot to a single three-conduit wide by four-conduit high duct bank within Dowses Beach Road. At the existing tidal culvert along the Dowses Beach Road, the onshore duct bank would transition to a twelve-conduit wide by one-conduit high configuration across the length of the existing box culvert and then transition back to the three-conduit wide by four-conduit high configuration. After completion of a detailed engineering and environmental analysis, it was determined that all three onshore circuits could be installed in a single duct bank over the existing tidal culvert without impacting the functionality of the culvert and without impacting coastal wetland resources such as bank, dune, or salt marsh. This option would limit the construction footprint to the roadway layout of the Dowses Beach Road Causeway and East Bay Road and would not result in the need for additional construction staging on adjacent town owned parcels, such as the conservation area at the intersection of Dowses Beach Road Causeway and East Bay Road. This option would also result in the shortest construction period of all the options considered minimizing construction related impacts to residences in the area.

Micro Tunnel Under East Bay Alternative

The micro tunnel under East Bay alternative would consist of the temporary installation of an entry jacking shaft located in the Dowses Beach Parking Lot and receiving shaft located in a vegetated area at the northern corner of Dowses Beach Road and East Bay Road. The shafts would allow the installation of an approximately 700 ft long micro tunnel for the cables to be installed. Given the necessary construction staging area required for the micro tunnel in the Dowses Beach parking area it was determined that this option would result in direct impacts to coastal dune and/or coastal bank in the vicinity of the existing bath house at the public beach area. Additionally, it was determined that the construction staging area necessary for the receiving shaft along East Bay Road would require vegetation removal in the existing maintained vegetated area at the intersection of East Bay Road and the Dowses Beach Road Causeway. During construction of this option, existing overhead utilities would likely need to be temporarily relocated to allow for sufficient overhead clearance during construction. Further, construction of the tunnel would likely require 24-hour operations for approximately two weeks resulting in construction related impacts to residences in the area.

Horizontal Directional Drill Under East Bay Alternative

The HDD option would be drilled from the Dowses Beach parking lot towards East Bay Road with pipe laydown areas required on East Bay Road to avoid direct impacts to coastal wetland resource areas and to avoid clearing vegetation within the area at the intersection of Dowses Beach Road Causeway and East Bay Road. As such, staging of this option would require closing a length of at least 1,000 feet of East Bay Road in both travel directions, running in the southeast to northwest direction to accommodate the pipe string prior and during pipe pullback, as well as for fusing the pipes. Depending on the pipe diameter and thickness, private property across East Bay Road from

the staging area may need to be used for this option. Additionally, construction is estimated to take longer to complete as a total of six HDDs would need to be completed (three from the Dowses Beach parking lot to the ocean and three from the Dowses Beach parking lot to East Bay Road) resulting in construction related impacts to residences in the area.

Conclusion

The option of installing the onshore cables in a single duct bank along the Dowses Beach Road Causeway to East Bay Road avoids impacts to coastal wetland resource areas and the maintained vegetated area at the intersection of Dowses Beach Road Causeway and East Bay Road. Further it has the smallest construction related footprint, can be constructed entirely within public roadway layouts, has the shortest construction period, and results in the least construction related impacts to residences in the area of all the options considered. As such, this option was selected by the Company as the preferred option for the onshore export cable to egress the Dowses Beach Landfall Site and transition into public roadway layouts.

3.2.3 Onshore Transmission Cable Route Alternatives Considered

The Company completed a detailed and comprehensive routing study to select the preferred onshore transmission cable route for the Project. As part of this study, the Company identified and evaluated multiple candidate routes as described in the methodology below.

First, the Company developed a set of routing guidelines prior to the identification of potential routing options, including;

- Compliance with all applicable statutory requirements, regulations, and state and federal siting agency policies;
- Identify an onshore transmission route that was a reliable, operable, and cost-effective solution;
- Maximize the practical and feasible use of existing linear corridors that have sufficient space to install the onshore cable route (e.g., utility rights-of-way and public roadway layouts);
- Identify direct routing options between the preferred landfall site (Dowses Beach) and the onshore substation location (off Oak Street) and avoid circuitous routing options;
- Minimization or avoidance of routes or route segments that require complex or expensive engineering construction techniques; and
- Consideration of other public benefits associated with each route.

Once the routing guidelines were identifying the onshore cable routing study involved the following steps:

1) Identification of a Study Area for route selection.

2) Identification and screening of potential routes that would connect the preferred landfall site (Dowses Beach) and the onshore substation location (off Oak Street). The Company identified a total of seven candidate routes.

3) To select a preferred onshore transmission cable route from the set of seven candidate routes (see Attachment B, Figure 16), the Company completed a comparative scoring analysis of each viable candidate route based on length, potential for environmental impact, constructability, permitting considerations, potential for public benefits, reliability, and cost.

It was through this process that the Company selected a preferred onshore transmission route, a noticed alternative route (a requirement of the Energy Facilities Siting Board (EFSB) process) with a route variant for the Project. The Preferred and Noticed Alternative Routes (and variation) that will be included for consideration in the EFSB process are described below. Note that the two routes have 2.7 miles of common segments including; Dowses Beach Road to East Bay Road near the landfall site (0.2 miles) and then from the intersection of Lumbert Mill Road and Old Falmouth Road to the new Project Substation (2.5 miles) (See Attachment B, Figure 2).

Preferred Onshore Transmission Cable Route (Main Street Alternative)

The preferred onshore transmission cable route proposed for the Project is located entirely within public roadway layouts or within the existing parking lot area at Dowses Beach and has a total length of approximately 6.7 miles (see Attachment B, Figure 2). It begins in the parking lot of the Dowses Beach Landfall Site and proceeds generally northwest on Dowses Beach Road to East Bay Road. From there the route proceeds approximately 0.2 miles in a southerly direction along East Bay Road. At the end of East Bay Road, the route turns northwest on Wianno Avenue, which it follows for approximately 0.9 miles to Main Street. The route continues north on Main Street for approximately 1.1 miles to Osterville-West Barnstable Road, which it then follows for approximately 1.9 miles to Old Falmouth Road. The route then turns and continues in a northeast direction and follows Old Falmouth Road for approximately 0.9 miles then turns eastward on Old Stage for approximately 0.2 miles to the Oak Street intersection. Turning north on Oak Street, the route follows Oak Street for approximately 1.0 mile before turning west on Service Road and continuing another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the substation site.

Noticed Alternative Onshore Transmission Cable Route (Old Mill Road Alternative)

The noticed alternative onshore transmission cable route associated with the Project is located entirely within public roadway layouts or within the existing parking lot area at Dowses Beach and has a total length of approximately 6.6 miles (see Attachment B, Figure 2). It begins in the parking lot of the Dowses Beach Landfall Site and proceeds generally northwest on Dowses Beach Road to East Bay Road. From there the route travels approximately 0.7 miles in a northwesterly direction along East Bay Road. At the north end of East Bay Road, the route crosses Main Street and proceeds in a northeasterly direction approximately 1.7 miles on Old Mill Road, Bumps River

Road, and Five Corners Road. The route then turns to the northwest on Lumbert Mill Road and continues for approximately 1.5 miles to Osterville-West Barnstable Road. Turning again toward the northeast, the route follows Osterville-West Barnstable Road a short distance before merging onto Old Falmouth Road and continuing approximately 0.9 miles to Old Stage Road. The route follows Old Stage Road for approximately 0.2 miles to Oak Street, then proceeds on that road for approximately 1.0 mile before turning westward on Service Road and continuing another 0.2 miles to a staging area for the trenchless crossing of Route 6 to the proposed substation site.

Main Street Variation

The Main Street Variation provides a link between the Preferred Route and Noticed Alternative. The Main Street Variation is approximately 0.3 miles long and traverses Main Street between the intersection of East Bay Road, Main Street and Old Mill Road and the intersection of Wianno Avenue and Main Street. It would be utilized in the event that Wianno Avenue is used in combination with the Noticed Alternative Route. See Attachment B, Figure 2.

Comparison of Preferred Route and Noticed Alternative Route

In summary, both the Preferred Route and the Noticed Alternative Route are of similar length and are feasible from a cost and engineering perspective. There are some differences in potential impacts to various natural and developed environmental features along each of the routes. The Preferred Route will be within public roadway layouts that pass a greater number of businesses, residences, and above ground historic features than the Noticed Alternative Route. The Noticed Alternative Route is located within public roadways closer to the coastline (East Bay Road) for a greater distance, increasing potential impacts to wetlands resources and vulnerability to the effects of climate change. While the Company acknowledges that there are more businesses located along the Preferred Route, the traffic impact analysis performed to date indicates that the detours associated with the Noticed Alternative Route will consist of longer distances compared to the Preferred Route. However, the opportunity to accelerate water quality improvements with the Preferred Alternative provides a compelling public-interest basis to support the Main Street Alternative as the Preferred Alternative. The Company anticipates working with the Town and community members, including residents and Business Owners to minimize construction related impacts. Section 4.0 provides a description of how construction-related impacts can be minimized through various measures and best management practices as outlined in Section 4.0.

As presented in Section 1.2.3, the Town of Barnstable's CWMP proposes to install a sewer line under Main Street, to address a significant degradation in water quality in Osterville estuaries, including Three Bays, which is among the most threatened water bodies in Cape Cod.

As presented in Section 1.2.3 above, both the Vineyard Wind 1 Connector Project and the New England Wind 1 Connector Project proposed collaboration on the installation of onshore electric transmission cables with the installation of town sewer within overlapping project routes. This collaboration minimizes road closures, as they will not be opened and closed twice for two different projects. It has also saved the Town millions of dollars in costs. The Company believes

that a similar coordination for the NE Wind 2 Connector would result in similar benefits. Doing so would efficiently accomplish several important objectives at one time: minimize the overall disturbance to residents and businesses along the route, expedite immediate improvements in water quality in Osterville; and save taxpayers and ratepayers significant costs. It is the Company's understanding that Main Street will be excavated for the installation of a gravity sewer main whether or not the NE Wind 2 Connector duct bank is installed within Main Street**.** The Noticed Alternative Route would not provide these important public and environmental benefits.

3.2.4 Route 6 Crossing Alternatives Considered Along Onshore Transmission Cable Route

The Company considered three alternatives related to the crossing of Route 6 along the onshore transmission cable route, including;

- Attachment of an electrical conduit to the Oak Street Bridge;
- Installation of an independent utility bridge parallel to the Oak Street Bridge; and
- Trenchless crossing under the Route 6 State Highway Layout from Service Road.

Following a detailed engineering review of the existing Oak Street Bridge it was determined that it was not feasible to either attach an electrical conduit to the bridge or to install an independent utility bridge parallel to the existing bridge, therefore it was determined that the trenchless crossing of Route 6 is the preferred approach for this segment of the onshore transmission cable route. A detailed description of the trenchless crossing of Route 6 is included in the ENF form.

3.2.5 Project Substation Alternatives Considered

The Company completed a thorough search to identify potential locations suitable for the new Project Substation site. To facilitate this search, the Company developed a set of considerations to identify and screen potential substation sites as follows:

- Commercially available parcel(s) exceeding 10 acres in size;
- Proximity to the West Barnstable Substation (point of Project interconnection to the regional electrical grid);
- Proximity to Dowses Beach (preferred Project landfall site);
- Existing surrounding land uses;
- Existing site topography;
- Accessibility from public roadways;
- Existing environmental site features; and
- Cost of the available parcel(s) in the current real estate market.

In summary, the Company identified a number of potential substation sites for the Project, some of which were currently available on the real estate market and many which were not. The proposed Project Substation Site for the Project, located off Oak Street in Barnstable generally meets the considerations listed above and is described in detail on the ENF Form in the Project Description section.

4.0 Construction Mitigation, Compliance and Monitoring

Construction mitigation measures will help minimize the potential for temporary impacts to the human and natural environments. Typical mitigation for stormwater runoff and associated erosion and sedimentation, fugitive dust, construction vehicle emissions and soils and solid waste management are discussed below.

4.1 Stormwater Runoff, Erosion Prevention Measures, Sediment Controls, and Dewatering

A Stormwater Pollution Prevention Plan (SWPPP) will be developed for the Project that will identify controls to be implemented to mitigate the potential for erosion and sedimentation from soil disturbance during construction. The SWPPP will include, but is not limited to a construction personnel contact list, the location and a description of the proposed work, stormwater controls, stabilization measures, dewatering monitoring, spill prevention measures, and inspection practices to be implemented for the management of construction-related storm water discharges from the Project. The SWPPP will be adhered to by the contractor during all phases of Project construction in accordance with the general conditions prescribed in the US Environmental Protection Agency (USEPA) Stormwater Construction General Permit (CGP).

The Company will require that the construction contractor designate construction supervisor(s) or equivalent to conduct daily inspections, as well as coordinate with the Company's environmental monitor(s) and be responsible for compliance with permit requirements. The construction contractor(s) designee will be responsible for providing appropriate training and direction to the other members of the construction crew regarding any aspect of the work as it relates to compliance with Project permits and approvals and construction mitigation commitments.

In roads where work is to be performed adjacent to storm drains, catch basin inlet protection (typically silt sacks) will be installed and maintained to prevent sediment from entering the storm drain system. The silt sacks or other catch basin inlet protection measures will be inspected for sediment build up and replaced or cleaned out as necessary. When construction is complete at each location, the catch basin inlet protection will be removed.

Other measures to mitigate soil erosion will include the prompt removal of soils from the excavated trench. Soils will not be stockpiled along the road(s) but instead will be loaded directly into trucks to be hauled to an offsite disposal/re-use area, or to a temporary construction laydown area. This construction method will also limit nuisance dust and the potential for soils to be washed with stormwater into nearby storm drains.

Where necessary, erosion and sediment controls will be installed and maintained to prevent runoff and pollutants from entering sensitive resource areas.

4.2 Air Quality

Fugitive dust will be controlled at the construction sites by use of appropriate methods, including the use of covered dump trucks to move soil out of the construction zone, and by covering temporary soil stockpiles at offsite staging and laydown areas, as applicable.

There also will be installation of anti-tracking pads and regular sweeping of the pavement of adjacent roadway surfaces during the construction period to minimize the potential for construction traffic to kick up dust and particulate matter. The anti-tracking pads would typically be installed at all points of egress to public roads with disturbed or exposed soils including contractor yards/staging areas and the onshore substation. Water trucks may also be used to reduce fugitive dust in combination with regular sweeping within the roadway construction areas affected by the Project.

In addition, the Company will direct its contractors to retrofit any diesel-powered non-road construction equipment rated 50 horsepower or above to be used for 30 or more days over the course of the Project with USEPA-verified (or equivalent) emission control devices (e.g., oxidation catalysts or other comparable technologies).

The Company and its contractors will also comply with state law (G.L. c. 90, § 16A) and MassDEP regulations (310 C.M.R. 7.11(1)(b)), which limit vehicle idling to no more than five minutes. There are exceptions for vehicles being serviced, vehicles making deliveries that need to keep their engines running and vehicles that need to run their engines to operate accessory equipment. There may be other times when idling is permitted if the idling is necessary (e.g., as a matter of safety).

4.3 Construction Wastes

Waste materials will be promptly removed and re-used or properly managed at a suitable permitted facility. The largest quantity of construction waste will likely be from soils excavated from the trench and locations where manholes are installed. This material will be removed from the trench and hauled to an appropriate off-site disposal/re-use location or to a temporary construction laydown area for on-site re-use. Concrete and asphalt will be recycled at a local asphalt plant.

In the event there are contaminated soil, contaminated groundwater or other regulated materials encountered along the route, soils/groundwater will be managed pursuant to the Massachusetts Contingency Plan (MCP). The Company will contract with a Licensed Site Professional (LSP) as necessitated by conditions encountered, consistent with the requirements of the MCP at 310 C.M.R. 40.0460 et seq.

4.4 Traffic Management

A traffic management plan (TMP) will be implemented to minimize traffic disruptions during construction. Draft TMPs for the onshore transmission route have been prepared and are included in Attachment F2. The Company will work closely with the Town of Barnstable and state agencies on the TMP including submittal of the TMP for review and approval by appropriate municipal (typically DPW/Town Engineer and Police) and state (MassDOT) authorities. Prior to and during construction, the Company will also closely coordinate with local officials and abutting property owners and businesses.

4.5 Construction Noise

The construction equipment used with underground transmission line construction is similar to that of typical public works projects (e.g., road resurfacing, storm sewer installation, water line installation). The equipment typically involves jackhammers, excavators, dump trucks, pavement saws, and road resurfacing vehicles. Construction activities will result in localized, short-term increases in ambient noise levels near the work sites. Manhole/splice vault installation, trench excavation and final pavement restoration typically are the loudest activities associated with underground transmission line construction. Generators, portable HVAC units and cable pulling motors associated with the splicing van are often the loudest noise sources for cable pulling and splicing work.

In general, the sound levels from construction activity will be dominated by the loudest piece of equipment operating at the time. Therefore, at any given construction site, the loudest piece of equipment will be the most representative of the expected sound levels in the area. However, construction equipment is generally not operated continuously, with significant variation in power and usage. Sound levels would fluctuate, depending on the construction activity, equipment type, and separation distances between source and receiver. Other factors, such as vegetation, terrain, and noise attenuating features, such as buildings, will act to further reduce construction noise impacts.

The timing and sequencing of the work, including work at specific locations (e.g, the onshore transition, the Route 6 crossing, and at the new substation site), will be coordinated with local and state officials and other stakeholders to minimize potential noise impacts. Noise from cable splicing operations would be minimized through use of specialized low-sound equipment such as low-noise generators, and by reducing or eliminating the use of motorized equipment during evening and overnight work.

5.0 Schedule

Federal and Massachusetts environmental reviews, and subsequent federal, state, regional and local permitting are expected to be a principal focus during 2020–2024.

Construction of the Project could begin in late 2025 and under the current schedule, commercial operations are expected to commence in 2028. The Company will provide additional detail on the anticipated schedule as further details are available.

6.0 Agency and Community Outreach

The Company's consultations with agencies, tribes, municipalities, and other stakeholders began in 2020 with the introduction of the New England Wind development which contemplated multiple phases. The Company has developed and maintained meaningful and long-lasting relationships with federal, state, and local regulators along with a diverse array of stakeholders that were built from its involvement with the Vineyard Wind 1 Connector/Vineyard Wind 1 and NE Wind 1 Connector/Park City Wind projects and will continue to build upon these relationships for this Project.

6.1 Agency Meetings and Consultations

The Company has been consulting with BOEM, federal and state agencies, regional commissions, affected municipalities, and federally recognized tribes regarding the status of the Commonwealth Wind project including the portions within state waters on a near monthly basis since the Construction and Operation Plan (COP) was filed with BOEM in 2020. A list of meetings related to New England Wind 2 Connector/Commonwealth Wind conducted to date with agencies, municipalities, and tribes is provided in Table 6-1. The Company plans to maintain an active level of consultation and outreach as the design effort continues and the Project proceeds through the licensing and permitting phase.

Following the submittal of initial federal filings in 2020, there have been and will continue to be a number of agency-convened public hearings and informational meetings. These include BOEM/National Environmental Policy Act (NEPA) scoping sessions, EFSB public statement hearing(s), and a MEPA consultation session.

Table 6-1 Consultations with agencies, municipalities, and tribes

Group	*Date*	*Topic*
Federal Agencies		
BOEM	July 2019 September 2019 November 2019 January 2020 March 2020 April 2020 June 2020 August 2020 September 2020 October 2020 January 2021 February 2021 April 2021 May 2021 June 2021 July 2021 August 2021 September 2021 October 2021 November 2021 March 2022 June 2022 July 2022	Project overview and kick-off meeting Survey updates Project review and COP updates Lease Area discussion BOEM/ACP/Developer Tribal Consultation Working Groups
EPA	December 2019 November 2020 April 2021 May 2021 July 2021	Project overview
USCG	March 2021 September 2021	Project consultation
NMFS	March 2021 August 2021 November 2021	Project consultation
USACE	August 2020 April 2022	Project consultation

Table 6-1 Consultations with agencies, municipalities, and tribes (Continued)

Group	*Date*	*Topic*
State and Regional Agencies/Working Groups		
CZM, MassDEP, NHSEP	August 2022	Project introduction
CZM	March 2022 June 2022 July 2022 August 2022 September 2022	Project consultation and consistency review discussions
DCR	September 2022	Project Introduction
EFSB	August 2021	Project introduction
MassDOT	August 2021	Project introduction
Massachusetts Fisheries Working Group on Offshore Wind (EEA & MassCEC)	March 2021 June 2021 September 2021	Project and fishing study/outreach updates
Massachusetts Habitat Working Group on Offshore Wind (EEA, MA CEC, CZM, MassWildlife NHESP, and DMF)	December 2019 December 2020 February 2021 May 2021 September 2021 January 2022 April 2022 September 2022	Project and scientific study updates
New York State Energy Research and Development Authority Environmental Technical Working Group	November 2021 December 2021 February 2022	Discussions on regional science priorities and coordination Development of new avian survey guidelines
Regional Wildlife Science Collaborative (including all subcommittee meetings)	May 2022 June 2022 July 2022 August 2022 September 2022	Discussions on regional science priorities and coordination
Rhode Island Coastal Resources Management Council	February 2020 August 2022	Cable working group Federal Consistency Review Kick off meeting
Rhode Island Coastal Resources Management Council	February 2020	Cable working group

Table 6-1 Consultations with agencies, municipalities, and tribes (Continued)

Group	*Date*	*Topic*
Local Agencies and Stakeholders/Municipalities/Tribes		
Barnstable: Town Council	March 2022	Project Introduction
Chappaquiddick Tribe	April 2020 June 2021	Pre-survey meeting
Mashpee Wampanoag Tribe (THPO)	March 2020 March 2021 July 2021 November 2021 March 2022 June 2022	Pre-survey meeting/project update and introduction to Avangrid NE Wind
Shinnecock Indian Nation Tribe	March 2020 March 2021 February 2022	Pre-survey meeting
Aquinnah Wampanoag Tribe (THPO)	May 2020 March 2021 July 2021 December 2021 February 2022 July 2022	Pre-survey meeting/project update and introduction to Avangrid NE Wind
Narragansett Indian Tribe	March 2021 February 2022	Pre-survey meeting
Mashantucket Pequot Tribal Nation	March 2021 February 2022	Pre-survey meeting
Mohegan Tribe of Indians	February 2022	Pre-survey meeting
Delaware Tribe of Indians	February 2022	Pre-Survey meeting

6.1.1 Massachusetts Environmental Policy Act Office

As part of a broader introductory meeting, Project representatives met with the MEPA Office on June 22, 2022, to review Project background, design, and schedule.

6.1.2 Massachusetts Energy Facilities Siting Board Staff

As part of a broader introductory meeting with senior staff from the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), Project representatives met with the EFSB Director and staff on August 4, 2022, to introduce the Project and discuss its background, design, and schedule.

6.1.3 Interagency Meeting

Project representatives met with representatives from CZM, MassDEP, NHESP, and MEPA on August 10, 2022, to also review Project background, design, and schedule.

6.1.4 Massachusetts Department of Transportation

On August 11, 2022, the project team met with staff from MassDOT's District 5 Office to discuss the project's trenchless Route 6 crossing. The project team also presented interconnection and access alternatives that utilized the State Highway Layout.

6.1.5 Department of Conservation and Recreation

On September 12, 2022, the project team met with DCR staff to introduce the project and to solicit feedback on the potential project impacts on the West Barnstable Fire Tower operations.

6.1.6 Municipalities

As listed in Table 6-1 above, the Company and its representatives have introduced the project to the Barnstable Town Council. In addition, the Company has held multiple meetings with the Osterville Village Association (OVA).

6.1.7 Tribes

The Company has consulted with numerous federally recognized tribes and other tribal organizations for the New England Wind Development as identified above.

6.2 Stakeholder Coordination

The Company has been partnering with Vineyard Power Cooperative on the NE Wind 1 and 2 Connectors. The Company executed a Community Benefit Agreement (CBA) with Vineyard Power on January 1, 2022. This CBA called for, among other items, Vineyard Power to advocate for and support offshore wind legislation in Massachusetts, support the Project through education and outreach, and called for Vineyard Power to provide advice and guidance through the permitting and financing processes. Community outreach and education have been primary objectives for Vineyard Power since its formation in November 2009. Vineyard Power accomplishes these objectives by informing the public about federal and state renewable energy goals and processes, including regulatory frameworks, and ensuring that communities have a voice in reaching desired outcomes. As the Project transitions into permitting and ultimately development and construction, the Company and Vineyard Power are committed to continuing the outreach efforts to ensure that local communities understand, welcome, and benefit from the proposed Project. Community outreach, education, and engagement within the communities of Martha's Vineyard, Nantucket, and Cape Cod will continue along with outreach to state and local agencies and local tribes.

In addition to the consultations described in Table 6-1, extensive and ongoing consultations have been conducted by the Company and Vineyard Power, with key stakeholders. The Company frequently advertises outreach events in local newspapers, social media, press releases, emails, and other media outlets to reach an array of stakeholders. The Company regularly invites the public to learn more about the Project through open houses, where the Company's team

members exhibit information in a public space and are available for questions or comments on NE Wind 2 Connector. The Company has held dozens of information sessions and continues to hold open house sessions in Barnstable and across the Cape Cod and Islands region. The Company and Vineyard Power also sponsor and staff information tables at a variety of environmental, fisheries-related, and local events to reach a variety of stakeholders.

The Company is a member of, and active participant in, the Massachusetts Fisheries Working Group on Offshore Wind Energy, the Massachusetts Habitat Working Group on Offshore Wind Energy, the Responsible Offshore Development Alliance (RODA), the Responsible Offshore Science Alliance (ROSA), and the New York State Energy Research and Development Authority (NYSERDA) Fisheries Technical Working Group and NYSERDA Environmental Technical Working Group. Avangrid is also a member of the Regional Wildlife Science Collaborative Industry Caucus and attends subcommittee meetings. Avangrid also attends the Rhode Island Fishermen's Advisory Board (FAB) meetings and has had numerous communications with its chairman, Lanny Dellinger, and Habitat Advisory Board (HAB) Meetings. Avangrid is in near daily communication with individual fishermen from the commercial (fixed and mobile gear) and recreational fishing sectors. The Company's Fisheries Liaisons and Fisheries Representatives have also been consistently meeting with fisheries stakeholders.

In addition to the agencies, tribes, and municipalities listed above, the following list includes, but is not limited to, the groups that the Company has been and will continue to consult with:

- 350 Cape Cod
- Alliance for Business Leadership
- Alliance to Protect Nantucket Sound
- American Saltwater Guides Association
- Anglers for Offshore Wind
- Association to Preserve Cape Cod
- Barnstable Clean Water Coalition
- Barnstable-Yarmouth Lions Club
- Bristol Community College
- Browning the Green Space
- Buzzards Bay Coalition
- Cape and Vineyard Electrical Cooperative
- Cape Cod Fishermen's Alliance
- Cape Cod Chamber of Commerce
- Cape Cod Climate Change Collaborative

- Cape Cod Community College
- Cape Cod Technology Council
- Cape Light Compact
- Climate Action Business Association
- Coalition for Social Justice
- Commercial Fisheries Center of Rhode Island
- Conservation Law Foundation
- Eastern Fisheries
- Environment Massachusetts
- Environmental Business Council of New England
- Environmental Council of Rhode Island
- Environmental League of Massachusetts
- Fishing Partnership Support Services
- Greentown Labs
- KSJ Seafood Inc.
- Long Island Commercial Fishing Association
- Massachusetts Fisheries Institute
- Massachusetts Fisheries Working Group
- Massachusetts Fishermen's Partnership and Support Services
- Massachusetts Habitat Working Group
- Martha's Vineyard Fishermen Preservation Trust
- Massachusetts Audubon Society
- Massachusetts Clean Energy Center
- Massachusetts Lobstermen's Association
- Mass Maritime Academy
- Mid-Atlantic Fisheries Management Council
- Mystic Aquarium
- National Academies of Sciences, Offshore Renewable Energy Development and Fisheries Conference
- National Wildlife Federation
- Natural Resources Defense Council

- NE Fisheries Sciences Center
- NE Fishery Management Council
- NE Fishery Sector Managers VII, VIII X, XI, XIII
- New Bedford Harbor Development Commission
- New Bedford Ocean Cluster
- New Bedford Port Authority
- New England Aquarium
- New England Energy and Commerce Association
- New York League of Conservation Voters
- North Shore Chamber of Commerce
- OneSouthCoast Chamber
- Osterville Business and Professional Assc.
- Osterville Men's Club
- Osterville Rotary Club
- Osterville Village Association
- Recreational Fishing Alliance
- Regional Wildlife Science Collaborative
- Rhode Island Marine Fisheries Council
- Rhode Island Saltwater Angler's Association
- Salem Alliance for the Environment
- Scallop Industry Advisors Meeting
- Sierra Club
- Stoveboat- Saving Seafood
- Survival Systems USA
- The Nature Conservancy
- Unitarian Church of Barnstable Green Sanctuary Committee
- University of Massachusetts (Dartmouth)
- University of Massachusetts (Amherst)
- University of Connecticut
- University of Rhode Island Coastal Resources Center (CRC)
- Woods Hole Oceanographic Institution

The Company plans to maintain an active level of consultation and outreach as the environmental review and permitting processes continue and is available to meet with any interested party. Project updates and other information can be found at www.commonwealthwind.com. Any interested parties can sign up for Project updates by visiting www.commonwealthwind.com/learnmore.

6.3 Advance Notice

The project corridor is not located within one mile of any EJ Populations. Therefore, the project is not subject to MEPA's Public Involvement Protocol for Environmental Justice Populations. However, an advance notification of the Company's intention to file an ENF for the New England Wind 2 Connector was voluntarily distributed by the Company to support the MEPA Office's initiative to enhance public participation opportunities for members of the public, including those with limited English proficiency. The proposed project is located within a one-mile radius of a population with limited English proficiency. Therefore, the notice was translated into Brazilian Portuguese and Spanish. The Advance Notice was circulated to the distribution list provided by the MEPA Office as well as additional CBOs that the Company believed would benefit from advance notification. The Advance Notice was initiated on September 7, 2022, approximately one month before the ENF was published in the Environmental Monitor which began the public comment period.

6.4 Abutter Outreach

The Company has planned and hosted several community open house events in Barnstable, with more to come. Public notices and meetings will be held for this ENF and other state filings, and the Company will send out additional mailers to abutters (and others) providing relevant Project details, contact information, and other means for residents to connect with Company representatives to obtain information and provide feedback. On numerous occasions, neighborhood-level conversations have resulted in important local insights that improve the Project and reduce potential neighborhood disruption during construction.

In addition, the Company will continue to regularly host public informational events and will widely advertise those events utilizing numerous outlets, including email, web, digital and print media, direct mail, and posting in municipal and community bulletins. As with the Vineyard Wind Connector 1 and New England Wind 1 Connector, Company representatives plan to continue the efforts to appear before community and civic groups and to host office hours, info sessions and community forums in a range of public venues, including libraries, community centers, senior centers, town offices, and recreational areas. Public events provide an opportunity for interested residents and officials to learn about Project details, connect with Project staff, to have their questions answered and provide meaningful feedback.

Following submittal of the EFSB Petition, the EFSB staff will finalize an abutter notification letter. The letter will include a description of the New England Wind 2 Connector, including the Preferred Route and Noticed Alternative (with a supporting map). The letter will also include a

description of the EFSB review process and will invite interested citizens to attend an EFSB-convened Public Hearing(s). As mentioned above, the Company will continue its outreach efforts to the community at large.

The abutter notification letter will be sent to all direct abutters along the Preferred Route and Noticed Alternative (and variants), including and owners of property directly across any street or way from the right of way, and abutters to any of those owners within 300 feet for all routes described in the Petition. The letter will also be sent to Town officials and others as directed by the EFSB.

7.0 Project Team

The Company has assembled a capable and highly experienced team of project developers, planners, engineers, environmental scientists, attorneys, and outreach specialists for the Project. The team's principal organizations are described below.

7.1 Avangrid Renewables

Avangrid Renewables, the sole owner and operator of Commonwealth Wind is a leader in the renewable energy industry in the U.S. and is amongst the nation's largest renewable operators. Avangrid Renewables' mission is to lead the transformation to a competitive clean energy future. Headquartered in Portland, Oregon, Avangrid Renewables has regional offices in Boston, Connecticut, and Virginia. Avangrid Renewables owns and controls over 7,800 MW of wind and solar power facilities in more than 22 states. Active offshore wind projects under development include Park City Wind and Commonwealth Wind off the coast of Massachusetts and Kitty Hawk off the coast of North Carolina and Virginia. Through a 50-50 partnership with Copenhagen Infrastructure Partners, Avangrid Renewables is constructing Vineyard Wind 1, the first utility-scale offshore wind project in the US off the coast of Massachusetts.

Avangrid Renewables is a wholly owned subsidiary of AVANGRID and part of the IBERDROLA Group. IBERDROLA, S.A. is an energy pioneer with one of the largest renewable asset bases of any company in the world, with more than 38,000 MWs of renewable energy spread across a dozen countries.

7.2 Vineyard Power

The Project team also includes Vineyard Power, a community-owned 501(c)(12) non-profit based on the island of Martha's Vineyard since November 2009. With a growing membership base of over 1,390 households and businesses, the 21st-Century energy cooperative aims to produce electricity from local, renewable resources while advocating for and keeping the benefits within the island community. Avangrid has entered into a CBA with Vineyard Power. The relationship between Vineyard Wind and Vineyard Power has enabled significant input into the Project design process from members of the local community, such that the Project design addresses local concerns and enhances opportunities for local benefits.

7.3 Epsilon Associates, Inc. (Lead Environmental Consultant)

Epsilon Associates is an approximately 80-person engineering and environmental consulting firm based in Maynard, Massachusetts. For the New England Wind 2 Connector, Epsilon's role is lead environmental consultant for the necessary state, regional, and local permitting for the state-jurisdictional aspects of the Project. Epsilon is also the lead environmental consultant for federal permitting of Commonwealth Wind.

Epsilon's engineers, scientists, planners, and regulatory specialists are engaged in environmental analyses, modeling, licensing, and permitting for energy infrastructure projects throughout the northeast. In recent years, Epsilon has worked with clients to permit Vineyard Wind 1 and the Vineyard Wind 1 Connector, Park City Wind and New England Wind 1 Connector, NSTAR Electric Company d/b/a Eversource Energy Martha's Vineyard Reliability project, NSTAR Electric/Comcast Martha's Vineyard Hybrid Cable Project, New England Power Company d/b/a National Grid's second Nantucket Cable Project, NSTAR Electric 345-kV Southeast Massachusetts (SEMA) Transmission Upgrade Project, NSTAR Electric Company d/b/a Eversource Energy Barnstable Reliability Project, NSTAR Electric Company d/b/a Eversource Energy Mid-Cape Reliability Project, and the NSTAR Electric 115-kV Line 139 Project. Other Cape projects include the New England Power Company d/b/a National Grid's Mid-Cape Main Replacement Project, National Grid's Sagamore Line Reinforcement Project (multiple segments), and the KeySpan/National Grid Bourne Line Project.

7.4 Foley Hoag LLP, Counsel

Foley Hoag is a highly respected law firm with offices in Boston, New York, Washington DC, and Paris. The firm is known for its work in the energy, clean tech, and environmental sectors, including assisting Vineyard Wind in obtaining state, regional, and local permits for the Vineyard Wind Connector 1. Foley Hoag is working on the New England Wind 1 Connector and will continue these efforts, including before the Siting Board, for the New England Wind 2 Connector.

7.5 Stantec, Engineering Design support

Stantec is a multi-national engineering and professional services firm with more than 22,000 employees operating from over 400 locations. The firm provides a full range of power sector services including project management, conceptual project development, detailed engineering and design, and construction management, as well as startup and commissioning services. Stantec's in-house staff has extensive experience in detailed engineering and design of underground electrical duct banks, transmission lines, trenchless technologies, and substations. Stantec has executed a multitude of underground electrical transmission projects up to 345-kV and overhead transmission projects up to 765-kV, as well as substations up to 500-kV DC and 765-kV AC. For the New England Wind 2 Connector, Stantec engineers based in Quincy, Hyannis (Barnstable) and Boston, MA have provided engineering and design support for the onshore transmission lines, landfall, and substation.

7.6 Gradient Corporation

Based in Boston, MA, Gradient is responsible for the electric and magnetic field (EMF) modeling and analysis. Peter Valberg, PhD and Christopher Long, ScD are widely recognized experts in the field. Drs. Valberg and Long have presented EMF modeling results and analysis before the EFSB for many above-ground and underground transmission projects. Recent examples include the Vineyard Wind 1 project, 345-kV NSTAR Lower SEMA project, the 115-kV Eversource Line 139 project on the Cape, the Eversource/National Grid 345-kV Woburn to Wakefield project, and the 115-kV Eversource Baker Needham project.

7.7 Geo SubSea, LLC

Jeff Gardner, President of Geo Subsea LLC, serves as the Field Program Manager for and subject matter expert on marine geology and geophysics. Having supervised and conducted hundreds of surveys in the U.S. and around the world for over 27 years, he is well versed in most aspects of marine operations, including geological, geophysical, geotechnical, and oceanographic studies. Mr. Gardner has been involved in the offshore wind industry since its infancy in the U.S., playing a significant role in survey programs for Deepwater Wind's Block Island Project, the Cape Wind Energy Project, and Vineyard Wind 1, not to mention performing surveys and consulting for most of the other offshore wind projects on the east coast and some overseas. Thus, he is very familiar with state and federal agency requirements and has been involved in most aspects of geophysical and geotechnical activities from pre-survey planning to field surveys to post-survey data processing, interpretation, and product development, as well as client representation at meetings. He holds a BS in Marine Geology and an MS in Oceanography along with national and state Professional Geology certifications. His specialty includes the use of geophysical methods to study coastal processes, marine sediments and stratigraphy, underwater archaeology, and benthic habitats.

7.8 Public Archaeology Laboratory

The Public Archaeology Laboratory (PAL) is a leading New England cultural resource management (CRM) firm. PAL's outstanding reputation within the CRM industry springs from more than a quarter-century of high-quality performance in support of more than 3,000 development and planning projects. PAL has a staff of more than 45 professional archaeologists, architectural historians, preservation planners, and support personnel. PAL provides services in the fields of archaeology and historic architectural survey, cemetery investigations, expert testimony, section 106, HABS/HAER, and state level documentation. PAL conducted due diligence, reconnaissance, and sensitivity assessments as well as intensive (location) survey for Vineyard Wind 1 and has performed and is continuing to perform terrestrial archaeological monitoring during all ground disturbing activities associated with the Vineyard Wind 1 Project in areas of moderate to high archaeological sensitivity, including construction activities within the staging areas for the HDDs at Covell's Beach and the onshore transmission route. PAL is part of the New England Wind 1 Connector and New England Wind 2 Connector Project teams.