New England Wind 2 Connector

Draft Environmental Impact Report

EEA #16611

July 14, 2023

Volume I – Text

Submitted by
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125 High Street, 6th Floor
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Submitted to
Executive Office of Energy and Environmental Affairs
MEPA Office
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Stantec, Inc.
Geo SubSea LLC
Public Archaeology Laboratory

Avangrid
A member of the Iberdrola Group

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Protection Act Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Attn: Secretary Rebecca Tepper

14 July 2023

Ref: New England Wind 2 Connector Draft Environmental Impact Report (DEIR)

Dear Secretary Tepper:

Commonwealth Wind, LLC, a wholly owned subsidiary of AVANGRID, Inc., (the "Company") is pleased to submit this Draft Environmental Impact Report (DEIR) for the New England Wind 2 Connector (the "Project"). The Project comprises the Massachusetts-jurisdictional components of the Commonwealth Wind project, an offshore wind energy generation project located within Lease Area OCS-A 0534 in federal waters under the jurisdiction of the Bureau of Ocean Energy Management (BOEM). Commonwealth Wind/New England Wind 2 Connector is the largest renewable energy project ever proposed in New England.

As of December 31, 2022, Avangrid has more than 9,200 megawatts (MW) of installed wind, solar, and thermal capacity across the United States, including 8,061 MW of installed onshore wind capacity from 67 unique sites. Moreover, Avangrid is a subsidiary of the Iberdrola Group, the third-largest renewable energy developer in the world. In addition to the 800-MW Vineyard Wind 1 project currently under construction, Avangrid has several U.S.-based offshore wind projects under development (e.g., 800-MW Park City Wind project, 1,200-MW Commonwealth Wind project, 2,500-MW Kitty Hawk project).

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 approximately 1,200 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 DEIR be noticed in the next issue of the Environmental Monitor to be published on July 26, 2023. The Company anticipates that the public

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comment period for the DEIR will extend through August 25, 2023, and the Secretary's Certificate will be published on September 1, 2023.

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,

Ken Kimmell
Vice President of Development for Offshore Wind, Avangrid Renewables, LLC

CC: Distribution List (Attachment B)

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List of Acronyms

AC	Alternating Current
ACEC	Area of Critical Environmental Concern
ADT	Average Daily Trips
AIS	Air-Insulated Substation
AUL	Activity Use Limitation
BACT	Best Available Control Technology
BHMP	Benthic Habitat Monitoring Plan
BMP	Best Management Practice
BOEM	Bureau of Ocean Energy Management
BSEE	U.S. Bureau of Safety and Environmental Enforcement
BVW	Bordering Vegetated Wetlands
CAA	Clean Air Act
CBA	Community Benefit Agreement
CBO	Community-Based Nonprofit Organization
CCC	Cape Cod Commission
CECP	Clean Energy and Climate Plan
cm	Centimeters
CMP	Construction Management Plan
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide-Equivalent
COA	Corresponding Onshore Area
COMM	Centerville-Osterville-Marstons Mills
COP	Construction and Operations Plan
CPTs	Cone Penetration Tests
CRMC	Costal Resources Management Council
CTV	Crew Transfer Vessel
CWA	Clean Water Act
cy	Cubic Yards
CZM	Massachusetts Office of Coastal Zone Management
CZMA	Coastal Zone Management Act
dB	Decibel
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DOER	Massachusetts Department of Energy Resources
DP	Dynamic Positioning
DPA	Designated Port Area
DPU	Department of Public Utilities
DPW	Department of Public Works
DRI	Developments of Regional Impact
DTS	Distributed Temperature System
EA	Environmental Assessment

List of Acronyms (Continued)

EEA	Executive Office of Energy and Environmental Affairs
EFSB	Energy Facilities Siting Board
eGRID	Emissions & Generation Resource Integrated Database
EIR	Environmental Impact Report
EJ	Environmental Justice
EMF	Electromagnetic Field
ENF	Environmental Notification Form
EPA	Environmental Protection Agency
Epsilon	Epsilon Associates, Inc.
ESA	Endangered Species Act
ESP	Electrical Service Platform
FAA	Federal Aviation Administration
FAB	Fishermen's Advisory Board
FCP	Fisheries Communication Plan
FDR	Facilities Design Report
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIR	Fabrication and Installation Report
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FPVC	Flexible Polyvinyl Chloride
FR	Fisheries Representative
ft	Feet
FTB	Flowable Thermal Backfill
FTE	Full Time Equivalent
GHG	Greenhouse Gas
GIS	Gas Insulated Switchgear
GWSA	Global Warming Solutions Act
HC	Hydrocarbons
HCA	Host Community Agreement
HDD	Horizontal Directional Drill
HDPE	High-Density Polyethylene
HVAC	High-Voltage Alternating Current
HVDC	High-Voltage Direct Current
HPFF	High-Pressure Fluid-Filled
Hz	Hertz
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IHA	Incidental Harassment Authorization
IMO	International Maritime Organization
ISO-NE	ISO-New England

List of Acronyms (Continued)

km	Kilometer
kV	Kilovolt
LAER	Lowest Achievable Emission Rate
LID	Low-Impact Development
LIPA	Long Island Power Authority
LOA	Letter of Authorization
LSCSF	Land Subject to Coastal Storm Flowage
LSP	Licensed Site Professional
m	Meter
MassCEC	Massachusetts Clean Energy Center
MassDEP	Massachusetts Department of Environmental Protection
MassDMF	Massachusetts Division of Marine Fisheries
MassDOT	Massachusetts Department of Transportation
MBTA	Migratory Bird Treaty Act
MBUAR	Massachusetts Board of Underwater Archaeological Resources
MCP	Massachusetts Contingency Plan
MEPA	Massachusetts Environmental Policy Act
MESA	Massachusetts Endangered Species Act
mG	Milligauss
MHC	Massachusetts Historical Commission
MHW	Mean High Water
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
MTBM	Microtunnel Boring Machine
MVC	Martha's Vineyard Commission
MW	Megawatts
NARW	North Atlantic right whale
NCEI	National Centers for Environmental Information
NED	National Elevation Database
NEODP	Northeast Ocean Data Portal
NEPA	National Environmental Policy Act
NHESP	Natural Heritage and Endangered Species Program
NHPA	National Historic and Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxide
NOAA	National Oceanic and Atmospheric Administration
NODP	Northeast Ocean Data Portal
NOI	Notice of Intent
NPCC	Northeast Power Coordinating Council
NPDES	National Pollutant Discharge Elimination System
NREL	Department of Energy's National Renewable Energy Laboratory

List of Acronyms (Continued)

NRI	Natural Resources Inventory
NWS	National Weather Service
NYSERDA	New York State Energy Research and Development Authority
OCS	Outer Continental Shelf
OECC	Offshore Export Cable Corridor
O&M	Operations and Maintenance
OMP	Ocean Management Plan
OSPR	Oil Spill Response Plan
PAL	Public Archaeology Laboratory
PAM	Passive Acoustic Monitoring
PATON	Private Aids to Navigation
PCB	Polychlorinated Biphenyls
PL	Property Lines
PM	Particulate Matter
PMP	Probable Maximum Precipitation
PPA	Power Purchase Agreement
PPPP	Piping Plover Protection Plan
PSO	Protected Species Observer
PTF	Pool Transmission Facility
PURA	Connecticut Public Utilities Regulatory Authority
PVC	Polyvinyl Chloride
QP	Queue Position
RFA	Riverfront Area
RFI	Request for Interest
RFP	Request for Proposal
ROD	Record of Decision
RODA	Responsible Offshore Development Alliance
ROSA	Responsible Offshore Science Alliance
ROW	Right-of-Way
RPP	Regional Policy Plan
SDEIS	Supplemental to the Draft Environmental Impact Statement
SEMA	Southeast Massachusetts
SF_6	Sulphur Hexafluoride
SLM	Sound Level Meter
SMAST	School for Marine Science and Technology
SO_2	Sulfur Dioxide
SOV	Service Operations Vessel
SPCC	Spill Prevention, Control and Countermeasures Plan
SSU	Special, Sensitive and Unique
STATCOM	Static Compensators
OSH	Sea, Lake, and Overland Surges from Hurricanes
SWDA	Safe Water Drinking Act

List of Acronyms (Continued)

TBF	To Be Filed
THPO	Tribal Historic Preservation Officer
TMP	Traffic Management Plan
TOY	Time Of Year
tpy	Tons Per Year
TSHD	Trailing Suction Hopper Dredge
TSS	Total Suspended Solids
ULSD	Ultra-Low Sulfur Diesel
USACE	United States Army Corps of Engineers
USFW	United States Fish and Wildlife Service
USCG	United States Coast Guard
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
WEA	Wind Energy Area
WPA	Wetlands Protection Act
WTG	Wind Turbine Generator
WQC	Water Quality Certificate
XLPE	Cross-Linked Polyethylene

Section 1.0

Project Overview

1.0 PROJECT OVERVIEW

Commonwealth Wind, LLC (the “Proponent”), is filing this Draft Environmental Impact Report (DEIR) for offshore and onshore transmission and the step-up substation necessary to deliver the offshore wind power generated by Commonwealth Wind, an approximately 1,200-megawatt (MW) wind energy generation facility to be located in the southern portion of Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 (Lease Area) in federal waters, to the ISO-New England (ISO-NE) regional power grid. The Massachusetts-jurisdictional elements of Commonwealth Wind are referred to as New England Wind 2 Connector (NE Wind Connector 2, the “Project” for purposes of state, regional and local review) and are the subject of this DEIR. All proposed elements of Commonwealth Wind will be subject to review under federal processes coordinated by BOEM and are described in Section 1.4.1.

Section 1 presents an overview of the NE Wind 2 Connector, including changes to the Project since submittal of the Environmental Notification Form (ENF). Section 1 also includes a description of the offshore development activities for Commonwealth Wind in federal waters for general background and context (see Sections 1.3 and 1.4.1). The remaining sections of this DEIR provide detailed information to support the Project, specifically: a detailed Project Description (Section 2); Consistency with State and Regional Policies (Section 3); Project Alternatives (Section 4); Wetland Resources (Section 5); Water Quality and Navigation (Section 6); Fisheries, Rare Species, Avian, and Marine Resources (Section 7); Electric and Magnetic Field Analyses (Section 8); Historic and Archaeological Resources (Section 9); Climate Change Resiliency, Air Quality, and GHG Emissions (Section 10); Onshore Substation Operational Noise Analysis (Section 11); Construction-Period Methods and Considerations (Section 12); Proposed Section 61 Findings and Mitigation (Section 13); and Response to Comments (Section 14).

1.1 Introduction

The Commonwealth Wind project is an offshore wind energy generation facility proposed in federal waters within the southern portion of Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0534 (Lease Area) (see Figure 1-1) in the federally designated Massachusetts Wind Energy Area (MA WEA) (see Figure 1-2). The NE Wind 2 Connector constitutes the Massachusetts-jurisdictional elements of the Commonwealth Wind project and is necessary to enable delivery of the carbon-free energy that will be generated by the offshore wind energy generation facility to the ISO-NE electrical grid.

Major elements of the Commonwealth Wind project include wind turbine generators (WTGs) and foundations, offshore electrical service platforms (ESPs) and foundations, inter-array cables,[1] offshore export cables, onshore export cables, and an onshore substation that will step up transmission voltage to 345 kilovolts (kV) for interconnection with the regional power grid at the existing 345-kV West Barnstable Substation.[2] All WTGs, ESPs, associated foundations, and inter-

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1 Inter-array cables connect several WTGs to a single ESP.

2 The Project’s grid interconnection is proposed at the 345-kV West Barnstable Substation constructed as part of the NSTAR Lower SEMA project, as distinguished from the 115-kV Oak Street Substation located on the northern side of the same Eversource-owned parcel.

array cables, along with a portion of the offshore export cables, will be located in federal waters outside of Massachusetts jurisdiction. At its nearest point, the portion of Lease Area OCS-A 0534 that will be utilized for Commonwealth Wind is just over 20 miles (32 kilometers [km]) from the southwest corner of Martha's Vineyard, approximately 24 miles (38 km) from Nantucket, and approximately 37 miles (60 km) south of the Cape Cod mainland. Elements of the Commonwealth Wind project proposed in federal waters are discussed in Section 1.4.1 for background and context.

Massachusetts reviews, including those by the Massachusetts Environmental Policy Act (MEPA) Office and other state, regional, and local entities, will focus on the elements of the Project proposed within state boundaries (i.e., the NE Wind 2 Connector). These include portions of the offshore export cables in state waters, all of the onshore export cables, the proposed onshore substation, the 345-kV grid interconnection from the new onshore substation to the grid interconnection point at the existing Eversource 345-kV West Barnstable Substation, and some modifications to the 345-kV West Barnstable Substation to accommodate the interconnection. The offshore export cables will be installed within an Offshore Export Cable Corridor (OECC) that travels from the northwestern corner of the Lease Area to the landfall site within a paved parking lot located at Dowses Beach in Barnstable (see Figure 1-3 and Sections 1.4.2 and 1.4.3). Onshore Project elements will be located entirely within the Town of Barnstable (see Figure 1-4).

The OECC, where the Project's three offshore export cables will be installed, is shown on Figure 1-3. Figure 1-4 shows the proposed onshore export cable routing from the landfall site to the proposed onshore substation site (i.e., transmission routes) and from the proposed onshore substation site to the existing West Barnstable Substation interconnection point (i.e., grid interconnection routes). The Preferred Route and Noticed Alternative for the onshore export cables are both located entirely within the Town of Barnstable. The Project's proposed onshore substation is located on privately owned, primarily undeveloped wooded parcels west of Oak Street near the Oak Street Bridge overpass of Route 6, approximately 0.25 miles west of the West Barnstable Substation.

1.2 Project Purpose and Need

The purpose of the NE Wind 2 Connector is to connect the Commonwealth Wind offshore wind energy generation facility to the ISO-NE electrical grid. The Project will serve the public interest by enabling delivery of more than 1,200 MW of carbon-free energy, increasing the reliability and diversity of the regional and statewide energy supply, and creating jobs, local supply chains, and broader economic development.

Commonwealth Wind's wind development area (WDA) is located within federal waters. As described in more detail in Section 1.7, the Proponent is in the process of permitting Commonwealth Wind at the federal level. There is no existing transmission to connect this new wind energy generation project to the ISO-NE regional electric grid. Therefore, the transmission proposed as the NE Wind 2 Connector is needed to deliver power generated in the federal lease area to the ISO-NE electrical grid.

Since 2009, BOEM has spearheaded a focused effort to identify, study, characterize, and refine suitable offshore wind energy lease areas on the Outer Continental Shelf (OCS) in federal waters along the Atlantic seaboard. The locations of the offshore wind lease areas, including Lease Area OCS-A 0534, were determined through a process that involved significant public input over a period of several years. As is made clear in the Massachusetts Clean Energy and Climate Plan for 2025 and 2030 (the CECP),[3] bringing offshore wind generation from the OCS to the regional electric grid is a critical cornerstone to achieving greenhouse gas emission reduction limits established for the Commonwealth. As indicated in the CECP, offshore wind resources are expected to anchor the Commonwealth's future clean energy portfolio by 2030.

The Commonwealth Wind project is itself a key piece of that future because it is one of the most advanced, lowest-cost, and lowest-impact offshore wind projects on the east coast. Lease Area OCS-A 0534 is an excellent offshore wind site because it has high wind speeds, suitable seafloor conditions, moderate water depths, and reasonable proximity to grid interconnection points. In particular, because of the lease area's proximity to suitable locations for interconnecting to the regional electric grid, the NE Wind 2 Connector can take advantage of one of the shortest transmission routes available to bring significant offshore wind energy generation resources to the electric grid, which allows the project to use lower-cost HVAC for a more direct offshore route rather than HVDC transmission, minimizing costs and environmental impacts. In addition, as described in Section 1.7, Commonwealth Wind is in an advanced stage of development and permitting, making it one of the few offshore wind energy generation projects that can realistically contribute to the Commonwealth's goals and statutory emission reduction targets prior to 2030.

Moreover, the Commonwealth is committed to bringing offshore wind energy generation to the regional electric grid. In particular, Section 83C of Chapter 169 of the Acts of 2008, as amended, is intended to ensure a diversified electrical energy portfolio for the Commonwealth while strengthening the Massachusetts clean energy economy, and support achievement of 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. Section 83C does this by requiring the solicitation and procurement of 5,600 MW of offshore wind energy generation by June 30, 2027. The Commonwealth Wind project was selected in the solicitation conducted under Section 83C, and the Proponent executed power purchase agreements (PPAs) in April 2022 with the EDCs (Eversource, National Grid, and Unitil) for approximately 1,200 MW of the Commonwealth Wind project's output. The EDCs filed the PPAs with the Department of Public Utilities (the "Department") for review in May 2022. The Department docketed the PPA proceedings as D.P.U. 22-70, 22-71, and 22-72.

[3] The CECP was issued on June 30, 2022, and is available at https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2025-and-2030.

During those proceedings, the Proponent raised the issue that economic conditions had changed significantly due to global commodity price increases (in part due to ongoing war in Ukraine), historic and persistent inflation, sharp increases in interest rates, and supply chain bottlenecks, as well as other factors, resulting in significantly increased costs for the Commonwealth Wind project and rendering the PPAs ineffective at allowing the Proponent to secure financing needed to construct Commonwealth Wind and associated NE Wind 2 Connector. The Department, nonetheless, approved the PPAs on December 30, 2022, and on January 30, 2023, the Proponent filed an appeal from the Department's order with the Massachusetts Supreme Judicial Court.

Since that time, the Proponent has been in close contact with the EDCs and is seeking a termination of the PPAs. The Proponent intends to bid the full capacity of Commonwealth Wind into the next offshore wind solicitation under Section 83C. A draft RFP for that solicitation was filed with the Department on May 2, 2023 and has been docketed as D.P.U. 23-24.

The Proponent is confident that the Project is needed now more than ever to deliver clean energy and economic growth to the Commonwealth and the region. The Proponent remains confident that the Commonwealth Wind project will be built, and is proceeding with Project permitting. The Proponent will continue to move the Project forward to ensure that it remains on a development timeline that allows it to meet key state renewable energy targets, including the Commonwealth's 2030 offshore wind and emissions reduction goals. The Commonwealth Wind project and associated NE Wind 2 Connector is a cost-effective source of offshore wind energy generation for Massachusetts and will provide benefits to Massachusetts and its ratepayers. For those reasons, the Proponent remains fully committed to continuing the development of this Project.

1.3 Offshore Wind, Background

The primary driver for offshore wind projects in the region is their ability to deliver carbon-free renewable energy that will provide economical bulk power, while reducing carbon dioxide (CO_2) emissions. This is in the context of ambitious state programs to decarbonize electric power production and legislation such as the Commonwealth's 2008 Global Warming Solutions Act (GWSA) and the 2021 law "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy". The 2021 Act revised GHG reduction goals from those established by the GWSA at 50% from 1990 levels by 2030, 75% from 1990 levels by 2040, and net zero emissions by 2050 (see M.G.L. chapter 21N, sections 3(b) and 4). As one of the major renewable energy sources in New England, offshore wind energy is critical to meeting these targets, and is a cornerstone of the Commonwealth's Clean Energy and Climate Plan for 2025 and 2030 (*see, e.g.*, pages iv, xi, xiv, 4-5, 62-65, 69-70).

Additional drivers for offshore wind projects are significant economic benefits to local communities, states, and the whole region. These benefits can come in the form of new jobs created for the development, construction, and operations/maintenance for these projects, port infrastructure development, advancement of domestic manufacturing and assembly capacity, investment in industry research and development, environmental monitoring, and research. A successful New England drive to promote the offshore wind industry can support a steady flow of projects that will leverage economies of scale in the supply chain while fostering development of a robust industry.

Project benefits are described in greater detail Section 1.9. The remainder of this Section 1.3 highlights some of the benefits the Project provides to demonstrate how the bundle of benefits associated with offshore wind development will reach local, state, regional, national, and global communities.

The NE Wind 2 Connector will enable the Commonwealth Wind project to provide greenhouse gas reductions with global effect and particular benefits to states across the region that have adopted greenhouse gas emission reduction goals. As described in Section 10.2, the Project is projected to avoid approximately 2.35 million tons of CO_{2e} emissions annually, or the equivalent of taking approximately 460,000 cars off the road. It will also provide significant economic development at the regional level, with unique benefits in local communities. And, by reducing reliance on the regionally constrained natural gas supply on cold peak gas demand days, the Project will foster winter grid reliability at multiple scales: on Cape Cod, in Massachusetts, and in the greater ISO-NE electrical grid.

In addition to promoting growth of a regional industry, the NE Wind 2 Connector and Commonwealth Wind will also generate significant and specific local benefits (see Section 1.9). The Proponent 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 Proponent also intends to coordinate with the Town on the planned installation of a municipal sewer line along segments of the onshore export cable route.

Local benefits are not limited to Barnstable, but rather will spread to communities across southeastern Massachusetts and southern New England (see Section 1.9). Among other things, Commonwealth Wind will serve as a tenant for a new marshalling port to be located in Salem, Massachusetts, and through an agreement with a leading cable manufacturing firm, will purchase its electric cables from a new manufacturing facility to be located in Somerset, Massachusetts. The Project will also include significant investments in education, innovation, and environmental initiatives to benefit local communities. The Proponent has developed meaningful partnerships, including several with local nonprofits, to provide wide-ranging economic and job opportunities, as well as new opportunities for Environmental Justice (EJ) Population residents to directly benefit from offshore wind.

1.3.1 Massachusetts Wind Lease Areas

BOEM (within the United States Department of the Interior) has evaluated areas along the Atlantic Coast with respect to potential suitability for offshore wind development. Working in conjunction with the Department of Energy's National Renewable Energy Laboratory (NREL), BOEM has identified a series of suitable tracts on the Outer Continental Shelf from South Carolina north to Massachusetts.

The location of the Massachusetts offshore wind lease areas, including Lease Area OCS-A 0534, was determined through a process that involved significant public input over a period of several years. The process began with the formation of a Massachusetts-BOEM task force, composed of representatives from many federal, state, tribal, and local government agencies, as well as public stakeholder meetings with the community, labor groups, and the fishing industry, starting in 2009. As a result of this initial planning, BOEM identified a preliminary MA WEA of approximately 2,224 square nautical miles.[4]

BOEM then published a Request for Interest (RFI) on December 29, 2010. This RFI requested expressions of commercial interest from potential developers, as well as any information from the public relevant to determining the suitability of BOEM's WEA for wind energy project development. BOEM then provided for a second period of public comment, which ended on April 18, 2011. Responses from 10 companies were received, along with 260 public comments.

After careful consideration of public comments as well as input from BOEM's intergovernmental Massachusetts Renewable Energy Task Force, BOEM extensively modified the WEA in response to stakeholder concerns. For example, BOEM excluded certain areas identified as important habitats that could be adversely affected if ultimately developed for offshore wind. BOEM also excluded an area of high sea duck concentration as well as an area of high fisheries value to reduce potential conflict with commercial and recreational fishing activities. The distance from the BOEM WEA to the nearest shore was also extended to further reduce any possible viewshed impacts. These extensive revisions in response to public comments resulted in the WEA being reduced to approximately 40 percent of its original size.

On February 6, 2012, BOEM published a "Call for Information and Nominations" (the Call) for areas within the revised BOEM WEA, and that same month BOEM also published a Notice of Intent to prepare an Environmental Assessment (EA) for the "Call Area." The EA was made available for public review on November 12, 2012, a revised EA was issued on June 4, 2014, and BOEM issued a "Finding of No Significant Impact" (FONSI), which concluded that reasonably foreseeable environmental effects associated with the commercial wind lease issuance would not significantly impact the environment. The EA and FONSI were limited to the potential issuance of leases; a project subsequently proposed for a specific lease area would be the subject of a more detailed environmental review.

On January 29, 2015, BOEM held a competitive lease sale, conducted as an auction, for the four lease areas within the Massachusetts WEA. At the time of the 2015 lease area award, Vineyard Wind's Lease Area OCS-A 0501 was more than 166,886 acres (approximately 261 square miles, or 675 square kilometers) and approximately 10 miles (16 km) wide and 30 miles (48 km) long.[5] On June 28, 2021, BOEM segregated Lease Area OCS-A 0501 into two lease areas: Lease Area OCS-A

[4] 2,941.2 square miles, or 1,882,393 acres.

[5] As shown on Figure 1-2, the perimeter of the Lease area is irregular or "sawtoothed" in configuration hence the overall area is less than that of a true 10- by 30-mile rectangle.

0501, which is being developed for the Vineyard Wind project, and Lease Area OCS-A 0534, which is being developed for New England Wind (which includes the Park City Wind and Commonwealth Wind projects) (see Figure 1-2). For the Commonwealth Wind project, the Proponent is proposing to develop the southern portion of this Lease Area. At its nearest point, the boundary of New England Wind is just over 20 miles (32 km) from the southwest corner of Martha's Vineyard, approximately 24 miles (38 km) from Nantucket, and approximately 37 miles (60 km) south of the Cape Cod mainland.

The lease area has high wind speeds,[6] favorable seafloor conditions, moderate depths, and reasonable proximity to multiple grid interconnection points in an area of high electrical load with a strong need for new generation capacity.

1.3.2 Massachusetts Offshore Wind Legislation and Procurement of Commonwealth Wind Under Section 83C

Section 83C of Chapter 169 of the Acts of 2008, as amended, is intended to ensure a diversified electrical energy portfolio for the Commonwealth, while strengthening the Massachusetts clean energy economy, and help ensure that the greenhouse gas reduction requirements under the Commonwealth's 2008 GWSA, as recently amended by An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, are achieved. As detailed in the Commonwealth's climate roadmap and CECP for 2025 and 2030, offshore wind is a critical component to meeting the Commonwealth's legally binding greenhouse gas emissions reduction targets. The GWSA emissions reduction targets and the Commonwealth's strategy to achieve them are discussed in Section 3.2.

Section 83C seeks to facilitate financing of offshore wind generation resources, enhance regional reliability (including during winter peak demand), mitigate environmental impacts, and promote economic development. Section 83C furthers the development of an offshore wind industry in New England that provides clean energy to the New England electric grid, improves reliability of that system, and offers significant economic and environmental benefits to the region.

The Proponent is proceeding with Project permitting and intends to bid the full capacity of Commonwealth Wind into the next offshore wind solicitation from the Commonwealth. The Proponent will continue to move the Project forward to ensure that it remains on a timeline that allows it to meet key state renewable energy targets, including the Commonwealth's 2030 offshore wind goals.

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6 Initial metocean data collected by AWS Truepower, working in connection with the Massachusetts Clean Energy Center (MassCEC) and Woods Hole Oceanographic Institute (WHOI) has a mean wind speed at 100m of 10.3 meters per second (23 miles per hour) (Oct 2016-June 2017).

1.3.3 Massachusetts Ocean Management Plan

Initially released in 2009 and subsequently revised in 2015 and again in 2021, the Massachusetts OMP creates a framework for managing uses and activities within the state's ocean waters including offshore wind projects and associated transmission. As described in greater detail in Section 3.4, jurisdiction of the OMP covers the area from the seaward limit of state waters (generally three miles offshore) to a nearshore boundary that lies approximately 0.3 miles seaward from Mean High Water (MHW).

A large part of the planning process for the OMP was devoted to mapping and evaluating natural resources and existing water-dependent uses (e.g., navigation and fishing). This resulted in a series of maps identifying special, sensitive, and unique (SSU) resources and existing water-dependent uses that are relevant for particular types of projects. The OMP and relevant OMP Regulations, found at 301 CMR 28.00, include management standards for SSU Resources. Specific to cable projects, the OMP identifies the following SSUs: (1) core habitat of the North Atlantic right whale, fin, and humpback whales; (2) hard/complex seafloor; (3) eelgrass; and (4) intertidal flats. As described in Section 2.1.3.2, in 2017, 2018, 2019, and 2020 the Proponent or its affiliates and predecessors performed marine surveys to identify and refine feasible routes for the proposed offshore export cables that would avoid and minimize impacts to these resources.

The OMP identifies some preliminary corridors for offshore wind transmission cables that are in presumptive compliance with siting standards of the OMP. The Project team considered these corridors while assessing offshore routing alternatives, but they were unsuitable for the Project given that water depths within the mapped preliminary corridors are frequently too shallow, and the mapped corridors do not accommodate a landfall site in Barnstable (the Proponent determined such a landfall was needed to minimize onshore and overall routing distances). Section 3.4 provides additional detail about Project consistency with the OMP.

1.3.4 Support Facilities

Port facilities that could be utilized for the Project are described in Section 1.3.4.1, while operations and maintenance facilities are addressed in Section 1.3.4.2. The Proponent does not have any plans to develop port or O&M facilities, but rather will use existing facilities or facilities planned by third parties to accommodate marine industrial uses unrelated to development of the proposed Project. Where a third party has plans to modify a facility to accommodate marine industrial uses, including offshore wind, the facility will be developed as a separate project undergoing separate permitting as necessary, including MEPA review where applicable. No port development will occur specifically to accommodate the proposed Project, and it is reasonable to expect that any port facility ultimately selected for use by the Project could be used by multiple entities associated with other marine industrial activities or other offshore wind projects. Project-related activities at a given port will depend on the final Commonwealth Wind construction logistics plan and schedule, the independent decisions of local suppliers, considerations such as available infrastructure, the needs of other existing and future port users, and supply chain availability. EJ communities near potential ports and O&M facilities are discussed in Section 3.3.2.

1.3.4.1 Port Facilities

The Project anticipates using the Port of Salem, MA as the main construction port for Commonwealth Wind/NE Wind 2 Connector, which may be supported by other facilities in the broader New England region and Massachusetts, including those along the south coast, the islands off Massachusetts, or other locations in Massachusetts. Numerous entities have publicized plans to develop or upgrade port facilities to support offshore wind construction, and the Proponent anticipates an increased demand for ports by other offshore wind developers in the northeast in the coming years.

In Salem, Crowley Wind Services purchased 42 acres surrounding the Footprint Power Salem Harbor Station to redevelop the Designated Port Area for use as an offshore wind marshalling and construction staging facility ("Salem offshore Wind Terminal"). Crowley Wind Services intends to be the long-term port operator for the site with the intention of serving the regional offshore wind industry. The Proponent will lease space from the facility for a period of approximately three years. During the lease period, wind turbine generator components will be delivered to the Salem Offshore Wind Terminal by cargo vessels, stored, partially assembled, then staged for transport to the installation site. After the Proponent's lease has concluded, the facility will be marketed by Crowley Wind Services to be used by other wind developers. Crowley Wind Services submitted an ENF to the MEPA Office for the Salem Wind Port in October 2022 (EEA# 16618). It is currently under review and requires the submission of a mandatory EIR.

The Proponent does not currently have site control for any other port facilities in Massachusetts for construction support. However, construction service providers and contractors may utilize facilities in Massachusetts ports and/or facilities in the New England region to support activities such as crew transfer, provisioning, bunkering, and other activities. These activities would occur at industrial ports suitable for such uses and would be well within the realm of normal port activities. Regardless of the location or use, it is fully expected that the landowners will provide those facilities which will be secured on short-term leases for the duration of use then revert to the landowner to be available for other commercial opportunities.

1.3.4.2 Operations and Maintenance Facilities

Long-term operations and maintenance (O&M) of the Project will be required, and the Proponent intends to use existing facilities within New England to house the equipment, vessels, warehouse, and office space necessary for operations and maintenance of the offshore wind energy generating area. The Proponent does not currently have site control for any O&M facilities in Massachusetts. The Proponent is considering ports capable of supporting O&M operations within southeastern Massachusetts and southern New England where facilities with access to accomodations, warehouses etc. are proximate to existing docks for crew transfer vessels, service operation vessels, and vessel support services. As the Project is planning to use existing facilities, the Proponent will not develop the facilities, but intends to be a lessee along with other potential lessees of the space.

O&M activities may include remote monitoring of Commonwealth Wind/NE Wind 2 Connector components, preventive maintenance and proactive inspections of Project facilities, workforce training, component repairs, warehousing of replacement parts, and crew and equipment transfers. It is anticipated that O&M activities for Commonwealth Wind will be undertaken in conjunction with other offshore wind projects.

1.4 Project Overview

The following sections describe the proposed NE Wind 2 Connector, including, for background, a brief description of Commonwealth Wind components in federal waters and more detailed discussions of the offshore and onshore export cables as well as proposed substation infrastructure. Portions of the Commonwealth Wind project within state geographic jurisdiction and hence the focus of this DEIR, known as the NE Wind 2 Connector, include the entire onshore export cable route, the proposed onshore substation and grid interconnection, and the portions of the OECC in state waters (see Figure 1-1).

After crossing into state waters between Martha's Vineyard and Nantucket and continuing north, the proposed offshore export cables extending from the WEA will pass through the area of federal waters located within Nantucket Sound before re-entering state waters and making landfall. To avoid any confusing fragmentation of the discussion of offshore transmission, the pocket of federal waters within Nantucket Sound is included in the description of offshore export cable routing.

1.4.1 Bureau of Ocean Energy Management Lease Area OCS-A 0534 (Federal Waters, for context and background but outside state jurisdiction)

The federal permitting process for the Commonwealth Wind project commenced in July 2020 with filing of a 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 proposed within the southern section of Lease Area OCS-A 0534. The offshore wind energy generation facility for Commonwealth Wind is being developed and permitted at the federal level using a "project envelope" concept. The envelope concept allows an applicant to describe a range of reasonably foreseeable project parameters that allows for a robust environmental review and permitting process while maintaining a reasonable degree of flexibility with respect to selection and purchase of key components (e.g., WTGs, foundations, offshore cables, offshore substations). Further, the envelope approach will allow the Project to optimize cost, environmental protection, and reliability.

Other key elements of the federal development activities for Commonwealth Wind, as bounded by the project envelope, are as follows:

- WTGs, entirely within federal waters: Depending on the final footprint of Park City Wind, the total number of WTG/ESP positions expected to be constructed for Commonwealth Wind ranges from 64 to 88. The WTG layout will be oriented in an east-west, north-south grid pattern with one nautical mile (approximately 1.15-mile) spacing between positions.
- Regional Emissions Reductions: The WTGs for this Project will be among the most efficient renewable energy generators commercially available for offshore use at the time of construction. It is expected that the WTGs will be capable of operating with an annual capacity factor of approximately 50%.[7] Assuming a minimum of 1,200 MW, the Project will cause a reduction of approximately 2.35 million tons per year (tpy) of greenhouse gas emissions (as carbon dioxide equivalent [CO_2e]) by displacing fossil-fueled electric generation.[8] The Project will also reduce nitrogen oxides (NOx) emissions by approximately 1,255 tpy and sulfur oxides (SOx) by approximately 666 tpy.
- WTG foundations, entirely within federal waters: WTG foundations may be monopiles, jackets (piled), or bottom-frame foundations (piled, or gravity pad).
- ESPs, entirely within federal waters: 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 to 12 piles), or suction bucket jacket foundation.
- Inter-array Cables, entirely within federal waters: 66-kV to 132-kV inter-array cables will be buried beneath the seafloor and connect radial “strings” of WTGs to a shared ESP.
- Offshore export cables: Three 275-kV offshore export cables will deliver power from the Commonwealth Wind offshore wind energy generation facility to the landfall site in Barnstable.

Construction-related or operations-related impacts of the non-jurisdictional portions of Commonwealth Wind on resources within Massachusetts are predominantly those associated with vessel activity as those vessels transit through state waters to the lease area in federal waters. Given the limited spatial extent of impacts from the offshore cable installation, no impacts in state waters are expected from cable installation activities in federal waters.

Navigation and vessel traffic impacts are discussed in Sections 6.3 and 12.1.4. As described therein, the Proponent is not proposing any restrictions on navigation, fishing, or the placement of fixed or mobile fishing gear; however, construction and installation activities may temporarily affect navigation and/or fishing activities in the vicinity of construction and installation vessels.

7 Capacity factor is standard industry measure. A power plant operating at 100% load for 8,760 hours per year would have a capacity factor of 100%. The same plant operating at 100% load for 4,380 hours per year would have a capacity factor of 50%.

8 The avoided emissions analysis assumes a total Commonwealth Wind capacity of approximately 1,200 MW with a 50% average capacity factor transmitted using 275-kV HVAC cables. The analysis is based on NPCC New England subregion annual non-baseload output emission rates from the U.S. Environmental Protection Agency’s (EPA’s) Emissions & Generation Resource Integrated Database eGRID2018(v2) released 3/9/2020. https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid.

These impacts will be temporary in nature and largely limited to the Project's construction and installation period. Safety zones will be determined by the U.S. Coast Guard (USCG) and are anticipated to be activity-specific. Regarding cable installation, safety zones will be around cable installation as it proceeds and will not preclude activity along the entire routes for the duration of construction. The Proponent, through its fisheries liaison, will coordinate with fishermen while these discussions with the USCG are underway.

Aside from temporary safety zones around Project vessels and the potential for increased vessel traffic during the construction and installation phase, no significant disruption of established navigation patterns or aids to navigation is anticipated.

1.4.2 Offshore Export Cables

The NE Wind 2 Connector will deliver electricity generated at the offshore wind energy generation facility in federal waters to shore via three 275-kV high voltage alternating current (HVAC) offshore export cables. The Project's proposed offshore export cables will be installed within an OECC previously identified through consultations with the Massachusetts Ocean Team and multiple seasons of marine surveys (see Section 2.1.3.2). The OECC will pass through state waters in the offshore areas of Edgartown, Nantucket, Mashpee, and Barnstable before making landfall in Barnstable (see Figure 1-3). All sections of the cable route within state waters, with the exception of those within 0.3 miles of shore, lie within the Massachusetts OMP planning area.

The Project's proposed offshore export cables will be installed within a shared OECC (referred to as the Primary OECC). The Primary OECC will travel from the northwestern corner of the portion of Lease Area OCS-A 0534 that will be utilized for Commonwealth Wind, 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 almost entirely (approximately 96%) the same OECC that was proposed for the NE Wind 1 Connector (which was also largely the same as the OECC proposed for the Vineyard Wind Connector). The only portion of the OECC proposed for the NE Wind 2 Connector that has not been previously reviewed as part of the Vineyard Wind Connector and/or NE Wind 1 Connector projects is the approximately 488-acre area (approximately 4% of the area of the OECC within state waters) in Centerville Harbor that provides access to the landfall site (see Figure 1-3). It is also worth noting that although not included as part of the NE Wind 1 Connector, NE Wind 2 Connector does include a Western Muskeget option that was originally identified as part of the OECC for Vineyard Wind Connector (though not ultimately utilized). The Western Muskeget option could be used to install one or two of the three offshore export cables associated with NE Wind 2 Connector if warranted by further engineering analysis. 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.

The offshore export cables will be installed within the shared OECC, but with sufficient separation to allow for safe installation and any future repair work, if required. As described in Section 12.1, 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 feet 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.

From the landfall site to the lease area in federal waters, the maximum length of the OECC in state waters is approximately 22 miles (35 km), and its maximum length in both federal and state waters is up to approximately 47 miles (76 km).[9] Due to micro-siting of cables within the OECC to maximize constructability and minimize impacts to sensitive habitats, the maximum length per cable within the Primary OECC is approximately 23 miles (37 km) in state waters and approximately 51 miles (81 km) in state and federal waters combined (see Table 2-3 in Section 2.1.3.3). The OECC ranges in width from 3,100 to 5,500 feet along the portions located in Massachusetts state waters, with a typical width of 3,500 feet.

Three 275-kV HVAC offshore export cables will deliver power from the Commonwealth Wind offshore wind energy generation facility to the landfall site in Barnstable. Each offshore export cable will consist of three cores for power transmission and one or more fiber optic cables[10] for communication, temperature measurement, and protection of the high-voltage system (see Figure 1-5). Each cable will typically include three copper or aluminum conductors, with each conductor encapsulated by solid cross-linked polyethylene (XLPE) insulation (see Section 2.1.1 for a more detailed discussion of offshore export cable characteristics). This AC offshore cable system will not contain any fluids, and this type of transmission has been used extensively on European offshore wind projects.

Installation of the offshore export cables is described in more detail in Sections 5.1 and 12.1. At the landfall site, horizontal directional drilling (HDD) will be used to complete the offshore-to-onshore transition, minimizing Project-related impacts to the beach, intertidal zone, and nearshore areas, as well as ensuring that the cables remain sufficiently buried and permanently out of the human environment at the shoreline. The transition between the offshore-to-onshore export cables will be made in underground concrete transition joint bays (three total, one per

9 An additional length of offshore export cable within the portion of Lease Area OCS-A 0534 that will be utilized for Commonwealth Wind (up to approximately 21 - 26 miles [approximately 34 - 42 km] per cable) will be needed to reach the ESPs.

10 Fiber optic cables are typically integrated into the offshore export cable but may be bundled externally to the export cable. In either scenario, the fiber optic and export cables would be installed simultaneously.

offshore export cable) that will be installed within the paved parking lot (see Sections 5.2 and 12.2 as well as Attachment C3). Following construction, manhole covers will be the only visible components of the cable system associated with the HDD.

1.4.3 Landfall Site

The landfall site will be based in the paved parking lot at Dowses Beach, where horizontal directional drilling (HDD) will be used to complete the offshore-to-onshore transition while avoiding impacts to nearshore or coastal resources. Sections 5.2 and 12.2 provide detailed discussions of HDD at the landfall site.

Dowses Beach is a residents-only beach that is owned and managed by the Town of Barnstable and has an approximately 2.5-acre paved parking lot. It is situated on a peninsula between East Bay and the Centerville Harbor away from nearby residences (see Figure 1-6 and Section 4.4.4). The landfall site within the paved parking lot has adequate paved space for the offshore-to-onshore transition facilities associated with HDD. It also has a technically feasible option to install the onshore export cable duct bank from the parking lot to public roadway layouts of sufficient width and with available space to accommodate the onshore export cables. Further, this location provides a relatively direct route of reasonable length to the point of interconnection at the West Barnstable Substation. Section 4 includes a comprehensive alternatives analysis which demonstrates why the paved parking lot is the preferred landfall site.

The transition between the offshore and onshore export cables will be made in underground concrete transition joint bays (one per offshore export cable, three total) that will be installed within the paved parking lot (see Attachment C3). Following construction, manhole covers will be the only visible components of the cable system associated with the HDD.

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

As described in Section 7.2, the landfall site is located within rare species habitat for the Piping Plover and Least Tern. Based on consultations with the Massachusetts Natural Heritage and Endangered Species Program (NHESP) and the agency's Massachusetts Endangered Species Act (MESA) review completed for the Vineyard Wind Connector and NE Wind 1 Connector, the Proponent anticipates the need to repeat similar protective measures for the Piping Plover at the landfall site, in addition to measures that will avoid impacts to the Least Tern. In accordance with the MESA (321 CMR 10.14), the Proponent will continue to consult with NHESP to ensure that the Project will not result in a Take (see Section 7.2).

1.4.4 Onshore Transmission Routes and Cables

Each three-core offshore export cable will transition to three separate single-core onshore export cables in transition joint bays that will be located under the paved parking lot at the Dowses Beach Landfall Site. The 275-kV single-core onshore export 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 1-7, and the cables are further described in Section 2.1.1.

Three cables will make up a single AC circuit. All three circuits will be installed in a single, common underground concrete duct bank along the entire length of the onshore export cable route. The duct bank is described in greater detail in Section 12.3, and the onshore transmission route connecting the landfall site with the proposed substation is described in Section 2.3.2. Installation of the in-road underground duct bank and onshore export cables within public roadway layouts will be performed during the off-season, or as otherwise permitted by the Town and/or MassDOT, to minimize traffic disruption. All work will conform to MassDOT and Town specifications for new road construction. The construction crews involved in trench excavation are expected to progress at an average rate of approximately 80 to 200 feet per day.

A thorough routing analysis was performed to identify a Preferred Route and a Noticed Alternative Route for the onshore export cables; this routing analysis is provided in Section 4.

1.4.5 Substation

The Project will require a new onshore substation to step up voltage from 275 kV to 345 kV before connecting to the existing West Barnstable Substation, which is located approximately 0.25 miles from the proposed substation site as measured in a straight line. The Proponent has site control over eight contiguous privately owned parcels totaling approximately 29 acres located west of Oak Street near the Oak Street Bridge overpass of Route 6 in West Barnstable (see Figure 1-8).

Section 2.4 provides a detailed description of the proposed onshore substation, including site access, substation equipment, containment design for dielectric fluid, and stormwater management.

1.4.6 Grid Interconnection Routes and Cables

A grid interconnection route will connect the proposed substation with the existing West Barnstable Substation. As with the transmission route, the grid interconnection route will be accomplished with an underground concrete duct bank, and the cables will be 345-kV solid dielectric cables that will not contain any fluids. Grid interconnection routes are described in greater detail in Section 2.5.

As described in Section 2.5.1, the Preferred grid interconnection route 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 northeasterly along Oak Street, then into the northern portion of the West Barnstable Substation parcel. This grid interconnection route requires widening the existing access road to accommodate construction-period activities and long-term maintenance and operation of the substation. In addition, a variant (i.e., Variant 1 to the Preferred grid interconnection route) has also been identified that would avoid the parcel owned by the Fire District by instead continuing east on what would be a new 20-foot-wide gravel access road cleared to Oak Street. This variant would only be utilized if it were infeasible to follow the route of the existing access road through the Fire District parcel. As described in Section 2.5.1, Variant 1 would have a total length of approximately 0.4 miles, the same length as the Preferred grid interconnection route.

1.4.7 West Barnstable Substation (Interconnection Point)

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. As described in Section 2.6, the area required for modifications and upgrades has been estimated at approximately 1.5 acres. The modifications may include upgrades for added electric grid capacity or for the physical interconnection of the Project. The Proponent 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 1-8.

1.5 Changes in the Project since the ENF

Since the filing of the NE Wind 2 Connector ENF on September 30, 2022, refinements have been made to the Project reflecting ongoing development engineering, environmental review, permitting, and outreach efforts. These refinements are described below:

- Proposed Substation Site: The substation design has been revised as described in Section 2.4 and presented in Project plans included in this DEIR. The location of the new onshore substation has not changed; however, the Proponent now has site control over eight contiguous privately owned parcels totaling approximately 29 acres, which allows the Proponent to optimize the layout of the substation. Of the eight parcels, four of the parcels will be developed with the new revised onshore substation. The original onshore substation site was proposed on three wooded contiguous privately owned parcels totaling approximately 15 acres. The revised design eliminates the need for retaining walls with significant heights around the entire perimeter of the substation as well as retaining walls along the stormwater access road. Removing these retaining walls will reduce the overall duration of substation construction and the potential for visual impacts.

- East Bay Crossing: The proposed methodology for installing the onshore export cables from the paved parking lot at the landfall site to the area north of East Bay remains installation of a buried concrete duct bank within the existing paved causeway leading to Dowses Beach. However, the trenchless microtunnel option across East Bay has now been evaluated in greater detail as presented in Section 2.3.5.2.

- Grid Interconnection Routes: As described in Section 2.5, the Proponent has now selected a Preferred grid interconnection route (Fire Tower Access Road to Oak Street) and a Noticed Alternative grid interconnection route (Eversource ROW #342). In addition, a variant (i.e., Variant 1 to the Preferred grid interconnection route) has also been identified, as described in Sections 1.4.6 and 2.5.1.

1.6 Schedule

Federal and Massachusetts environmental reviews, and subsequent federal, state, regional and local permitting for the Project are underway. The Proponent anticipates onshore construction will likely commence in 2025 with work at the landfall site, onshore substation, and onshore duct bank. Under the current schedule, commercial operations are expected to commence in 2028. Offshore construction is anticipated to commence in 2027. The Proponent will provide additional detail on the anticipated schedule as further details are available. A more detailed description of construction hours and schedule is provided in Section 12.7.

On Cape Cod, there are general summer limitations on construction activities, which the Proponent has built into the Project schedule for construction at the landfall site and along the onshore transmission route where the route follows public roadway layouts. Activities at the landfall site where transmission will transition from offshore to onshore will not be performed from May through September; activities along the onshore transmission route (particularly where the route follows public roadway layouts) will also likely be subject to significant construction limitations from Memorial Day through Labor Day but could extend through June 15 subject to consent from the Barnstable Department of Public Works (DPW). The Proponent will consult with the Town regarding the construction schedule. Typical construction hours will extend from 7:00 AM to 6:00 PM. Nighttime work will be performed only on an as-needed basis, such as when crossing a busy road. When needed, nighttime work or extended construction hours, including possible work on weekends, will be coordinated through the Town.

The most efficient way to install offshore wind turbines is to be able to have power to them as soon as the physical installation is complete. This allows, for example, light, air conditioning, and the use of power tools in the enclosed areas of the turbine when final work is being completed inside the turbine. It is also critical to Project success that the transmission system be prepared to receive the first power produced by the offshore wind turbine array, as to plan otherwise would mean that a significant capital investment would be idle and unable to generate revenue. Designing the construction schedule so that turbines can begin generating electricity a matter of hours after they are installed offshore also enables the expeditious realization of the benefits of offshore wind energy generation, including greenhouse gas emission reductions. For all these reasons, the construction schedule is carefully designed to ensure that there is a high probability the turbines can be connected to the grid very quickly after each one is installed. Due to the seasonal nature of construction periods, small delays or deviations from this schedule could significantly delay completion of the Project, potentially by a year or more.

Construction of the onshore transmission components of the project is expected to take a little more than a year including civil work, electrical installation, commissioning, and testing. To be ready for turbine commissioning in 2028, the Proponent will initiate onshore transmission work in 2025. As the onshore construction has time-of-year limitations due to summer traffic on Cape Cod and anticipated time-of-year limitations at the offshore-to-onshore transition point, Project construction is carefully sequenced. Duct banks must be fully prepared prior to cable installation, and cable installation must be complete and tested prior to turbines being energized. Offshore construction in the lease area in federal waters is currently scheduled to begin in 2027. Offshore construction in Massachusetts waters is anticipated to occur year-round. Onshore substation construction will be able to occur year-round, exclusive of summer tree-clearing restrictions. In-road work will avoid the busy summer season. Given all these factors, the prudent course is to begin onshore construction before construction in the lease area.

1.7 Permitting and Regulatory Approval

Table 1-1 identifies the anticipated principal environmental reviews, permits, and approvals required for the NE Wind 2 Connector; federal permits required for Commonwealth Wind are included for background. By meeting the requirements for each of these review programs, permits, and approvals, the Project will demonstrate compliance with applicable state and local environmental policies.

Table 1-1 Environmental Permits, Reviews, and Approvals for the New England Wind 2 Connector

Agency/Regulatory Authority	Permit/Review/Approval	Status
	Federal	
US Bureau of Ocean Energy Management (BOEM)	Site Assessment Plan (SAP) approval	Completed[11]
	Construction and Operations Plan (COP) approval/Record of Decision (ROD)	COP filed with BOEM July 2, 2020
	National Environmental Policy Act (NEPA) Environmental Review	Initiated by BOEM June 30, 2021; Draft Environmental Impact Statement Issued on December 23, 2022
	Facility Design Report (FDR) and Fabrication and Installation Report (FIR)	To be filed (TBF)

11 A meteorological-oceanographic buoy (metocean buoy) was installed in Lease Area OCS-A 0501 (prior to its segregation into Lease Areas OCS-A 0501 and OCS-A 0534) under an approved Site Assessment Plan (SAP) in May 2018.

Table 1-1 Environmental Permits, Reviews, and Approvals for the New England Wind 2 Connector (Continued)

Agency/Regulatory Authority	Permit/Review/Approval	Status
Federal		
US Environmental Protection Agency (EPA)	EPA Permits under Section 316(b) of the Clean Water Act (CWA), including National Pollutant Discharge Elimination System (NPDES) Permit(s)	TBF
	Outer Continental Shelf (OCS) Air Permit	Filed with EPA October 7, 2022
US Army Corps of Engineers (USACE)	CWA Section 404 Permit Rivers and Harbors Act of 1899 Section 10 Individual Permit	Filed with USACE August 1, 2022
US National Marine Fisheries Service (NMFS)	Letter of Authorization (LOA) or Incidental Harassment Authorization (IHA)	Application considered adequate and complete July 20, 2022
US Coast Guard (USCG)	Private Aid to Navigation (PATON) authorization	TBF
Federal Aviation Administration (FAA)	No Hazard Determination (for activities at construction staging areas and vessel transits, if required)	TBF
State		
Massachusetts Environmental Policy Act (MEPA) Office	Certificate of Secretary of Energy and Environmental Affairs (EEA) on Environmental Notification Form	ENF filed September 30, 2022 DEIR filed May 31, 2023 (this filing)
Energy Facilities Siting Board (EFSB)	G.L. c. 164, § 69 Approval	Petition filed November 1, 2022. Docket # EFSB22-06
Massachusetts Department of Public Utilities (DPU)	G.L. c. 164, § 72, Approval to Construct G.L. c. 40A, § 3 Zoning Exemption	Filed November 1, 2022 Docket #: EFSB22-06
Massachusetts Department of Environmental Protection (MassDEP)	Chapter 91 Waterways License and Dredge Permit Water Quality Certification (Section 401 of the CWA)	Joint Application TBF
Massachusetts Department of Transportation (MassDOT)	Non-Vehicular Access Permit(s)	TBF
Massachusetts Board of Underwater Archaeological Resources (MBUAR)	Special Use Permit	Special Use Permit 21-006 Renewal Application Approved on April 6, 2023
Natural Heritage and Endangered Species Program (NHESP)	Conservation and Management Permit (if needed)	TBF (if needed)

Table 1-1 Environmental Permits, Reviews, and Approvals for the New England Wind 2 Connector (Continued)

Agency/Regulatory Authority	Permit/Review/Approval	Status
State		
Massachusetts Historical Commission (MHC)	State Archaeologist Permit #4227 (980 C.M.R. § 70.00)	Intensive survey permit application filed August 18, 2022 State Archaeologist's Permit #4227 for Intensive Survey issued October 4, 2022 (issued to archaeologist, not Commonwealth Wind, LLC)
Massachusetts Division of Marine Fisheries (DMF)	Letter of Authorization and/or Scientific Permit (for surveys and pre-lay grapnel run)	TBF
Massachusetts Office of Coastal Zone Management (CZM) / Rhode Island Coastal Resources Management Council (CRMC)	Federal Consistency Determination (15 CFR 930.57)	MA CZM review initiated September 14, 2022 RI CRMC review initiated August 5, 2022
Massachusetts Department of Conservation and Recreation	Construction and Access Permit (if needed)	TBF
Regional (for portions of NE Wind 2 Connector within regional jurisdiction)		
Cape Cod Commission (CCC)	Development of Regional Impact (DRI) Review	TBF
Martha's Vineyard Commission (MVC)	DRI Review	TBF
Local (for portions of NE Wind 2 Connector within local jurisdiction)		
Edgartown Conservation Commission	Notice of Intent (NOI)	TBF
Barnstable Conservation Commission	NOI	TBF
Mashpee Conservation Commission	NOI	TBF
Nantucket Conservation Commission	NOI	TBF

1.8 Agency and Community Outreach

The Proponent and its affiliates and predecessors began consultations with agencies, tribes, municipalities, and other stakeholders in 2020 with the introduction of the New England Wind development which contemplated multiple phases. The Proponent 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 Connector/Vineyard Wind and NE Wind 1 Connector/Park City Wind projects and will continue to build upon these relationships for this Project.

1.8.1 Agency Meetings and Consultations

The Proponent and its affiliates and predecessors have 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 COP was filed with BOEM in 2020. A list of meetings related to NE Wind 2 Connector/Commonwealth Wind conducted to date with agencies, municipalities, and tribes is provided in Table 1-2. The Proponent 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 agency-convened public hearings and informational meetings. These include BOEM/National Environmental Policy Act (NEPA) scoping sessions and NEPA document public comment periods, EFSB public statement hearing(s), and a MEPA consultation session.

Table 1-2 Consultations with agencies, municipalities, and tribes

Group	*Date*	*Topic*
Federal Agencies		
BOEM	Regular consultations from July 2019 through present	Project overview and kick-off meeting Survey updates Project review and COP updates Lease Area discussion BOEM/ACP/Developer Tribal Consultation Working Groups Weekly project update meetings
EPA	November 2020 April 2021 May 2021 July 2021 October 2021 December 2021 January 2022 June 2022 July 2022 August 2022 October 2022 November 2022 January 2023 May 2023 June 2023	Project overview Review of modeling protocols and metocean data Pre-application meetings Review of permit completeness Permit application review
USCG	March 2021 September 2021	Project consultation

Table 1-2 Consultations with agencies, municipalities, and tribes (Continued)

Group	*Date*	*Topic*
Federal Agencies		
NMFS	March 2020 March 2021 August 2021 January 2022 March 2022 April 2022 May 2022 June 2022 October 2022 January 2023 February 2023 March 2023 April 2023 May 2023 June 2023 July 2023	Project consultation Review of acoustic modelling protocol and inputs Pre-application meetings Review of Letter of Authorization application Essential Fish Habitat consultation support
U.S. Army Corps of Engineers (USACE)	August 2020 April 2022 July 2022 March 2023 June 2023 July 2023	Project consultation Pre-application meetings Permit application review
U.S. Fish and Wildlife Service (USFWS)	May 2020 August 2022 October 2022 November 2022 January 2023 April 2023 June 2023	Project overview Project consultation
State and Regional Agencies/Working Groups		
Massachusetts Environmental Policy Act Office	January 2022 June 2022 August 2022 May 2023 (full ocean team)	Project Introduction Interagency meeting DEIR Scope discussion with MEPA director
Massachusetts Office of Coastal Zone Management (CZM), MassDEP, MassWildlife's Natural Heritage & Endangered Species Program (NHESP)	August 2022	Joint agency Project consultation
Natural Heritage and Endangered Species Program (NHESP)	December 2022	Draft Piping Plover and Least Tern Protection Plan
Executive Office of Energy and Environmental Affairs Department of Conservation Services	February 2023	Article 97 Land

Table 1-2 Consultations with agencies, municipalities, and tribes (Continued)

Group	Date	Topic
Federal Agencies		
CZM	March 2022 June 2022 July 2022 August 2022 September 2022 January 2023 February 2023 May 2023 June 2023	Project consultation and consistency review discussions, fisheries economic assessment
Massachusetts Department of Conservation and Recreation (DCR)	September 2022 March 2023	Project Introduction ENF Comment letter
EFSB	August 2022	Project introduction
MassDOT	August 2022	Project introduction
DMF	January 2023 February 2023 May 2023 June 2023	Fisheries, economic assessment
State and Regional Agencies/Working Groups		
Massachusetts Fisheries Working Group on Offshore Wind (Massachusetts Executive Office of Energy and Environmental Affairs [EEA] & MassCEC)	March 2021 June 2021 September 2021 March 2022 May 2022 October 2022 January 2023 June 2023	Project and fishing study/outreach updates
Massachusetts Habitat Working Group on Offshore Wind (EEA, MassCEC, CZM, NHESP, and Division of Marine Fisheries [DMF])	December 2019 December 2020 February 2021 May 2021 September 2021 January 2022 April 2022 September 2022 February 2023 May 2023	Project and scientific study updates
New York State Energy Research and Development Authority Environmental Technical Working Group	November 2021 December 2021 February 2022 November 2022 March 2023	Discussions on regional science priorities and coordination Development of new avian survey guidelines

Table 1-2 Consultations with agencies, municipalities, and tribes (Continued)

Group	Date	Topic
Federal Agencies		
Regional Wildlife Science Collaborative (including subcommittee meetings)	May 2022 June 2022 July 2022 August 2022 September 2022 October 2022 November 2022 December 2022 January 2023 February 2023 March 2023 April 2023 May 2023 June 2023	Discussions on regional science priorities and coordination
Rhode Island Coastal Resources Management Council	February 2020 August 2022 September 2022 November 2022 June 2023	Cable working group Federal Consistency Review Meetings
Local Agencies and Stakeholders/Municipalities/Tribes		
Barnstable: Town Council	March 2022	Project Introduction
Barnstable Open House & Information Events	April 2022 September 2022 November 2022 December 2022 January 2023 February 2023 March 2023 April 2023 May 2023 June 2023	Overview of project and project components; monthly meetings, either hybrid or virtual currently planned through August 2023
Town of Aquinnah	October 2022	Review of technical reports for Section 106 consultation
Chappaquiddick Wampanoag Tribe	April 2020 June 2021 November 2022 December 2022	Pre-survey meeting, project updates

Table 1-2 Consultations with agencies, municipalities, and tribes (Continued)

	Date	*Topic*
Local Agencies and Stakeholders/Municipalities/Tribes		
Mashpee Wampanoag Tribe (Tribal Historic Preservation Officer [THPO])	March 2020 March 2021 July 2021 November 2021 March 2022 April 2022 June 2022 October 2022 November 2022 February 2023	Pre-survey meeting/project update and introduction to New England Wind; Consultation on onshore Geotech investigations
Shinnecock Indian Nation Tribe	March 2020 March 2021 February 2022 October 2022 November 2022 February 2023	Pre-survey meeting Review of technical reports for Section 106 consultation
Wampanoag Tribe of Gay Head (Aquinnah) (THPO)	May 2020 March 2021 July 2021 December 2021 February 2022 July 2022 October 2022 November 2022 February 2023	Pre-survey meeting/project update and introduction to New England Wind; Consultation on onshore Geotech investigations
Narragansett Indian Tribe	March 2021 February 2022 February 2023	Pre-survey meeting
Mashantucket Pequot Tribal Nation	March 2021 February 2022 October 2022 (2) November 2022	Pre-survey meeting; Workforce Development; Review of technical reports for Section 106 consultation
Mohegan Tribe of Indians	February 2022 February 2023	Pre-survey meeting
Delaware Tribe of Indians	February 2022 November 2022 February 2023	Pre-Survey meeting

1.8.1.1 Massachusetts Energy Facilities Siting Board Staff

Project representatives met with the EFSB Director and staff on August 4, 2022, to introduce the Project and discuss its background, design, and schedule. As described in Section 1.7, petitions for EFSB review were filed on November 1, 2022.

1.8.1.2 Massachusetts Environmental Policy Act Office

Project representatives met with the MEPA Office on June 22, 2022, to review Project background, design, and schedule. Project representatives also met with representatives from CZM, MassDEP, NHESP, and MEPA on August 10, 2022, to review Project background, design, and schedule. Subsequent to the MEPA Filing in Fall 2022, virtual site visit/consultation meeting was held on November 15, 2022 and in-person MEPA consultation meeting was held on November 16, 2022 at the Osterville Village Library.

The Proponent had an additional meeting with the MEPA Director on February 28, 2023 to discuss the DEIR and Project updates.

1.8.1.3 Massachusetts Ocean Team

The Proponent has met with the agencies comprising the Massachusetts Ocean Team (CZM, MassDEP, MBUAR, DMF, and MEPA) to review Project background, marine surveys, and use of the same OECC as for Vineyard Wind and NE Wind 1 Connector for the offshore portion of the proposed transmission cables (see Table 1-2). Previous surveys within the OECC were also the subject of earlier discussions with the Massachusetts Ocean Team, and feedback from those discussions was incorporated into Survey and Sampling Plans. Several meetings have been convened with CZM, and frequently other agencies (e.g., DMF) are included in those discussions. The Proponent submitted a Federal CZM Consistency Statement for both phases of New England Wind (i.e., Park City Wind and Commonwealth Wind) on September 14, 2022. CZM and the Proponent are currently working together to ensure the agency receives the information it needs to address Project consistency.

1.8.1.4 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.

1.8.1.5 Tribes

As listed in table 1-2 above, the Proponent has consulted with numerous federally recognized tribes and other tribal organizations for the New England Wind Development as a whole. As the Federally recognized tribes in the Commonwealth, both the Mashpee Wampanoag Tribe and the

Wampanoag Tribe of Gay Head (Aquinnah) are given timely notices of onshore geotechnical work done by the Project to provide an opportunity to oversee ground disturbing work associated with Geotech investigations.

1.8.1.6 Town of Barnstable and Host Community Agreement (HCA)

As listed in Table 1-2 above, the Proponent and its representatives have introduced the Project to the Barnstable Town Council. In addition, the Proponent has attended multiple meetings with the Osterville Village Association (OVA) in April, June and September 2022 and holds monthly community open house meetings in Osterville.

Since the ENF was filed in the fall, the Barnstable Town Council authorized the Town Manager to enter into Host Community Agreement negotiations with the project Proponent on November 3, 2022. The Proponent has been in contact with the Town's attorney on the ongoing status of the PPA. The Proponent has made the Town aware that it intends to rebid the project and develop the full capacity of Commonwealth Wind lease area and is therefore proceeding with the permitting process. While formal HCA negotiations have been paused, the project engineers have met with both the Town Manager, Town Attorney, and the Town's Department of Public Works to discuss permitting concerns raised in the Town's MEPA comment letter. A follow up meeting was held in March 2023 with the Town's Engineers to discuss permitting and technically related items that impact the Town including project alternatives and sewer coordination. The Proponent hopes to continue discussions with the Town as the project design develops.

1.8.2 Stakeholder Coordination

The Proponent and its affiliates and predecessors have been partnering with Vineyard Power Cooperative on the NE Wind 1 and 2 Connectors. The Proponent 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 continues its development, and ultimately construction, the Proponent and Vineyard Power are committed to continuing the outreach efforts to ensure that local communities understand, welcome, and benefit from the 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 1-2, extensive and ongoing consultations have been conducted by the Proponent and its affiliates and predecessors and Vineyard Power, with key stakeholders. The Proponent frequently advertises outreach events social media, emails, and other media outlets to reach an array of stakeholders. The Proponent regularly invites the public to learn more about the Project through monthly open houses, where the Proponent's team members exhibit information in a public space and are available for questions or comments on NE Wind 2 Connector. The Proponent has held multiple information sessions and continues to hold open house sessions in Barnstable and across the Cape Cod and Islands region. The Proponent 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 Proponent 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 Science Alliance (ROSA), and the New York State Energy Research and Development Authority (NYSERDA) Fisheries Technical Working Group and NYSERDA Environmental Technical Working Group. The Proponent's parent, AVANGRID, is also a member of the Regional Wildlife Science Collaborative Industry Caucus and attends subcommittee meetings. AVANGRID also regularly attends the Rhode Island Fishermen's Advisory Board (FAB) meetings 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 Proponent'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 some of the additional groups that the Proponent 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
- Business Network for Offshore Wind
- Buzzards Bay Coalition
- Cape Cod Blue Economy Foundation
- 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
- Commercial Fisheries Center of Rhode Island
- Conservation Law Foundation
- Eastern Fisheries
- Environmental Business Council of New England
- Environmental Council of Rhode Island
- Environmental League of Massachusetts
- Fishing Partnership Support Services
- Greentown Labs
- Hyannis Port Civic Association
- 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
- National Academies of Sciences, Offshore Renewable Energy Development and Fisheries Conference
- NE Fisheries Sciences Center
- NE Fishery Management Council
- NE Fishery Sector Managers VII, VIII X, XI, XIII
- New Bedford Ocean Cluster

- New Bedford Port Authority
- New England Aquarium
- New England Energy and Commerce Association
- North Shore Chamber of Commerce
- One SouthCoast Chamber
- Osterville Angler's Club
- Osterville Business and Professional Association
- 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
- Sierra Club
- Stoveboat- Saving Seafood
- The Nature Conservancy
- University of Massachusetts (Dartmouth)
- University of Massachusetts (Amherst)
- University of Rhode Island Coastal Resources Center (CRC)
- West Barnstable Civic Association

The Proponent 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.

1.8.3 Abutter Outreach

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

In addition, the Proponent 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 and NE Wind 1 Connector, Proponent representatives plan 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.

1.9 Project Benefits

The NE Wind 2 Connector/Commonwealth Wind is 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 discussed in more detail below, and are expected to include:

- **Clean renewable energy at large scale and a high-capacity factor:** The location of the associated 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%. The Commonwealth Wind project will enable delivery of more than 1,200 MW to the regional electric grid, reducing ISO-NE CO_2e emissions by approximately 2.35 million tpy, the equivalent of taking 460,000 cars off the road (see Section 10.2). 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 more than 1,200 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 Area (SEMA), 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.
- **New employment opportunities:** The Proponent 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. In addition, the project will help induce employment at the Salem marshalling port and the Prysmian Cable manufacturing facility in Somerset.
- **Support for Massachusetts policies:** The Project is entirely consistent with, and critical to, the Commonwealth's emission reduction policies, including the GWSA goals. 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.

1.9.1 Energy Reliability Benefits

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

The energy delivered by NE Wind 2 Connector can supply almost double the peak load for all of Cape Cod. 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.

1.9.2 Economic and Community Benefits

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

- **Host Community Agreement**: The Proponent intends to negotiate and ultimately execute an HCA with the Town of Barnstable to provide funding to the Town for hosting the Project. The Proponent also intends to coordinate with the Town on the planned installation of a municipal sewer line along segments of the onshore cable route, thereby reducing overall disruption and helping to defray millions of dollars in sewer installation costs that the Town would otherwise incur.
- **Direct Economic/Supply Chain Development**: The project will catalyze two transformative local economic and supply chain developments. Commonwealth Wind intends to be a tenant to a new marshalling port in Salem. Second, Commonwealth Wind intends to purchase cables from a new manufacturing facility at Brayton Point in

Somerset, MA. In both of these instances, properties that were once the sites of coal burning power plants will be transformed to clean energy powerhouses that will serve the regional offshore wind industry.

- **Investment in Diversity Equity and Inclusion (DEI):** The DEI Plan for NE Wind 2 Connector/Commonwealth Wind includes significant funding for DEI, workforce, and supply chain initiatives that will support local content, increase diversity in the industry, and provide EJ Population residents and other underrepresented populations opportunities to join the offshore workforce and supply chain. To execute the DEI Plan, the Proponent has partnered with a diverse group of nonprofit partners located throughout Massachusetts. As part of the DEI Plan, the Proponent 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 Proponent will also include an additional substantial investment in local partnerships and programs beyond the DEI Plan discussed in the preceding paragraph.
- **Community Benefits, Environmental Benefits, and Innovation Initiatives:** The Proponent intends to make significant investments in education, innovation, and environmental initiatives to benefit local communities. The Proponent 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 Proponent 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 Proponent estimates the Project will create 11,000 FTE direct job years.

1.9.3 Environmental Benefits

The Project's important environmental benefits are described below.

1.9.3.1 Emissions

Table 1-3 quantifies the emissions associated with fossil fuel power plants that would be avoided annually by using electricity generated from the offshore wind energy generation facility in federal waters that will be interconnected by the Project. The avoided emissions analysis uses Northeast Power Coordinating Council (NPCC) New England air emissions data from EPA's Emissions & Generation Resource Integrated Database (eGRID2018(v2) released March 2020). The avoided emissions analysis assumes a total nameplate capacity of 1,200 MW and an annual capacity factor of 50%. Constituents included in the analysis are CO_2, NOx, and SO_2.

Table 1-3 Avoided Air Emissions in New England (estimated)

Pollutant	***CO_2e***	***NOx***	***SO_2***
Annual Avoided Emissions (tons/year)	2.35 million	1,255	666

As shown in this analysis, the Project would result in substantial emissions reductions in the New England region. The Project will also 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. This is particularly important given that several large electrical generators in New England have recently retired, are slated for retirement, or are approaching the end of life. According to ISO-NE (2022a), 1,829 MW of coal, 1,332 MW of residual oil, and 1,281 MW of nuclear-fired power generation facilities retired between 2011 and 2020.[12] ISO-NE has identified another 5,000 MW of oil and coal capacity "at risk" for retirement in the coming years.[13]

A reduction in GHG emissions will have wide-reaching benefits for terrestrial, avian, and marine life as well as the human environment. By reducing regional reliance on fossil fuels, the Project will help mitigate climate change damages.

Furthermore, the Project will also reduce SOx, NOx, VOC, and particulate matter emissions that contribute to acid rain, ocean acidification, and ground level ozone/smog, which can damage sensitive ecosystems and other resources, as well as air contaminants, which lead to early death, heart attacks, respiratory disorders, stroke, and exacerbation of asthma.

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[12] ISO New England. 2022. 2020 ISO New England electric generator air emissions report. https://www.iso-ne.com/static-assets/documents/2022/05/2020_air_emissions_report.pdf

[13] ISO New England. 2022. Resource mix. https://www.iso-ne.com/about/key-stats/resource-mix/

1.9.3.2 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. As described in the CWMP, "The 30-year plan is comprised of three 10-year phases, predominantly focused on sewer expansion. Each phase consists of multiple individual projects that will proceed through permitting. 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. In addition to meeting water quality thresholds, the plan is designed to provide the wastewater infrastructure needed to support community economic development and affordable housing needs."[14]

The Proponent intends to coordinate with the Town on the planned installation of municipal sewer infrastructure along the selected route for the NE Wind 2 Connector onshore export cables which may result in benefits and significant cost savings for the Town. This coordination will build off of coordination efforts for the Vineyard Wind Connector and NE Wind 1 Connector projects, which are both coordinating their construction activities with the Town of Barnstable's sewer installation pursuant to HCAs. This coordination is beneficial to the Town and local residents and businesses as it reduces the potential need to disrupt local roads and neighborhoods with repeat construction activities, coordinates utility corridors, and provides significant cost savings. The cost savings arise due to the fact that the Proponent will pay for pre-design investigative work and the final coating and repaving.

[14] https://barnstablewaterresources.com/comprehensive-waste-water-management-plan/

Section 2.0

Project Description

2.0 PROJECT DESCRIPTION

Portions of the Project within state geographic jurisdiction, and hence the focus of this document, include the entire onshore route (including substation) and the portion of the OECC in state waters (see Figure 1-1). This section describes the proposed NE Wind 2 Connector and includes more detailed discussions of the offshore and onshore buried transmission cables in state jurisdiction as well as proposed substation infrastructure.

After leaving federal waters and crossing into state waters between Martha's Vineyard and Nantucket and continuing north, the proposed offshore export cables will pass through an additional smaller area of federal waters located within Nantucket Sound before re-entering state waters and making landfall. To avoid potentially confusing fragmentation of the discussion of offshore transmission, the approximately 5.5-mile-long crossing of the pocket of federal waters within Nantucket Sound (see Figure 1-1) is included in the description of offshore export cable routing in this document. All Project elements within state jurisdiction are described below.

2.1 Offshore Transmission

The Commonwealth Wind offshore wind energy generation facility proposed in federal waters will connect to underground transition joint bays located beneath a paved parking lot at Dowses Beach (the landfall site) via three 275-kV high voltage alternating current (HVAC) offshore export cables. The proposed offshore export cables will be installed within an OECC previously identified through consultations with the Massachusetts Ocean Team and multiple seasons of marine surveys (see Figure 2-1 as well as Section 2.1.3). The OECC will pass through state waters in the offshore areas of Edgartown, Nantucket, Barnstable, and Mashpee before making landfall in Barnstable. All sections of the cable route within state waters lie within the Massachusetts Ocean Management Plan (OMP) planning area.

The Project's proposed offshore export cables will be installed within a shared OECC (referred to as the Primary OECC). The Primary OECC will travel from the northwestern corner of the portion of Lease Area OCS-A 0534 that will be utilized for the Commonwealth Wind project, 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 that was proposed for the Vineyard Wind Connector 1 and NE Wind 1 Connector.). The portion of the OECC associated with the NE Wind 2 Connector Project not previously reviewed as part of the Vineyard Wind Connector and/or NE Wind 1 Connector projects is located in Centerville Harbor where the corridor diverges from the Primary OECC to make landfall within the existing paved parking lot at Dowses Beach in Barnstable. This small segment of the NE Wind 2 Connector OECC totals approximately 488 acres (see orange shading on Figure 1-3). Using a substantially shared OECC provides an efficient, consolidated route from the lease areas to the point of landfall divergence, and minimizes environmental, operational, and commercial impacts relative to longer alternative routes.

The offshore export cables will be installed within the shared OECC, but with sufficient separation to allow for safe installation and any future repair work, if required as further described in Section 2.1.2.

From the lease area in federal waters to the parking lot at the landfall site, the maximum length of the OECC in state waters is approximately 22 miles (35 km), and its maximum length in both federal and state waters is up to approximately 47 miles (76 km). Due to micro-siting of cables within the OECC to maximize constructability and minimize impacts to sensitive habitats, the maximum length per cable within the Primary OECC is approximately 23 miles (37 km) in state waters and approximately 51 miles (81 km) in state and federal waters combined. While the OECC ranges in width from approximately 3,100 to 5,500 feet along the portions located in Massachusetts state waters, with a typical width of 3,500 feet, the offshore export cables are only approximately 12 inches in diameter, leaving most of the OECC unoccupied. The full OECC width provides routing flexibility and sufficient surveyed area for anchor spreads from installation vessels. Additional detail regarding the OECC is provided below in Section 2.1.3.

Installation of the offshore export cables is described in more detail in Sections 5.1 and 12.1.

2.1.1 Cable Type

Three 275-kV HVAC offshore export cables will deliver power from the Commonwealth Wind project's offshore wind energy generation facility to the landfall site in Barnstable. Each offshore export cable will consist of three cores for power transmission and one or more fiber optic cables[1] for communication, temperature measurement, and protection of the high-voltage system (see Figure 1-5). Each cable, which will be approximately 12 inches in diameter, will typically include three copper or aluminum conductors, with each conductor encapsulated by solid cross-linked polyethylene (XLPE) insulation. Water-blocking sheathing will be used to prevent water infiltration. Specific cable designs and cable technologies continue to evolve. The three insulated conductors will be twisted with a synthetic filler between the conductors, and the twisted or bundled conductors will then be wrapped in stainless steel wire and polyethylene rod armoring and finally encased in a tough outer sheath. This AC offshore cable system will not contain any fluids, and has been used extensively on European offshore wind projects.

2.1.2 Cable Spacing

The U.S. Bureau of Safety and Environmental Enforcement's (BSEE's) Offshore Wind Submarine Cable Spacing Guidance notes:

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[1] Fiber optic cables are typically integrated into the offshore export cable but may be bundled externally to the export cable. In either scenario, the fiber optic and export cables would be installed simultaneously.

There is no one size fits all solution or single "rule of thumb" in terms of defining cable spacing. Due to the considerable variation in local issues and circumstances, the spacing between cables should be considered on a case-by-case basis incorporating all relevant information (e.g., shipping and fishing data, ground conditions, installation, and repair techniques) and taking into account site/route-specific risk assessment.[2]

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 approximately 164 to 328 feet (50 to 100 m) 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. Spacing will be adequate to minimize the risk of damaging previously installed cable while providing sufficient space for the activities noted above.

2.1.3 Offshore Export Cable Corridor (OECC)

Offshore wind projects are unique infrastructure that utilize rapidly changing technologies deployed in a dynamic marine environment. The high-energy marine environment can cause features like shoals to be in a constant state of change, resulting in corresponding water depth changes. Experience in the offshore wind industry in Europe as well as offshore cable installations in the U.S. has demonstrated that the use of an installation "corridor" can provide flexibility in the engineering and installation stages to maximize the likelihood of successful cable burial while also avoiding and minimizing environmental impacts.

This section describes how the OECC was developed and optimized for the Project. Specifically, Section 2.1.3.1 describes the framework for offshore export cables in state waters, Section 2.1.3.2 identifies the marine surveys that were completed to identify the OECC, and Section 2.1.3.3 provides a description of the proposed OECC.

2.1.3.1 Massachusetts Ocean Management Plan

The OMP, initially released in 2009 and subsequently revised in 2015 and again in 2021, creates a framework for managing uses and activities within the state's ocean waters, including offshore wind projects and associated transmission. As described in this section and in Section 3.4, the Proponent considered the OMP carefully in identifying potential offshore corridors. A large part of the planning process for the OMP was devoted to mapping and evaluating natural resources and existing water-dependent uses (e.g., navigation and fishing), and identifying which of these resources and uses may be sensitive to different types of projects, such as transmission cables (export cables). A transmission cable is an allowable use per the OMP, which defines siting and

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2 BSEE, Offshore Wind Submarine Cable Spacing Guidance (2014) at 16, available at https://www.boem.gov/sites/default/files/renewable-energy-program/Studies/TAP/722AA.pdf.

performance standards. More specifically, the OMP identifies special, sensitive, and unique (SSU) resources that particular types of projects must endeavor to avoid. For cable projects, SSU areas are: (1) core habitat of the North Atlantic right whale, fin whale, and humpback whale; (2) hard/complex seafloor; (3) eelgrass; and (4) intertidal flats. For this Project, North Atlantic Right Whale core habitat, hard/complex seafloor, and eelgrass are all mapped within the general Project area. As described in Section 3.4, which addresses Project consistency with the OMP, the OECC has been selected to avoid the North Atlantic Right Whale core habitat and to minimize the areas of hard/complex bottom that may be affected. The landfall site has been assessed and selected partially on the basis of avoiding mapped eelgrass habitat.

In addition, the OMP identifies some preliminary corridors for offshore wind transmission cables that are in presumptive compliance with siting standards of the OMP. The Proponent considered these corridors while assessing offshore routing alternatives, but they were unsuitable for the Project given that water depths within the mapped preliminary corridors are frequently too shallow, a landfall in Barnstable is needed to minimize onshore and offshore routing distance (mapped preliminary corridors do not include a landfall site in that town), and the Project is proposed to pass through federal waters in Nantucket Sound to minimize routing distance. Offshore routing cannot be considered in isolation, but rather must be combined with suitable landfalls, onshore routes, a workable grid interconnection point, and substation locations.

Figure 2-1 and the map set in Attachment H1 show the proposed OECC along with SSU areas delineated based on marine survey results. As previously described, the OECC is largely the same corridor proposed for the NE Wind 1 Connector, which is itself largely the same as the corridor approved for the Vineyard Wind Connector (the difference between those corridors being certain width expansions proposed for the NE Wind 1 Connector, distinct landfall points at the northern terminus of the OECC, and a short variant route for a portion of the crossing through the Muskeget channel included only for Vineyard Wind Connector and NE Wind 2 Connector).

2.1.3.2 Marine Surveys to Identify OECC

An initial analysis of potential offshore export cable routes began in 2017 in the context of investigating route options for the Vineyard Wind/Vineyard Wind Connector project. This early analysis considered a number of factors, including mapping of SSU areas from the OMP, bathymetric data, the locations of navigation corridors, water currents, and mapped obstacles such as rock outcroppings and shipwrecks.

In 2017, building off results from the initial desktop study, an initial geophysical survey was performed along more than 180 miles (156 nautical miles, or 290 km) of potential offshore route segments to find a suitable route for linking Lease Area OCS-A 0501[3] to the south shore of Cape Cod. Geotechnical surveys and environmental sampling (e.g., benthic grab samples and

[3] BOEM segregated Lease Area OCS-A 0501 into two lease areas – OCS-A 0501 and OCS-A 0534 – in June 2021. At the time of this survey (2017), Lease Area OCS-A 0501 had not yet been segregated into two lease areas.

underwater video) of the potential corridors were also performed in 2017 (at the time focused on Barnstable and Yarmouth). This field program was performed in accordance with a Survey and Sampling Plan that was the product of consultations with the Massachusetts Ocean Team as well as consideration of the 2015 OMP; the Massachusetts Ocean Team consists of representatives from Massachusetts Office of Coastal Zone Management (CZM), MassDEP, Division of Marine Fisheries (DMF), Massachusetts Board of Underwater Archaeological Resources (MBUAR), and the MEPA Office.

The initial geophysical survey included the following:

- A single geophysical trackline along each offshore route alternative, consisting of a 164-foot-wide (50-meter-wide) swath of multi-beam sidescan sonar and sub-bottom profiling;
- Additional geophysical tracklines in areas where route alternatives pass in proximity to mapped SSU areas to map the resources' areal extent and determine a path for avoidance; and
- Additional geophysical tracklines in areas where adverse site conditions were identified (e.g., shallow water depths, difficult surficial geology).

Results from the initial geophysical survey were used to identify potential routes for the OECC. Additional data collection as outlined below was then conducted:

- Vibracore sampling at a spacing of approximately 3,280 feet (1,000 m), with additional vibracores added where needed to verify subsurface sediment horizons interpreted from subbottom data (vibracore locations were selected in consultation with the Proponent's Qualified Marine Archaeologist);
- Benthic grab samples (with still camera photographs), at a spacing of approximately 3,280 feet (1,000 m), with locations alternating with video transects for a combined approximately 1,640-foot (500-meter) spacing; and
- Underwater video transects oriented perpendicular to the OECC at a spacing of approximately 3,280 feet (1,000 m) along the corridors and additional transects as dictated by review of survey data and in the vicinity of mapped SSU areas.

The initial desktop study performed prior to the 2017 geophysical survey showed that the surficial geology within Nantucket Sound consists of Holocene sediments, mostly silt/clay or medium to coarse sand with minor amounts of gravel, and Pleistocene glacial drift deposits, mostly outwash sand and gravel and glacial lake silt and clay.[4] The 2017 survey, which included the acquisition of bathymetry, side-scan sonar, seismic profiling, magnetometer, underwater video, grab sample, and vibracore data, showed mostly loose to medium dense sandy sediments in the surveyed

4 Charles J. O'Hara and Robert N. Oldale. Maps showing geology and shallow structure of eastern Rhode Island Sound and Vineyard Sound, Massachusetts. U.S. Geological Survey, 1980.

areas, confirming the findings of the desktop study. In addition, areas with significant sand waves and some hard-bottom areas with gravel, cobbles, and boulders were identified. Although the vibracores did not clearly indicate the presence of hard-bottom areas in Muskeget Channel, the geophysical survey showed a higher concentration of boulders and more extensive bottom coverage with coarse material in that area relative to areas outside of Muskeget Channel.

Results from the 2017 preliminary survey were used to narrow the focus of the routing analysis and distill the offshore route segments into two OECCs: a Western OECC and an Eastern OECC. The Eastern OECC traveled north between Martha's Vineyard and Nantucket via Muskeget Channel, passing east of the scoured channel itself and continuing northward on the east side of Horseshoe Shoals to landfall sites at New Hampshire Avenue in Lewis Bay and Great Island. The Western OECC also traveled north between Martha's Vineyard and Nantucket via Muskeget Channel and included two possible variations through the channel: the western Muskeget option, which traveled through the channel itself, where water depths are greater but are accompanied by stronger currents, and the eastern Muskeget option, which avoided the scoured channel. The Western OECC then continued northward on the west side of Horseshoe Shoals. As the Western OECC approached the Cape Cod mainland, it initially included options for reaching landfall sites at Covell's Beach, New Hampshire Avenue, or Great Island.

After extensive review and based on the results of additional geophysical and geotechnical surveys of the OECC in the spring of 2018, the Eastern OECC was eliminated from further consideration. The Western OECC was selected as the optimal route because it is technically suitable for cable installation, is more direct, contains a smaller proportion of complex bottom, has a lower frequency of sand waves above 6.6 feet (2 m), and otherwise avoids or minimizes potential environmental impacts. A shorter route allows for less impact area, lower electrical line losses, and lower installation and operational costs.

The 2018 marine survey included data collection along multiple lines (50-foot [15-meter] line spacing in state waters and 100-foot [30-meter] line spacing in federal waters) within the OECC still under consideration. This was a high-resolution, detailed survey covering the entirety of the OECC at the time to document and assess all areas of potential seabed disturbance. After the 2018 survey, Covell's Beach in Barnstable was selected as the landfall site for the Vineyard Wind Connector, and the site in Yarmouth was eliminated from the project.

Along the OECC, the 2018 survey consisted of a full geophysical equipment spread (i.e., multibeam echosounder, side scan sonar, magnetometer, high- and low-frequency subbottom profilers) used on the majority of lines to provide complete coverage of the survey corridor. Surficial ground-truthing was provided by benthic grab samples, underwater video, and shallow subsurface confirmation of lithologies obtained via vibracores and cone penetration tests (CPTs). The extensive 2018 survey effort in the OECC included more than 2,860 nautical miles (5,300 km) of geophysical trackline data, 147 vibracores, 100 CPTs, 75 benthic grab samples with still photographs, and 44 underwater video transects. The focus of the investigations was the upper 2 to 3 meters of seafloor sediments, where export cable burial is planned.

Results from the 2018 survey enabled the Proponent to confirm previous findings and to refine the extent of OMP-mapped SSU areas (i.e., hard bottom, complex bottom, and eelgrass). The resulting delineations of hard bottom, complex bottom, and eelgrass were used to develop initial cable alignments for the Vineyard Wind Connector within the OECC that avoided and minimized impacts to these areas to the extent feasible. Additional engineering analyses performed during the refinement of the Vineyard Wind Connector cable alignments resulted in the identification of the eastern Muskeget option as the preferred means of traversing the Muskeget Channel area for that project. The western Muskeget option (Western Muskeget Variant) has been retained for the NE Wind 2 Connector to provide space and flexibility to ensure all three proposed cables can be accommodated. A map set illustrating the physical characteristics of the seafloor within the OECC as well as within the western Muskeget option is provided as Attachment H1.

In addition to the breadth of marine survey data already collected within the OECC, marine survey work was conducted in 2019 to widen the nearshore survey area to the west to encompass the Craigville Public Beach Landfall Site (i.e., the landfall site for the NE Wind 1 Connector).

In 2020, the Proponent conducted additional marine surveys focused on areas of the OECC that were expanded to accommodate NE Wind 1 Connector cables as well as the OECC spur to the Dowses Beach Landfall Site and the Western Muskeget Variant for the NE Wind 2 Connector (otherwise, the Primary OECC for the NE Wind 2 Connector is the same as for the NE Wind 1 Connector). This additional survey work ensured full coverage of the OECC proposed for the NE Wind 2 Connector. While the Proponent intends to install all NE Wind 2 Connector offshore export cables within the Primary OECC that travels through the eastern side of Muskeget Channel towards the landfall site in the Town of Barnstable, the Proponent is reserving the fallback option to install one (and up to two) cables along the Western Muskeget Variant.

Extensive survey and engineering analyses of potential OECCs have resulted in a thoroughly vetted and studied route that connects the Lease Area in federal waters to the south shore of Cape Cod. Using a substantial portion of this well-studied OECC provides the most optimal approach for the NE Wind 2 Connector. Project engineers have determined that the OECC can accommodate the additional cables proposed for the NE Wind 2 Connector, with inclusion of the Western Muskeget Variant. The OECC has a typical width of approximately 3,500 feet (1,060 m), and its width ranges from approximately 3,100 to 5,500 feet (950 to 1,700 m).

Results from the marine survey efforts performed from 2017 through 2020 have been compiled in a plan set, provided as Attachment H1, which presents information that includes, but is not limited to, bathymetry, select video still images, benthic habitat characterization, and delineation of hard bottom, complex bottom, and eelgrass. Tables 2-1 and 2-2 summarize the marine survey data and results along the OECC and the Western Muskeget Variant, respectively.

Table 2-1 Summary of Marine Survey Data and Results in the OECC

Item	Description
Data	• > 3,407 nautical miles (nmi) (>6,310 km) of geophysical trackline data over a 2,182- to 5,479-foot-wide (665 to 1,670-meter-wide) corridor • Two deep boreholes • Three deep downhole (DH) CPTs • 192 vibracores • 134 seabed CPTs • 163 benthic grab samples with still photos • 119 underwater video transects
Surface conditions	• water depths <6.6 to 148 feet (<2 to 46 m), local slopes up to 25-30° on bedforms • numerous natural slope/topography, <10° gradients • overall fairly homogenous surficial sediments, mainly sand • mobile surface layer with sand waves >6.6 feet (>2 m) height locally • sand with some gravel, cobbles in shallow, higher current areas • localized concentrations of boulders with gravel and sand (Spindle Rock, Gannet Rocks, Collier Ledge) in the northern portion of the OECC • sand with silt in deeper water areas, less tidal current • soft surficial layer offshore in deeper water, immediately seaward of the offshore slope south of Muskeget in depths of 82 to 98 feet (25 to 30 m) • variable benthic habitats due to different substrates • SSUs present locally
	• Rippled Scour Depressions (RSDs) offshore, bedform fields with isolated, larger sand waves over 16.4 feet (5 m) in Nantucket Sound • coarse deposits with boulders in Muskeget Channel area • overall low concentration of man-made objects with moderate concentration locally • sediments relatively consistent, sand with coarse material particularly in higher current areas and silt in deeper and quiescent locations
Subsurface conditions	• abundant buried channels north of Horseshoe Shoal, no unusual sediments of concern identified • fine grained, organic-rich layers associated with channel bank/terrace deposits adjacent to some paleochannels • often acoustically transparent mobile sand layer • coarse deposits with boulders in Muskeget Channel area

Table 2-1 Summary of Marine Survey Data and Results in the OECC (Continued)

Item	*Description*
Hazards	• large sand waves in some areas • paleochannels with top sections in the upper 6.6 feet (2 m), all sediments sampled by geotechnical investigations and pose no threat to cable installation • localized subsurface gas in Centerville Harbor, no issue for cable installation • Coarse deposits with boulders in Muskeget Channel area
Assessment	• Predominantly sand with gravel in higher current areas and silt-in deeper, low flow locations. • Coarser deposits and associated habitats in Muskeget Channel area, as well as large sand waves and high currents to contend with during installation, no fatal flaws identified. • Export cables can be micro-sited within the OECC to avoid most challenging conditions and SSUs where feasible. • Dredging may be necessary to remove the tops of large sand waves; only short-term disturbance to the habitat.

Table 2-2 Summary of Marine Survey Data and Results in the Western Muskeget Variant

Data/Results	*Summary*
Data	• 424 nmi (785 km) of geophysical trackline data over 0.4 to 0.5 nmi (800 to 1,000 m) wide corridor • 15 shallow CPTs • 22 vibracores • 11 benthic grab samples with still photos • Six underwater video transects
Surface conditions	• water depths ~10 to 144 feet (~3 to 44 m), local slopes up to 30° on bedforms • numerous natural slopes/topography, <10° gradients • overall homogenous surficial sediments, mainly sand • mobile surface layer with sand waves >26 feet (>8 m) height locally • sand with some gravel, cobbles in shallow, higher current areas • variable benthic habitats due to different substrates; some sensitive habitats possible locally • coarse deposits with boulders in Muskeget Channel area • overall low concentration of man-made objects with moderate concentration locally • sediments relatively consistent, sand with coarse material particularly in higher current areas and silt in deeper and quiescent locations

Table 2-2 Summary of Marine Survey Data and Results in the Western Muskeget Variant (Continued)

Data/Results	Summary
Subsurface conditions (Continued)	• fine grained, organic-rich layers associated with channel bank/terrace deposits adjacent to some paleochannels • often acoustically transparent mobile sand layer • coarse deposits with boulders in Muskeget Channel area
Hazards	• large sand waves in some areas • paleochannels with top sections in the upper 6.6 feet (2 m), all sediments sampled by geotechnical investigations and pose no threat to cable installation • coarse deposits with boulders in Muskeget Channel area • possible sensitive habitats for avoidance, if possible, mainly Muskeget area • potential isolated man-made objects in the corridor, two debris pile/possible shipwrecks in the northern part of the Western Muskeget Variant
Assessment	• Predominantly sand, with small amounts of gravel in higher current areas • Coarser deposits and associated habitats in Muskeget Channel area, as well as large sand waves and high currents to contend with during installation, no fatal flaws identified. • Export cables can be micro-sited in most places within the Western Muskeget Variant to avoid the most challenging conditions and sensitive habitats where feasible. • Dredging may be necessary to remove the tops of large sand waves; only short-term disturbance to the habitat.

The principal technical and environmental considerations and constraints factoring into the geography of the OECC include:

- Feasibility of cable installation;
- Burial risk assessment/work to limit possibilities of cable failure;
- Avoiding and/or minimizing impacts to SSU areas mapped in the OMP;
- Avoiding and/or minimizing anchorage areas and areas with mapped shipwrecks and boulders;
- Environmental and/or permitting constraints and avoidance of impacts;
- Minimizing cable length to reduce transmission losses and cost;
- Adequate capacity delivered to the grid connection point;
- Available landfall locations;
- Maintaining a suitable water depth (typically of at least 20 feet [6 m]), and avoiding shoals;

- Avoiding slopes where the seafloor bathymetry changes dramatically; and
- Crossing large seabed slopes and existing offshore cables in a perpendicular, or nearly perpendicular, orientation.

The OECC is described below.

2.1.3.3 Description of the OECC

As described in Section 2.1, the Project's proposed offshore export cables will be installed within a shared OECC (referred to as the Primary OECC). The Primary OECC will travel from the northwestern corner of the portion of Lease Area OCS-A 0534 that will be utilized for the Commonwealth Wind project, 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 that was proposed for the Vineyard Wind Connector 1 and NE Wind 1 Connector. The portion of the OECC associated with the NE Wind 2 Connector Project not previously reviewed as part of the Vineyard Wind Connector and/or NE Wind 1 Connector projects is located in Centerville Harbor where the corridor diverges from the Primary OECC to make landfall within the existing paved parking lot at Dowses Beach in Barnstable. This small segment of the NE Wind 2 Connector OECC totals approximately 488 acres (see orange shading on Figure 1-3). Using a substantially shared OECC provides an efficient, consolidated route from the lease areas to the point of landfall divergence, and minimizes environmental, operational, and commercial impacts relative to longer alternative routes.

The OECC will pass through state waters in the offshore areas of Edgartown, Nantucket, Barnstable, and Mashpee before making landfall in Barnstable (see Figure 2-1). All sections of the offshore export cable route within state waters lie within the OMP planning area. The OECC has a typical width of approximately 3,500 feet (1,060 m), and its width ranges from approximately 3,100 to 5,500 feet (950 to 1,700 m). The maximum length of the OECC in state waters is approximately 22 miles (35 km), and its total length in both federal and state waters is approximately 47 miles (76 km).

In the planning stage for the NE Wind 1 Connector, the OECC was widened from its previous dimensions established for the Vineyard Wind Connector by approximately 984 feet (300 m) to the west along the entire corridor and by approximately 984 feet (300 m) to the east in portions of Muskeget Channel. The Primary OECC is the preferred route for the NE Wind 2 Connector, however, the Proponent proposes a supplemental route option through the Western Muskeget as a Variant (see Figure 2-1). This Variant would be utilized in the event technical or space constraints necessitate that one or up to two cables need to be placed within the Western Muskeget Variant due to installation and micro-siting of the cables for Vineyard Wind Connector and NE Wind 1 Connector. Accordingly, the three possible scenarios are:

1. Three cables are installed in the Primary OECC;

2. Two cables are installed in the Primary OECC, and one cable is installed in the Western Muskeget Variant; or
3. One cable is installed in the Primary OECC, and two cables are installed in the Western Muskeget Variant.

Table 2-3 defines 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 the table).

Table 2-3 Summary of OECC and Offshore Export Cables (rounded to the nearest mile)

Summary Information	*Federal Waters (miles)*	*State Waters (miles)*	*Total (miles)*
OECC			
Maximum Length of Primary OECC[1]	25	22	47
Maximum Length of OECC[1] using the Western Muskeget Variant	25	20	45
Offshore Export Cables			
Maximum length of each cable within the Primary OECC[2]	28	23.0	51
Maximum length of each cable within the OECC using the Western Muskeget Variant	28	21	49

Notes:

1. The length of the OECC is measured from the offshore edge of the corridor at the landfall site to the northwest corner of Lease Area OCS-A 0534. An additional length of offshore export cable within the portion of Lease Area OCS-A 0534 that will be utilized for Commonwealth Wind (up to approximately 26 miles [approximately 42 km] per cable, but likely less) will be needed to reach the electrical service platform(s).
2. The offshore export cable length a 5% allowance for micro-siting within the OECC outside the lease areas.

Offshore export cables within the OECC will typically be separated by approximately 165-330 feet (50-100 m) 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-meter) 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 (see Sections 5.1 and 12.1 for more detailed discussions regarding installation methods and associated impacts). The final cable alignments for the NE Wind 2 Connector will be developed to avoid crossing cables installed for the Vineyard Wind Connector or NE Wind 1 Connector.

Prior to cable installation, a pre-lay grapnel run and pre-lay survey will be performed to clear obstructions and inspect the route. Large boulders along the final cable alignments 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 within the stable seabed. Each offshore export cable will be installed at a target depth of 5 to 8 feet (1.5 to 2.5 m). 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 (see Sections 5.1.1 and 12.1). To facilitate cable installation, anchored vessels may be used along the entire length of the offshore export cables.

The Primary OECC provides a relatively direct route for connecting the offshore wind energy generation facility proposed for Commonwealth Wind to the landfall site in Barnstable. A shorter route allows for less impact area, lower electrical line loses, and lower installation and operational costs. 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 OMP, completely avoiding core habitat of the North Atlantic Right Whale and eelgrass while minimizing impacts to hard or complex bottom. Results from the marine survey efforts from 2017 through 2020 have been compiled onto the plan set provided as Attachment H1, 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.

2.2 Offshore to Onshore Transition

The transition from offshore to onshore will be accomplished using horizontal directional drilling (HDD) at the landfall site. The HDD operation will install high density polyethylene conduits through which the subsea cables will be routed. Use of this trenchless methodology will avoid Project-related impacts to the beach, intertidal zone, and nearshore areas, and will allow the cables to remain sufficiently buried and permanently out of the human environment at the shoreline. The HDD methodology is described in detail in Section 12.2, and wetlands impacts associated with the method are described in Section 5.2.

The transition from the offshore export cables to onshore export cables will be made in underground concrete transition joint bays (three total, one per subsea cable) that will be installed beneath the paved parking lot at the landfall site (see Figure 1-6 as well as Attachment C3 for engineering plans depicting the HDD operations). Small duct banks from each transition joint bay will join into a single duct bank for all three circuits in the paved parking lot. Following construction, manhole covers (two per joint bay) will be the only visible components of the cable system buried within the parking lot.

As described in Section 12.2, HDD activities will be sequenced to maintain public access to the paved parking lot as well as the adjacent beach and pier to the maximum extent practicable. A sequenced visual rendering of HDD phasing showing existing conditions, construction-period conditions, and post-construction conditions at the landfall site is provided as Attachment P.

2.3 Onshore Transmission

This section describes the technology and routing associated with proposed onshore transmission. Environmental constraints for onshore Project components are shown on Figure 2- 2.

2.3.1 Cable Type

As with the offshore export cables (described in Section 2.1.1), cross-linked polyethylene plastic (XLPE) insulation will be used for the Project's onshore cables (see Figure 1-7). XLPE cables are solid dielectric cables that do not contain any type of insulating fluids, and they have been proven to be more reliable with greater ease of handling than high-pressure fluid-filled (HPFF) and oil-impregnated cables. XLPE also allows for standard and quicker jointing and termination.

The proposed offshore and onshore export cables are described in greater detail in Sections 1.4.2 and 1.4.4, respectively.

2.3.2 Preferred Route (Main Street)

As shown on Figures 1-4 and 2-2, the Preferred onshore transmission route for the cables from the landfall site to the proposed onshore substation is located entirely within public roadway layouts or within the existing paved parking lot area at Dowses Beach and has a total length of approximately 6.7 miles. As shown in Table 2-4, the route begins underneath the paved parking lot at the landfall site and proceeds generally west on the existing paved causeway to East Bay Road. From there the route proceeds approximately 0.2 miles in a southerly direction underneath East Bay Road. At the end of East Bay Road, the route turns northwest under Wianno Avenue, which it follows for approximately 0.9 miles to Main Street. The route continues north under 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 under Old Stage for approximately 0.2 miles to the Oak Street intersection. Turning north under Oak Street, the route follows Oak Street for approximately 1.0 mile before turning west under 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.

Table 2-4 Preferred Onshore Export Cable Route Summary (Main Street)

Road Segment (from landfall to substation site)	***Approximate Length (miles)***
Dowses Beach Causeway	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 trenchless crossing of Route 6 onto the proposed substation site will be accomplished via microtunnel, which is described in greater detail in Section 2.3.6.

2.3.3 Noticed Alternative Route (Old Mill Road)

The Noticed Alternative onshore transmission route is located entirely within public roadway layouts or within the existing paved parking lot at the landfall site and has a total length of approximately 6.6 miles (see Figures 1-4 and 2-2). As shown in Table 2-5, it begins in the paved parking lot at the landfall site and proceeds generally northwest on the existing paved causeway to East Bay Road. From there the route travels approximately 0.7 miles in a northwesterly direction under 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 under Old Mill Road, Bumps River Road, and Five Corners Road. The route then turns to the northwest under 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 under that road for approximately 1.0 mile before turning westward under Service Road and continuing another 0.2 miles to a staging area for the trenchless crossing of Route 6 to the proposed substation site.

Table 2-5 Proposed Noticed Alternative Onshore Export Cable Route Summary (Old Mill Road)

Road Segment (from landfall to substation site)	*Approximate Length (miles)*
Causeway	0.2
East Bay Road	0.7
Old Mill Road, Bumps River Road, and Five Corners Road	1.7
Lumbert Mill Road	1.5
Osterville-West Barnstable Road	0.1
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	**6.6**

2.3.4 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. The Main Street Variation provides the flexibility to respond to changing circumstances during the environmental review process should East Bay Road or Wianno Avenue become the preferred route segment in this area based on more detailed engineering design and additional community and stakeholder outreach. In addition, the Main Street Variation allows for flexibility as discussions advance with the Town of Barnstable regarding the potential to coordinate with future proposed sewer projects.

2.3.5 East Bay Crossing

Multiple methodologies have been considered for installing the proposed duct bank/onshore export cables from the landfall site to the mainland across East Bay. The option of installing the cables using aboveground/overhead structures was not considered a viable option and was eliminated from further analysis early in the Project design; thus, is not described in this document. Remaining alternatives are described below.

2.3.5.1 Causeway Duct Bank Installation

The preferred option for duct bank and cable installation towards East Bay Road is to install the buried concrete duct bank underneath the pavement of the existing causeway that separates East Bay from Phinneys Bay (see Figure 1-6 as well as Attachment C6). This alignment would contain ground disturbance within the previously disturbed roadway layout. For the short distance where the duct bank would require crossing an existing culvert that conveys tidal flow between East Bay and Phinneys Bay, additional attention will be required to avoid disturbing the culvert, which was installed in 2005. The duct bank conduits will be spaced in a single row underneath the pavement (12 wide by 1 deep) and will be contained in an independent structural span constructed of pre-cast concrete above the existing box culvert but beneath the pavement. Each concrete span plank will contain three voids to accommodate eight-inch-diameter PVC conduits. The concrete planks will sit on two concrete footings, which will be supported by piles driven to the necessary depth. A continuous metallic sheet in an inverted "U" shape will span the entire top of the duct bank and extend down both sides (see Attachment C6). The proposed use of metallic plate shielding would minimize above-ground magnetic field (MF) levels from this shallow duct bank (see Section 8), while the use of the structural span would avoid impacting the existing culvert.

The narrow footprint of the proposed structure will minimize impacts to the existing roadway shoulders during construction and avoid impacts to the roadway slopes and the adjacent environmental resources. This option maintains typical roadway pavement section depth without increasing the elevation of the existing pavement surface.

Installation of the buried concrete duct bank underneath the existing causeway would result in a temporary roadway closure to both vehicular and pedestrian traffic of approximately eight weeks.

Installation under the existing causeway is the Proponent's preferred option to bring infrastructure to East Bay Road because it would avoid impacts to the nearby bay and adjoining sensitive resource areas, maintain workspace within an existing disturbed roadway layout, and rely on standard open-cut trenching in the road. Open-cut trenching is a less complex construction procedure with smaller areas of impact than other options, such as the microtunnel alternative described in Section 2.3.5.2.

2.3.5.2 Microtunnel under East Bay

A second option for crossing East Bay would be to utilize microtunnel, a trenchless technology that would avoid any significant impacts to the bay itself. Micro-tunneling involves boring an entry hole into the ground and, using remote guidance, creating an underground tunnel leading to an exit hole at some distance, and installing small- to medium-sized pipes or conduits through the tunnel. Microtunnels are often used to install pipelines or cables beneath waterbodies, highway systems, railroads, or other locations where open-cut excavation is not desirable.

Using this method, a microtunnel boring machine (MTBM) would be located in the parking lot near the landfall site and would be used to create an entry hole for installing the duct bank. The microtunnel would be a pipe jacking operation that pushes an open shield at the face of the tunnel into the earth using hydraulic jacks mounted and aligned in a jacking shaft. A concrete casing pipe would be lowered into the shaft and inserted between the jacking frame and the shield or previously jacked pipe. Slurry lines and power and control cable connections would be made, and the pipe and shield would be advanced along the planned alignment. This process would be repeated until the shield reaches the receiving shaft. Upon completion of the microtunnel, the equipment would be removed, the carrier pipeline/conduits pulled through the concrete casing pipe utilizing spacers on rollers or an alternative method, and the interstitial space within the casing would be filled with thermally conductive grout to dissipate heat.

To accomplish the East Bay crossing, a microtunnel drive would be used to install a six-foot outside diameter reinforced concrete casing under the bay between the paved parking lot at the landfall site and East Bay Road (see the engineering plans provided in Attachment C4). The approximately 580-foot-long casing would house all onshore export cables and fiber optic cable conduits. In this construction scenario, as the MTBM advances along the planned alignment, segments of the casing would be lowered into the shaft and inserted into the bore. Once the microtunnel drive beneath the bay is complete, the MTBM would be recovered from a receiving shaft located in the maintained lawn area adjacent to East Bay Road and the causeway leading to Dowses Beach. Trenchless methods (e.g., auger bore) or open-cut excavation could be used to transition the cable between the tunnel and the duct bank underneath East Bay Road depending on geotechnical and hydrogeological conditions, duct bank connection locations, and the available staging area (see Attachment C4, Sheet 4).

The staging area for the microtunnel operation at the south end of the paved parking lot at the landfall site would prevent vehicular access to the parking lot for the entire duration of microtunnel construction, which would require an approximately eight-month construction season. The jacking shaft would be situated as far west as practical while maintaining sufficient clearance from the northwest edge of the paved surface for construction vehicle access. The circular jacking shaft would have an outside diameter of approximately 41 feet (12.5 m), and the staging area for the entry point would be contained within the paved parking lot and have an overall area of approximately 39,600 square feet (see Attachment C4).

The staging area for the receiving operation would be primarily located within the maintained lawn area immediately northeast of the intersection between East Bay Road and the causeway leading to Dowses Beach. Additional space is anticipated to be needed along the adjacent paved roadways (East Bay Road and the causeway), and existing vegetation consisting of several trees, shrubs, and ground cover would be cleared for the operation (see Attachment C4, Sheet 3). Vegetation in the area consists of substantial amounts of invasive species as well as native species that would all be removed and replaced in accordance with a restoration plan that would be developed during the permitting phase of the Project; the Proponent anticipates the restoration plan will be focused on replacing invasive species with native species to enhance the area following construction. The receiving shaft would be situated as far east as practical to facilitate the transition to the buried concrete duct bank while still maintaining space for erosion and sedimentation control measures to protect surrounding sensitive resource areas such as salt marsh. The circular receiving shaft would have an outside diameter of approximately 26 feet (8.0 m), and the staging area for the receiving operation would have an overall area of approximately 14,500 square feet. Existing overhead utilities would need to be temporarily or permanently relocated in the vicinity of both the jacking and staging areas.

2.3.5.3 Comparison of East Bay Crossing Methods

Both options described above would avoid impacts to East Bay itself. However, the Proponent's preferred option is to install buried duct bank under the paved causeway with the structural span over the existing culvert because it would rely on standard open-cut trenching in the road and standard construction, which require less complex construction procedures when compared to a trenchless crossing. In addition, the microtunnel methodology would require large jacking and receiving pits, as described in Section 2.3.5.2, with the northern (receiving) pit resulting in vegetation removal due to temporary construction staging and impacting the public access during construction to the maintained lawn area that also contains at least one picnic table on the north side of East Bay. The staging area for the jacking/entry operation at the south end of the paved parking lot at the landfall site would prevent vehicular access to the parking lot for the entire eight-month duration of microtunnel construction. In comparison, the preferred option to install the buried concrete duct bank within the existing causeway would result in a causeway closure to both vehicular and pedestrian traffic of approximately eight weeks.

2.3.6 Route 6 Crossing

The onshore export cable route must cross Route 6 to reach the proposed onshore substation site (see Figures 1-4 and 2-2). This Route 6 crossing will be accomplished via microtunnel, a trenchless crossing methodology that will avoid any impacts to Route 6. Because both the Preferred and Noticed Alternative transmission routes follow Oak Street to Route 6 before crossing to the proposed onshore substation site, the Proponent engaged in an engineering review to determine whether it would be feasible to run the cables along the existing Oak Street Bridge over Route 6 or to install a separate utility bridge over Route 6 to accomplish the crossing. Following this engineering review, it was determined that it would not be feasible to either attach an electrical conduit to the Oak Street Bridge or install an independent utility bridge parallel to the existing bridge. Instead, it was determined that a trenchless crossing of Route 6 would be the preferred approach for this segment of the onshore export cable route.

Two microtunnel crossings are proposed at this location to provide the required heat dissipation (see Attachment C5). It should be noted that the single East Bay microtunnel discussed in Section 2.3.5.2 can accommodate all three circuits due to thermal effects of East Bay above the microtunnel (i.e., water/soil above East Bay microtunnel versus soil above Route 6 microtunnel). See Section 2.3.5.2 for a more detailed description of the microtunnel methodology.

Each microtunnel alignment will have a dedicated jacking shaft and dedicated receiving shaft. The jacking shafts and staging area for the two microtunnels would be located on the proposed substation site. Each circular jacking shaft will have an outside diameter of approximately 41 feet (12.5 m). Receiving shafts will be located on the north side of Service Road/south side of Route 6 in a common 75-foot by 170-foot (22.9 m by 51.8 m) staging area. Each rectangular receiving shaft will be approximately 29 feet by 20 feet (8.8 m by 6.1 m) in outside dimensions.

2.3.7 Comparison of Preferred and Noticed Alternative Onshore Transmission Routes

The Proponent objectively and comprehensively assessed a wide array of potential routes within the bounds of a defined study area (see the alternatives analysis in Section 4). At the conclusion of this process, the Proponent selected a Preferred Route and Noticed Alternative Route as shown on Figure 1-4.

The Preferred and Noticed Alternative Routes are of similar length and are equivalent from cost and engineering perspectives. 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 aboveground historic features than the Noticed Alternative Route. While there are more businesses located along the Preferred Route, the Proponent's current traffic impact analysis indicates that detours for the Noticed Alternative Route will be of longer distances than the detours identified thus far for the Preferred Route. The Proponent anticipates working with the Town and community members, including residents and business owners to minimize construction-related traffic and other impacts. Further, the Noticed Alternative Route extends a greater distance through wetland resource areas since it stays closer to the coastline while on East Bay Road, although the duct bank will be within existing roadway layouts and no wetlands impacts are currently anticipated (see Section 5.3).

The potential opportunity to accelerate water quality improvements in Osterville by coordinating with Town sewer installation plans along the Preferred Route provides a compelling public-interest basis to support the selection of that route rather than the Noticed Alternative. The Vineyard Wind Connector project collaborated with the Town on sewer infrastructure, and the NE Wind 1 Connector project is collaborating with the Town on the installation of sewer infrastructure as well. The Proponent believes that similar coordination for the NE Wind 2 Connector has the potential to result in similar benefits. Coordinating construction activities with the Town's sewer project has the potential to accomplish several important objectives, including: (1) minimizing the overall disturbance to residents and businesses along the route; (2) expediting improvements in water quality in Osterville; and (3) saving the Town costs associated with pre-design investigative work and final coating and repaving. The Proponent understands 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. Installing the onshore export cables along the Preferred Route in the areas that overlap with the Town's sewer project could result in the important public benefits listed above, whereas based on the current CWMP, the potential for similar public benefits along Noticed Alternative Route is less.

After selection of the Preferred Route and the Noticed Alternative Route, the Proponent included the Main Street Variation, described in Section 2.3.4, to provide maximum flexibility.

Section 4.5 contains a more detailed examination and comparison of the Preferred Route and the Noticed Alternative Route.

2.4 Substation

The Project requires a new onshore substation to step up power from 275-kV to 345-kV for interconnection with the regional power grid at the existing 345-kV West Barnstable Substation.

The Project's proposed onshore substation will be located west of Oak Street near the Oak Street Bridge overpass of Route 6, approximately 0.25 mile west of the interconnection location at the existing Eversource West Barnstable Substation. The original onshore substation site was proposed on three wooded contiguous privately-owned parcels (Parcels 195-005, 195-006, and 194-016) totaling approximately 15 acres (parcels 3, 4, and 6 as labeled on Figure 1-8). The location of the proposed substation has not changed; however, the Proponent now has site control over eight contiguous privately owned parcels totaling approximately 29 acres, which allows the Proponent to optimize the substation layout and secure additional access rights. Figure 1-8 identifies all eight privately-owned parcels (with the new parcels shown in a lighter shade). Of the eight parcels, four (195-007, 195-006, 195-005, and 195-037) will be developed as part of substation construction. Attachment C2 contains engineering plans for the proposed substation. Compared to the original substation design that was presented in the ENF, the revised substation design eliminates potential impacts to a residential abutter.

The proposed substation will be sited primarily in the southern and central portions of the four parcels that will be developed (see Figure 1-8 and Attachment C2). Of the four parcels to be developed, two are undeveloped wooded lots, a third parcel has minor cleared areas and an existing access road/driveway, and the fourth is currently developed with a single-family residence. The approximately 4.2-acre parcel (Parcel 195-008) located closest to Oak Street will remain undeveloped; however, existing cleared areas within this parcel may be used during construction for temporary construction parking, trailers, or staging and laydown while the existing access road/driveway will also be improved (widened and graded with gravel surface) to support construction and the grid interconnection route. The three small parcels located south of the existing Fire Tower Access Road and east of the existing Department of Conservation and Recreation (DCR) Fire Tower (see parcels 6, 7, and 8 as labeled on Figure 1-8) will also remain undeveloped, but may be used as staging and laydown areas during construction.

To the west, the proposed substation parcels are bordered by undeveloped Article 97-protected land owned by the Town of Barnstable and managed by the Barnstable Conservation Commission. To the north, part of the 40-foot-wide "panhandle" extending from Parcel 195-006 is partially occupied by a cleared utility ROW (ROW #342), and other bordering lands include Article 97-protected parcels that are part of the Spruce Pond Conservation Area owned by the Town of Barnstable and managed by the Conservation Commission and Falcon Road Conservation Area. The existing ROW #342 and Spruce Pond Road are located in the Spruce Pond Conservation Area. To the east, the site is also bordered by Article 97-protected land (Kuhn Property) owned by the Town of Barnstable and managed by the Conservation Commission. Article 97 is discussed in greater detail in Section 2.7. To the south, the site is bordered by the Route 6 State Highway Layout managed by MassDOT and the DCR Fire Tower parcel.

The substation site is located in a residentially-zoned area as well as an Aquifer Protection Overlay District. There are no mapped wetlands within 100 feet of the substation site or perennial streams within 200 feet. The eight substation parcels are within an area mapped as a Potential Public Water Supply Area by the Cape Cod Commission (CCC).

Table 2-6 provides a summary of the proposed original and revised onshore substation parcels.

Table 2-6 Summary of Proposed Substation Parcels

Parcel # (Figure 1-8)	*Parcel ID*	*Parcel Size [a] (acres)*	*Part of Original Site*	*Original Area to be Developed*	*Revised Area to be Developed*
1	195-008	4.20			
2	195-007	3.90			✓
3	195-006	7.54	✓	✓	✓
4	195-005	7.20	✓	✓	✓
5	195-037	5.27			✓
6	194-016	0.50	✓		
7	194-015	0.09			
8	194-014	0.31			

[a] Town of Barnstable Property Maps (https://gis.townofbarnstable.us/Html5Viewer/Index.html?viewer=propertymaps)

[b] See Figure 1-8 and Attachment C2 for additional detail on the area to be developed.

To accommodate construction of the substation and associated stormwater management, the four parcels that will be developed will be partially cleared. Land and tree clearing will be minimized to the extent practicable. The existing single-family residence will also be removed.

The total area to be disturbed for the substation, including the substation development itself as well as site grading, and stormwater features along with associated access roads, will be approximately 13.6 acres, which includes removal of the existing single-family residential structure. The total area of tree clearing associated with these activities will be approximately 13.3 acres. Total impervious area remains unchanged from the original substation design presented in the ENF (i.e., approximately 2.8 acres). Compared to the original substation design presented in the ENF, the revised design will result in slightly greater disturbance as a result of design refinements to accommodate operations and maintenance and maneuvering around equipment (the original design provided minimal maneuverability around substation equipment) as well as a stormwater access road and removal of the existing single-family residential structure. As noted above, the revised design eliminates the need for retaining walls with significant heights around the entire perimeter of the substation as well as retaining walls along the stormwater access road. Removing these retaining walls from the design will reduce the construction duration as well as minimize the potential for visual impacts.

As depicted on the plans provided in Attachment C2, the proposed substation will include three 275/345-kV "step-up" transformers, gas-insulated switchgear and a control room inside a building, and other necessary equipment likely including shunt reactors, Static Synchronous Compensators (STATCOMs), and harmonic filters along with associated bus work and support structures, overhead and underground wiring and conduits, protective systems, electrical service equipment, grounding protection, and lightning protection masts. The total building area (i.e., 275 kV and 345 kV GIS buildings, a control room, and three STATCOM buildings) will total approximately 35,000 square feet. A general arrangement for the new onshore substation is provided in Attachment C2.

The substation equipment and enclosures are expected to be generally lower than 30 feet in height above finished grade. The Project substation will also be equipped with lightning protection masts that will be approximately 80 feet in height, though the height and number of lightning masts is subject to further refinement in the Engineering, Procurement, and Construction (EPC) phase of Project development.

The proposed substation yard area will be finished in crushed stone, and perimeter security fencing and/or a retaining wall will be installed (see Attachment C2). The substation design also includes an internal gravel access road. The proposed onshore substation will be equipped with an integrated fluid containment system described in Section 2.4.2.

Section 11 contains an analysis of substation sound levels based on the anticipated design and equipment.

2.4.1 DCR Fire Tower

The proposed onshore substation site abuts DCR's West Barnstable Fire Tower. The existing DCR fire tower is approximately 68 feet tall and is used by fire tower operators to detect fires in the Upper Cape region. In a November 29, 2022 comment letter on the ENF (see Section 14.0), the DCR stated: "The fire tower staff requires 360 degrees of unobstructed views in order to carry out their operations related to fire prevention and safety."

As described in Section 2.4, the proposed electrical equipment and buildings on the substation site will generally be lower than 30 feet in height above finished grade, and all electrical interconnections will be installed underground. The proposed substation does not include tall take-off structures or transmission towers; however, the substation will require lightning masts that will be approximately 80 feet in height. These lightning masts will be slender structures, anticipated to measure approximately three feet in diameter at the base and tapering to two feet in diameter at the top. Based on the Zone of Visual Influence (ZVI) analysis provided as Attachment G, the proposed substation will not obstruct views from the existing fire tower.

DCR raised concerns of potential interference of the substation with microwave links of the statewide 800 MHz trunked radio system at the Fire Tower, which is managed by the Executive Office of Technology Services and Security. The substation components/structures will have top elevations at or near the fire tower base, and well below the fire tower observation level where the telecom equipment is mounted. Based on this, the Barnstable Country Sheriff's Department and State Police do not anticipate any interference issues.

The Proponent met with the Department of Conservation and Recreation on March 24, 2023 to discuss their concerns and proposed improvements to the Fire Tower Access Road. DCR holds non-exclusive access rights over the Fire Tower Access Road; therefore, the owners of the underlying parcels and their successors and assigns have the right to use the property for all purposes that are not inconsistent with DCR’s rights. As the Proponent acquires rights in the right of way, we expect that Proponent will need (and its lenders will likely require) written confirmation from DCR that the Proponent’s use of the right-of-way is not inconsistence with DCR’s rights. The Proponent will continue discussions with DCR on the appropriate agreement to memorialize the proposed improvements and future maintenance responsibilities of the access road.

2.4.2 Containment System

The Proponent will provide full-volume (110%) containment systems for major 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 Proponent will commit to this additional containment above and beyond standard practices 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, as the developers of the Vineyard Wind Connector 1 and NE Wind 1 Connector have committed to doing pursuant to their Host Community Agreements (HCAs) with the Town of Barnstable, the Proponent expects to commit, as part of an HCA agreement, to adding additional containment volume as follows. For 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, the Proponent will increase the 110% containment volume to account for the simultaneous Probable Maximum Precipitation (PMP) event represented by 30 inches of rainfall in a 24-hour period.

Also included in the design as additional mitigation is a common drain system that routes individual containment areas through an oil-absorbing inhibition device to an oil/water separator before draining to the infiltration basin.

None of the substation equipment will contain polychlorinated biphenyls (PCBs).

Water resources at the proposed substation site are described in Section 6.1.3.

2.4.3 Stormwater Management

The revised stormwater management design for the revised onshore substation is consistent with the original stormwater management design goals. The stormwater management design will meet or exceed the Massachusetts Stormwater Policy recommendations and the Project will comply with Massachusetts Department of Environmental Protection (MassDEP) Stormwater Standards. In addition, the stormwater management system has been designed in consideration of the Resilient Massachusetts Action Team (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 and RMAT.

Consistent with the stormwater management design for the original substation, the proposed stormwater management system for the revised new onshore substation incorporates low impact development (LID) strategies in addition to a rip-rap-lined channel down a steep slope to the infiltration basin. The LID strategies 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 MassDEP. A draft Stormwater Management Report for the proposed substation site is provided as Attachment F (see Section 1.5 of that report for a summary of the LID measures).

Post-development stormwater will substantially infiltrate on-site because the substation yard surface will be predominantly permeable (e.g., proposed crushed stone yard), with well-drained soils underneath. However, during extreme rainfall events, rainfall and runoff from impermeable surfaces on the proposed substation site may briefly exceed the infiltration capacity of the underlying soil beneath the crushed stone surfacing and will instead flow into the site drainage system. The proposed drainage plan and sub-catchment areas are depicted in Sheets 7 (Proposed Grading and Drainage Plan) and 8 (Proposed Subcatchment Areas) of Attachment C2. Note that the area for the stormwater infiltration basin shown on the northeastern portion of the substation site will be left in its natural condition. As the substation design and site plan are refined, the draft Stormwater Management Plan will be adjusted to reflect any hydraulic or hydrologic changes or BMP changes.

Prior to construction, the Proponent will also obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges from Construction Activities from the U.S. Environmental Protection Agency (EPA). A draft Erosion & Sediment Control Plan is included in Section 3 of the draft Stormwater Management Plan provided as Attachment F. An Operations and Maintenance Plan for Proposed Stormwater BMPs will also be prepared as part of final design.

2.5 Grid Interconnection

2.5.1 Preferred Grid Interconnection Route (Fire Tower Access Road to Oak Street)

The Preferred grid interconnection route is approximately 0.4 miles long 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 (see Figure 2-3). This route would exit the substation site in the southeastern corner of Parcel 195-007 and cross the easternmost substation parcel (Parcel 195-008). The buried duct bank would then cross two additional parcels before reaching Oak Street. These two parcels are owned by the Town of Barnstable (Parcel 195-009, Kuhn Property and Parcel 195-010, Barnstable Fire District). The Kuhn Property is Article 97-protected (see Figure 2-3). As proposed, the Fire Tower access road would be improved with gravel surfacing and widened from approximately 11 feet to 20 feet along its entire length to accommodate construction period activities and long-term maintenance and operation of the new onshore substation (see Attachment C2). Tree clearing associated with the Preferred grid interconnection route alone would be approximately 0.2 acres, bringing the total tree clearing associated with the substation development plus development of the Preferred grid interconnection route to approximately 13.5 acres.

As shown on Figure 2-3 and in the engineering plans provided as Attachment C7, a variant (i.e., Variant 1) to the Preferred grid interconnection route has also been identified. This variant would avoid the parcel owned by the Fire District by instead continuing east on what would be a new 20-foot-wide gravel access road cleared to Oak Street. This variant would only be utilized if it were infeasible to follow the route of the existing access road through the Fire District parcel, which requires obtaining an easement. Where the new access road would intersect with Oak Street, Variant 1 would turn north on Oak Street and eventually rejoin the preferred route prior to arriving at the West Barnstable Substation. Variant 1 would have a total length of approximately 0.4 miles, the same length as the preferred grid interconnection route. To reduce overall impacts while maintaining safe slopes for vehicular travel along the new access road, cut slopes have been designed at a 2:1 grade and fill slopes have been designed at a 3:1 grade. Some grading along the fire tower access road as it turns to the north would still be required to tie together grades from that existing road and the new access road. The intersection with Oak Street has been designed with a sufficient width to accommodate low-boy trailers that would be used to deliver heavy construction equipment and larger substation electrical equipment. Tree clearing associated with Variant 1 alone would be approximately 0.4 acres, bringing the total tree clearing associated with the substation development plus use of Variant 1 to approximately 13.7 acres, just 0.2 acres more than the total clearing for the substation and Preferred grid interconnection route.

2.5.2 Noticed Alternative Grid Interconnection Route (Eversource ROW #342)

The Noticed Alternative grid interconnection route is approximately 0.6 miles long and would exit the substation to the north, following a proposed approximately 20-foot-wide gravel detention basin access road until reaching the approximately 40-foot-wide “panhandle”, where it would then follow the panhandle north to the existing Eversource ROW #342. The route would then turn east within ROW #342, cross Plum and Oak Streets, and connect into the northern portion of the West Barnstable Substation parcel.

Under existing conditions, the "panhandle" does not include an existing access road, and construction of this route would require tree clearing and grading on topographically challenging terrain. Based on terrain along the narrow "panhandle," the current engineering design also requires limited grading and tree and vegetation removal on adjacent parcels to the east and west subject to Article 97 jurisdiction. To the extent practicable, the route would be designed to be consistent with the limits of the existing access road within the existing Eversource ROW #342. However, clearing and grading on certain undeveloped portions of the existing Eversource ROW would be required. The existing intersection with Plum Street may also be redesigned to provide access to Oak Street. Additional rights would need to be obtained from Eversource to locate the grid interconnection cables within their ROW. Tree clearing associated with the Noticed Alternative grid interconnection route alone would be approximately 0.5 acres, bringing the total tree clearing associated with the substation development plus development of the Noticed Alternative grid interconnection route to approximately 13.8 acres.

2.5.3 Comparison of Preferred and Noticed Alternative Grid Interconnection Routes

The Proponent assessed grid interconnection route options and selected option G1 (Fire Tower Access Road to Oak Street) as the Preferred grid interconnection route. It was selected as the preferred route for a number of reasons: it is the shortest of all of the routes; it has the fewest abutting residences; it would involve the least amount of vegetation clearing since there is an existing access road and tree removal would be limited to the area required to widen the road; and it requires limited work to improve the existing Fire Tower access road and install the underground buried grid interconnection cables on one Article 97-protected parcel. Variant 1 would be preferred only if the Proponent is unable to obtain an easement to install the duct bank along the portion of the existing access road that passes through the Fire District parcel (see Figure 2-3).

The Proponent will avoid tree removal and/or trimming to the maximum extent practicable. Tree clearing areas for the grid interconnection route options are shown in Table 2-7. Any vegetation removal will be completed in accordance with all applicable state and local laws and regulations.

Table 2-7 Tree clearing associated with each grid interconnection route option (acres).

Route Option	Tree Clearing	
	Clearing for Grid Interconnection Route Alone	Total Including Substation Development
Preferred Grid Interconnection Route (G1)	0.2	13.5
Variant 1 to Preferred Grid Interconnection Route	0.4	13.7
Noticed Alternative Grid Interconnection Route (G2)	0.5	13.8

2.6 Eversource West Barnstable Substation Expansion

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 approximately 1.5 acres. The modifications may include upgrades for added electric grid capacity or for the physical interconnection of the Project. The Proponent 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 1-8.

2.7 Article 97 and Open Space, Conservation, and Recreational Lands

Lands that have been acquired for certain conservation, recreation, or open space purposes are protected under Article 97 of the Amendments to the Massachusetts Constitution. Figures 2-2 and 2-3 illustrate Article 97-protected parcels, identified using MassGIS data, in the vicinity of the proposed Project. A permanent change of use or a disposition of a property interest in these lands (including underground easements) requires legislative approval under Article 97. Each onshore segment of the Project route is discussed below relative to Article 97-protected lands.

2.7.1 Parcel 163-013 (Landfall Site)

Parcel 163-013, owned by the Town of Barnstable, is protected under Article 97. This parcel includes Dowses Beach, an existing parking lot, and the paved causeway that connects the existing parking lot to East Bay Road (see Figure 2-2). As described in Section 1.4.3 and in greater detail in Sections 5.2 and 12.2, the offshore-to-onshore transition will be completed in the paved parking lot at the landfall site with installation of three conduits via HDD. The physical connection between the offshore and onshore export cables will be made in three underground concrete transition joint bays that will be installed beneath the existing paved parking lot at the landfall site (see Attachment C3 for engineering plans depicting the HDD operations). Following construction, manhole covers will be the only visible components of the cable system associated with the transition joint bays in the parking lot. The onshore export cables will exit the three transition joint bays in small duct banks and merge into a single concrete underground duct bank beneath the existing parking lot (see Attachment C1, Sheet 4). From the parking lot, the underground duct bank and onshore transmission cables proceed generally northwest under the paved causeway to East Bay Road (see Attachment C1, Sheets 4 and 5). The granting of an easement to allow the use of the three transition joint bays and the underground duct bank housing the onshore export cables within the parcel owned by the Town of Barnstable will require Article 97 authorization from the Massachusetts Legislature.

The HDD trajectory offshore to the parking lot will pass well beneath the beach; the HDD will have no temporary or permanent impacts to the beach itself. HDD activities and installation of the transition joint bays and duct bank in the parking lot will have only temporary construction-related impacts. Because all infrastructure will be buried except for ground-level manhole covers associated with the transition vaults, the Project will have no permanent impact on use of the parking lot or causeway after construction is complete.

Activities within the parcel are not expected to be performed during the months of June, July, or August unless otherwise coordinated with the Town.

As described in Section 2.3.5.2, a second option for crossing East Bay is being considered. If that option is pursued, the crossing would be accomplished via microtunnel, a trenchless crossing method that would be used to install a single reinforced concrete casing under East Bay, extending between the paved parking lot at the landfall site and East Bay Road, to house the onshore export cable and fiber optic cable conduits (see Section 2.3.5.2 for a more detailed discussion of the East Bay microtunnel alternative). The microtunnel methodology would require large jacking and receiving shafts, with the northern receiving shaft resulting in impacts to an Article 97-protected maintained lawn area on the north side of East Bay within the parcel 163-013, including tree clearing to allow sufficient space for construction. The microtunnel would be installed underground, would not involve any above-ground infrastructure, and would have no permanent impacts on the current use of the property. The easements needed to allow for installation of the microtunnel within the Town-owned parcel 163-013 would require Article 97 authorization from the Massachusetts Legislature.

2.7.2 Onshore Transmission Routes

Aside from the parcel 163-013 addressed in Section 2.7.1, neither the Preferred nor Noticed Alternative transmission routes would cross any Article 97-protected property. Both routes pass adjacent to Article 97 properties, but no impacts to those properties are anticipated.

2.7.3 Substation Access and Grid Interconnection

As described in Section 2.4, the Project substation is proposed on a site west of Oak Street near the Oak Street Bridge overpass of Route 6, approximately 0.25 miles west of the interconnection location at the existing Eversource West Barnstable Substation as measured in a straight line. Figure 1-8 identifies the eight privately owned parcels comprising the “substation site”.

The parcels comprising the proposed substation are not Article 97-protected land. However, certain parcels surrounding the onshore substation site are Article 97-protected (see Figure 2-3). To the west, the proposed substation site is bordered by undeveloped Article 97-protected land owned by the Town of Barnstable and managed by the Conservation Commission. To the north, the site is bordered by Article 97-protected parcels that are part of the Spruce Pond Conservation Area owned by the Town of Barnstable and managed by the Conservation Commission as the Falcon Road Conservation Area. To the east, the site is also bordered by Article 97-protected land (Kuhn Property) owned by the Town of Barnstable and managed by the Conservation Commission. Table 2-8 summarizes the Article 97-protected lands directly adjacent to the proposed substation site.

Table 2-8 Summary of Article 97-Protected Lands Adjacent to the Proposed Substation

Parcel ID	*Property or Conservation Name*	*Property Owner*	*Property Manager*	*Compass Direction from Substation Site*
195-004	Spruce Pond Conservation Area	Town of Barnstable	Conservation Commission	North
195-033	Spruce Pond Conservation Area	Town of Barnstable	Conservation Commission	North
195-009	Kuhn Property	Town of Barnstable	Conservation Commission	East
195-003	Conservation Area	Town of Barnstable	Conservation Commission	West
195-034	Spruce Pond Conservation Area	Town of Barnstable	Conservation Commission	Northwest

Tree clearing estimates associated with each grid interconnection route option plus the substation development are defined in Table 2-7. Table 2-9 summarizes the area of disturbance on Article 97-protected parcels from construction of each grid interconnection route option. The land disturbance estimates include grading activities and are based on current engineering design.

Table 2-9 Estimated Land Disturbance on Article 97-Protected Parcels from Construction of each Grid Interconnection Route Option (rounded to the tenth of an acre).

Grid Interconnection Route Option	*Article 97-Protected Parcel ID*	*Area of Disturbance*
Preferred Grid Interconnection Route (Fire Tower Access Road to Oak Street)	195-009 (Kuhn Property)	0.3
Variant 1 to Preferred Grid Interconnection Route	195-009 (Kuhn Property)	0.5
Noticed Alternative Grid Interconnection Route (Eversource ROW #342)	195-004 (Spruce Pond Conservation Area)	0.1
	195-033 (Spruce Pond Conservation Area)	0.7
	195-027 (private property along ROW #342)	0.2

2.7.3.1 Preferred Grid Interconnection Route (Fire Tower Access Road to Oak Street)

The Preferred Grid Interconnection Route, described in Section 2.5.1, crosses one parcel protected under Article 97: the Kuhn Property (Parcel 195-009), which is located between the substation site and Oak Street (see Figure 2-3). The existing Fire Tower access road on this parcel would be improved with gravel surfacing and widened to approximately 20 feet along its entire length, and the proposed duct bank would be buried within the access road (see Attachment C2). Additional clearing and grading would also be required to accommodate the widening. Following construction, cleared areas beyond the 20-foot-wide access road will be seeded and allowed to re-vegetate. The grant of an easement to allow installation of the underground duct bank housing the grid interconnection cables within the Kuhn Property owned by the Town of Barnstable will require Article 97 authorization from the Massachusetts Legislature. As shown in Table 2-9, approximately 0.3 acres of the Kuhn Property would be impacted by the proposed activities. Use of Variant 1 would add an additional 0.2 acres of impact to the Kuhn property, for a total of approximately 0.5 acres.

In addition, the Preferred grid interconnection route will be located adjacent to Article 97-protected Parcel 195-027 (see Figure 2-3). This parcel is owned by the Town of Barnstable and managed by the Barnstable Conservation Commission. Construction of the Preferred grid interconnection route will have no impact on use of this parcel during or after construction.

2.7.3.2 Noticed Alternative Grid Interconnection Route (Eversource ROW #342)

The Noticed Alternative grid interconnection route, described in Section 2.5.2, would affect three parcels protected under Article 97 (see Figure 2-3).

Two of these Article 97-protected parcels would be affected during construction of the duct bank within the "panhandle" feature of the proposed substation site (see Figure 2-3). The panhandle does not include an existing access road, and construction would require tree clearing and grading on topographically challenging terrain from the substation site to Eversource ROW #342, including limited grading and tree/vegetation removal on two Article 97-protected parcels that are part of the Spruce Pond Conservation Area owned by the Town of Barnstable and managed by the Conservation Commission. Following construction, cleared areas beyond a new 20-foot-wide access road (which would be entirely contained in the panhandle) would be seeded and allowed to re-vegetate. Construction of this route would not result in a permanent disposition of Article 97 lands on the two parcels adjacent to the panhandle. Construction of the underground duct bank within the panhandle may require a grant of a short-term license or other rights from the Town of Barnstable within Parcels 195-004 and 195-033 for temporary staging and other disruptions during construction.

The third Article 97-protected parcel that would be affected during construction of the Noticed Alternative grid interconnection route is located within ROW #342 where the buried duct bank would cross Parcel 195-027 (see Figure 2-3). An existing access road runs through the parcel between Plum Street and Oak Street, and the duct bank route would follow this previously altered and maintained access road and utility easement. The duct bank would be installed under license from Eversource within the existing utility ROW easement and would not require a separate easement or other disposition from the Town of Barnstable. Because the Eversource easement predates the Article 97 status of this parcel and allows underground transmission lines, the Proponent believes that duct bank on this parcel would not require Article 97 authorization.

As shown in Table 2-9, approximately one acre of Article 97-protected lands would be impacted by the proposed activities along the Noticed Alternative grid interconnection route.

2.7.4 Comparison of Impacts and Mitigation Measures

Other than Project components at the landfall site and causeway leading to Dowses Beach, the Preferred and Noticed Alternative onshore transmission routes do not require crossing any Article 97-protected open spaces. Because the same protected lands are impacted by both routes, neither route has more impact than the other.

For the grid interconnection routes, the Preferred Route crosses one parcel that is Article 97-protected and would involve slight widening of an existing gravel access road, impacting approximately 0.3 acres (or approximately 0.5 acres when utilizing Variant 1). The Noticed Alternative would require grading and vegetation clearing disruptions on portions of two Article 97-protected parcels that would be allowed to revegetate, and would cross one parcel within an existing utility ROW that is Article 97-protected but should not require legislative approval. The Noticed Alternative grid interconnection route would impact approximately one acre of Article 97-protected lands.

Since the proposed onshore export cables will be installed within a buried concrete duct bank, the Project will have little to no permanent impact on appearance or use of any Article 97-protected parcels.

Construction-period considerations, including measures that will protect Article 97 lands, are consistent with the measures described in Sections 12.2 and 12.3. In addition, the Proponent will coordinate with the Town of Barnstable to ensure that existing parking for conservation areas that have walking/hiking trails remains available and accessible during construction of the onshore duct bank. Furthermore, the Proponent will coordinate with the Town of Barnstable, Barnstable Fire District, and Massachusetts Department of Conservations and Recreation (DCR) to ensure construction of the proposed substation and improvements to the private way (including any construction of an underground duct bank within the private way) do not adversely interfere with access to their respective parcels.

2.7.5 Compliance with Public Land Protection Act and EEA Article 97 Policy

Changes in use or dispositions of land subject to Article 97 are expected to comply with the Public Land Protection Act (PLPA), M.G.L. chapter 3 section 5A. Municipal dispositions under Article 97 are also expected to comply with Executive Office of Energy and Environmental Affairs' (EEA) Article 97 Land Disposition Policy (the "Article 97 Policy").

The PLPA established requirements and a process for submission of petitions to the Legislature to authorize the use of Article 97 lands for another purpose or disposition of land or an interest in land subject to Article 97. Under the PLPA, a proponent must comply with the following key requirements for Article 97 Actions:

- Notification;
- An alternatives analysis; and

- Identification and dedication of replacement land to Article 97 purposes (in certain cases this may be waived or modified by the Secretary of EEA, or provision of funding may be authorized in lieu of replacement land).

Under the PLPA, a petition to file Article 97 legislation must include:

- Documentation of public notification;
- The alternatives analysis;
- A description of the replacement land (if not waived);
- A copy of the required appraisals (if not waived);
- If applicable, a copy of any waiver or modification by the Secretary; and
- If applicable, a copy of the report of findings of the Secretary regarding funding in lieu.

The Article 97 Policy states that it is EEA's policy to "protect, preserve and enhance all open space areas covered by Article 97" and states a goal "to ensure no net loss of Article 97 lands…" As a general rule, under the Article 97 Policy, municipal disposals of interests in Article 97 lands are subject to six conditions:

- Alternatives to the disposition have been explored in a manner "commensurate with the type and size of the proposed disposition", and "feasible and substantially equivalent alternatives" are not available;
- The disposition and its proposed use "do not destroy or threaten a unique or sensitive resource";
- The disposing agency or its designee attain as part of the disposition property of equal or greater value;
- The acreage of the proposed distribution is minimized, and the resources of the parcel affected continue to be protected;
- The disposition "serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EEA and its appropriate department or division"; and
- The disposition is "not contrary to the express wishes of the person(s) who donated or sold" the property to the Commonwealth.

Revocable permits and licenses of limited duration are not considered dispositions under Article 97 as long as they do not transfer an interest in real property or change control or use of the land in a way that is inconsistent with the controlling agency's mission.

Any required disposition will be consistent with the requirements of both the PLPA and the Article 97 Policy.

First, as required by the PLPA (M.G.L. ch. 3 section 5A(a)(i)(A)), through this MEPA process, the Proponent has provided notice to the public and the Secretary of EEA that the Town of Barnstable would need Article 97 approval for granting of easements on the Article 97 properties discussed in Sections 2.7.1 and 2.7.3. As part of the notification effort, the Proponent also met with the EEA's Division of Conservation Services on February 13, 2023.

Second, as required under M.G.L. ch. 3 section 5A(a)(i)(A), the Proponent has conducted and submitted an alternatives analysis in connection with change of use or disposition of Article 97 properties, as detailed in Section 4.0. The alternatives analysis describes the Project's routing alternatives, including an assessment of alternative landfall sites and substation sites, and pursuant to the PLPA the alternatives analysis demonstrates "that all options to avoid or minimize impacts on Article 97 disposition or change in use have been explored and no feasible or substantially equivalent alternative exists." The alternatives analysis and the discussion herein demonstrate that the proposed Project elements at the landfall site and grid interconnection routes meet the substantive requirements of the Article 97 Policy, especially in light of the limited potential disposition and largely underground usage. Furthermore, Section 1.9 clearly describes the numerous public benefits that will accrue as a result of the Project.

Third, as required in the Article 97 Policy, any dispositions would not "destroy or threaten a unique or sensitive resource." In fact, any such dispositions would have no or minimal effects on those lands and would not detract from any existing use of the properties because Project infrastructure will be underground. At the landfall site, there will be no detrimental effect to the land or its current use for public recreation other than temporary, off-season construction activities in the paved parking lot.

Fourth, consistent with the requirements of the PLPA, the Proponent will, "identify replacement land or an interest in land, which is not already subject to Article XCVII, in a comparable location and that is of equal or greater natural resource value, as determined by the secretary of energy and environmental affairs, and acreage and monetary value, as determined by an appraisal of the fair market value or value in use, whichever is greater." The replacement land or interest in said land will be taken, acquired, or dedicated for Article 97 purposes in perpetuity. The Proponent may provide funding in lieu of replacement land, or a combination of funding and replacement land or an interest in land if specific requirements have been demonstrated. Additionally, if funding in lieu of replacement land or a combination of funding and replacement land will be provided specific conditions must be met (see PLPA Section 5A(b)(2)). The Proponent has not yet determined if it will request to utilize funding in lieu or replacement land.

Fifth, consistent with the Article 97 Policy, any dispositions of land subject to Article 97 would be minimized in acreage and would not affect protected resources on those parcels. The potential crossings that require Article 97 approval all involve relatively short segments of proposed underground duct bank and export cables. Dispositions would be limited to the area necessary for the proposed HDD conduits, transition joint bays, and duct bank, which would be installed underground, and the area necessary to widen the existing Fire Tower access road. As stated above, because the proposed transmission lines and transition joint bays would be underground and because of the existing uses of the affected parcels, the presence of the proposed transmission lines would not affect protected resources or uses on those parcels.

Sixth, the Project promotes important public purposes by bringing offshore wind energy to the New England market, with the accompanying environmental and other benefits discussed in Section 1.9. As described above, to the extent that any crossing of Article 97 land is necessary for the Project, that crossing will not have a detrimental effect on Article 97 land. Moreover, connecting offshore wind energy to the regional electric grid promotes the mission, plans, policies, and mandates of EEA and its departments and divisions as it, among other things, reduces harmful emissions (including those of greenhouse gasses), contributes to a reliable energy supply, and supports the development of clean energy and related economic activity in Massachusetts.

Finally, to the Proponent's knowledge, none of the potential dispositions of Article 97 property that may be necessary for the Project would be contrary to the express wishes of the person or persons who conveyed the property to the Town of Barnstable.

2.8 Decommissioning

The decommissioning discussion provided in this section covers the elements of the Project that are within state jurisdiction (i.e., the NE Wind 2 Connector). State-jurisdictional elements are the offshore export cables within state waters as well as the onshore export cables and proposed onshore substation. To the extent decommissioning includes project elements within federal waters, unless otherwise authorized by BOEM, pursuant to the applicable regulations in 30 CFR Part 585, Commonwealth Wind is required to "remove or decommission all facilities, projects, cables, pipelines, and obstructions and clear the seafloor of all obstructions created by activities on the leased area, including any project easements(s) within two years following lease termination, whether by expiration, cancellation, contraction, or relinquishment, in accordance with any approved SAP, COP [Construction Operations Plan] or approved Decommissioning Application and applicable regulations in 30 CFR Part 585."

As is typical of utility-grade generation and transmission infrastructure, the Project's equipment is expected to have a physical life expectancy of 30 or more years. It is reasonable to expect that by the end of the Lease term and beyond, technological advances in methods and equipment servicing the offshore industry occur relative to current decommissioning practices. For that reason, demolition procedures may change at the time of decommissioning, several decades in the future.

Decommissioning of the Project includes:

- Retirement in place or removal of offshore export cables; and
- Possible removal of onshore export cables.

For onshore work, subject to discussions with the Town of Barnstable on a practicable decommissioning approach that best meets the towns' needs and has the fewest environmental impacts, the onshore export cables, concrete duct bank, and splice vaults are expected to be left in place for future reuse as would elements of the onshore substation and grid connections. If onshore cable removal is determined to be the preferred approach, removal of cables from the duct bank would likely be done using truck-mounted winches, cable reels, and cable reel transport trucks.

Cables would be transported off-site for recycling or possible reuse. Splice vaults, conduits, and duct banks are expected to be left in place, available for reuse. This approach would avoid disruption to the streets.

The offshore cables could be retired in place or removed, subject to discussions with the appropriate regulatory agencies on the preferred approach to minimize environmental impacts. Current BOEM regulations require the removal of decommissioned submarine cables, unless otherwise requested by the cable owner, and subsequently approved by BOEM. If removal is required, in some places it may be necessary to jet-plow the cable trench to fluidize the sandy sediments covering the cables. Then, the cables would be reeled up onto barges and the cable reels would be transported to the port area for further handling and recycling. If protective rocks or concrete mattresses were used to protect portions of the export cables, they may be removed prior to recovering the cable. It is anticipated that the equipment and vessels used during decommissioning will likely be similar to those used during construction and installation. The environmental impacts from these decommissioning activities, assuming present day technology, would be generally similar to the impacts experienced during construction, although no dredging would be anticipated along the export cable corridor.

Regardless of the specific approach, the Proponent will comply with then-applicable regulations and then-relevant decommissioning procedures.

The Proponent will provide financial assurance for the project in accordance with the terms and conditions required by BOEM regulation or otherwise with approval from BOEM. To the extent feasible, the Proponent would like to develop a mechanism by which one financial assurance package covers decommissioning of all the project facilities regardless of whether the facilities are located within federal or state jurisdiction.

Section 3.0

Consistency with State and Regional Policies and Plans

3.0 CONSISTENCY WITH STATE AND REGIONAL POLICIES AND PLANS

This section describes the Project's consistency with current applicable environmental protection and resource use and development policies of the Commonwealth. The Project is indeed consistent with these policies as described herein.

In addition, the Project is consistent with federal directives to promote clean energy and achieve a carbon pollution-free power sector in the United States.[1]

3.1 Green Communities Act

The Project is consistent with, and has the potential to directly advance, the Commonwealth's policies for the development of offshore wind energy resources. In 2016, the Commonwealth enacted legislation specifically intended to bring about development of offshore wind energy generation projects such as those that would be enabled by the NE Wind 2 Connector. Section 83C of the Green Communities Act (Chapter 169 of the Acts of 2008), as amended by Chapter 188 of the Acts of 2016, An Act to Promote Energy Diversity, Chapters 8 and 24 of the Acts of 2021, and Chapter 179 of Acts of 2022, aims to establish a commercial-scale offshore wind industry in Massachusetts. Among other things, Section 83C requires the procurement of 5,600 MW of offshore wind energy generation by June 30, 2027. It represents a significant, long-term commitment to offshore wind energy by the Commonwealth. It also sets forth a specific process for soliciting and selecting project proposals and for approving the resulting contracts. The NE Wind 2 Connector, along with the associated Commonwealth Wind project, has the potential to be another significant step forward in meeting Massachusetts' growing demand for clean energy and in implementing Section 83C.

In addition, and as recognized by Section 83C, offshore wind has the potential to more broadly support other renewable energy goals in the Commonwealth, including by contributing to the greenhouse gas emission reduction targets set forth in G.L. c. 21N. Those contributions will include both direct reductions in emissions associated with generating an energy supply for the region and indirect benefits. For example, Massachusetts has the most solar energy generation in New England, and the daily and seasonal production profiles for solar generation pair nicely with those of offshore wind (e.g., more solar energy generation in the summer, with more offshore wind energy generation in the winter). Moreover, advancing projects such as the NE Wind 2 Connector will contribute to the development of an offshore wind energy industry in Massachusetts, facilitating the efficient development and servicing of future offshore wind facilities within the region.

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[1] https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/

Without new transmission facilities such as the NE Wind 2 Connector, the offshore wind energy sought by the Act would not be able to deliver power to the New England electrical grid.

3.2 Global Warming Solutions Act

Enacted in 2008, the GWSA established ambitious GHG emissions reduction targets mandating that the Commonwealth reduce its GHG emissions by 10 to 25% from 1990 levels by 2020 and by at least 80% from 1990 levels by 2050 (St. 2008, c. 298). Pursuant to the GWSA, the Secretary of the EEA issued the Clean Energy and Climate Plan for 2020 in December 2010 and updated that plan in December 2015. In June of 2022, the Secretary issued the Clean Energy and Climate Plan for 2025 and 2030. Among other provisions, the GWSA obligates administrative agencies such as the Siting Board to consider reasonably foreseeable climate change impacts (e.g., additional GHG emissions) and related effects (e.g., sea level rise) in evaluating and issuing permits.

The 2021 law "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy" set GHG reduction goals at 50% from 1990 levels by 2030, 75% from 1990 levels by 2040, and net zero emissions by 2050 (see M.G.L. chapter 21N, sections 3(b) and 4). As one of the major renewable energy resources available in New England, offshore wind energy is critical to meeting these targets, and is a cornerstone of the Commonwealth's Clean Energy and Climate Plan for 2025 and 2030 (see, e.g., Clean Energy and Climate Plan for 2025 and 2030, pages iv, xi, xiv, 4-5, 62-65, 69-70, available at https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download).

By enabling the interconnection of large-scale offshore wind energy generation to the regional electric grid, the NE Wind 2 Connector has the potential to directly and substantially advance the Commonwealth's GHG reduction goals. The Commonwealth Wind project enabled by the NE Wind 2 Connector, would deliver over 1,200 MW of renewable energy to the ISO-NE electrical grid, displacing fossil-fueled generation, and thereby reducing CO_2e emissions by approximately 2.35 million tons per year across the ISO-NE electrical grid, the equivalent of taking 505,000 cars off the road per year. The Project is therefore consistent with the GWSA and An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy.

3.3 Environmental Justice Policy

The Project is consistent with the EEA's EJ Policy, which was originally promulgated in 2002. On November 25, 2014, the EJ Policy was updated by then-Governor Patrick through Executive Order #552. The EJ Policy was adopted and updated by then-Secretary Beaton on January 31, 2017. Most recently, on March 26, 2021, Governor Baker signed bill S.9., "An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy" (the "Climate Act"). The Climate Act defines environmental justice principles and populations, environmental burdens, and environmental benefits, and directs Commonwealth agencies to develop processes and standards to enhance opportunities for meaningful involvement by members of EJ communities and to ensure agency consideration of concerns related to EJ communities. The EJ policy was updated on June 24, 2021, consistent with the new statute. Subsequently, the MEPA Office developed the MEPA Public

Involvement Protocol for Environmental Justice Populations and the Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations, which became effective on January 1, 2022.

Enhanced Public Participation requirements under MEPA are identified in Section 16 of the EJ Policy and are the basis of MEPA's Public Involvement Protocol for EJ Populations. The Enhanced Public Participation requirements apply to projects that meet two criteria:

- The project exceeds an ENF threshold for air, solid and hazardous waste (other than remediation projects), or wastewater and sewage sludge treatment and disposal; and

- The project site is located within one mile of an EJ population (or in the case of projects exceeding an ENF threshold for air, within 5 miles of an EJ population).

The criteria for Enhanced Analysis of Impacts and Mitigation under MEPA are identified in Section 17 of the EJ Policy and are the basis of the MEPA Office's Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations and apply to projects that meet two criteria:

- The project exceeds a mandatory Environmental Impact Report (EIR) threshold for air, solid and hazardous waste (other than remediation projects), or wastewater and sewage sludge treatment and disposal; and

- The project site is located within one mile of an EJ population (or in the case of projects exceeding a mandatory EIR threshold for air, within 5 miles of an EJ population). The project proponent may submit actual air modeling data on the project's area of potential air impacts in its EIR scope to modify the presumed five-mile impact area referred to in this condition.

Specific criteria for Enhanced Public Participation and Enhanced Analysis of Impacts and Mitigation in Siting Board proceedings are listed in Section 20 of the EJ Policy. The criteria incorporate the MEPA parameters from Sections 16 and 17.

As described in the EJ Policy, "Environmental Justice (EJ) Population" means

(A) a neighborhood that meets one or more of the following criteria:

(i) the annual median household income is not more than 65 per cent of the statewide annual median household income;

(ii) minorities comprise 40 percent or more of the population;

(iii) 25 percent or more of households lack English language proficiency; or

(iv) minorities comprise 25 percent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 per cent of the statewide annual median household income; or

(B) a geographic portion of a neighborhood designated by the Secretary as an environmental justice population in accordance with law.

The term English Isolation "refers to households that are English Language Isolated according to federal census forms, or do not have an adult over the age of 14 that speaks only English or English very well" (EJ Policy, Section 4). The EJ Policy relies on the full count Census (currently 2020), not estimates extended to larger populations from small sample sizes.

3.3.1 Project Consistency with the EJ Policy

As shown on Figure 3-1, a small portion of an EJ Population (mapped for minority and income status) is located less than one mile east of the Project's proposed substation site; a majority of the Project (i.e. the landfall site and onshore cable routes) are over a mile from any mapped EJ populations. The same area is defined as a Linguistic Isolation Area based on languages other than English being spoken by more than 5% of the population who otherwise do not have proficiency in English. It is important to note that only two parcels within the census block mapped as an EJ Population are located within one mile of the Project. Both parcels are undeveloped and do not contain any residential structures.

However, the Project does not exceed any ENF thresholds for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal, and therefore neither the Enhanced Public Participation requirements nor the Enhanced Analysis of Impacts and Mitigation under MEPA apply, and the corresponding provisions for Siting Board proceedings are similarly inapplicable. According to the EEA EJ data available at the time of the ENF filing, there were no EJ Populations mapped within one mile of the Project. Updated EJ Block Groups issued by EEA apply to MEPA filings submitted on or after January 4, 2023. Since the EIR Scope was issued prior to January 4, 2023, EEA guidance is to apply the EJ mapping in place at the time of the Scope. Nonetheless, the Proponent recognizes this EJ population based on the most recent EJ map (see Figure 3-1) and has included an analysis consistent with the MEPA Public Involvement Protocol for Environmental Justice Populations and the MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations. The community engagement efforts and enhanced EJ analyses are described below.

3.3.2 Community Engagement

The Proponent distributed an advance notice of its intention to file an ENF to support the MEPA Office's initiative to enhance public participation opportunities for members of the public, including those with limited English proficiency. The Linguistic Isolation Area within one mile of the Project (shown on Figure 3-1) is a census tract where Portuguese or Portuguese Creole is spoken by 5% or more of the population who otherwise have limited English proficiency.

Therefore, the Proponent circulated a Project fact sheet (Advance Notice of ENF Filing) to a distribution list provided by the MEPA Office as well as to community-based nonprofit organizations (CBOs) in English, Brazilian Portuguese, and Spanish based on review of the Barnstable school district website and consultation with Barnstable school district staff. The Advance Notice was circulated approximately one month before the ENF was published in the *Environmental Monitor*, which began the public comment period. In addition, the Proponent extended the ENF comment period by 30 days to allow for more public review and input.

The Proponent plans to send a similar Notice of Availability of the DEIR, translated into Brazilian Portuguese and Spanish, to the same EJ distribution list to which the ENF was submitted. In addition, the Proponent is planning to hold open house events that will include translation services to further engage stakeholders in the Linguistic Isolation Area.

3.3.3 Enhanced EJ Analyses

Under the EJ Analysis Protocol, a process has been developed for assessing whether EJ Populations have experienced existing unfair or inequitable environmental burdens within the designated geographic area, which is one mile from the Project site. As part of this approach, a series of mapping tools have been developed that focus on: (1) the rates of four vulnerable health criteria as it relates to statewide averages; (2) existing past and current polluting activities; and (3) an evaluation using the RMAT Climate Resilience Output Tool. The use of the U.S. EPA's Environmental Justice Screening Tool (EJ SCREEN) has been included in this evaluation. Each of these steps are described in detail below along with an assessment of the specific results for the EJ populations within the designated geographic area.

3.3.3.1 Vulnerable Health Criteria

The vulnerable health EJ criteria are four indicators used to identify populations that might have higher-than-average rates of environmentally related health outcomes: (1) heart attack hospitalizations; (2) childhood blood lead exposure; (3) low birth weight; and (4) childhood asthma for the most recent five-year period of available data. The vulnerable health EJ criteria are reported for a population in a specific area, which can be a state, town, or census tract. Census tracts are small, relatively permanent areas of land with a population typically between 1,200 and 8,000 people. Health criteria are reported as rates, or the number of people with the identified condition divided by the population in consideration, and then age-adjusted and reported as the number of cases per 100,000 people. The DPH EJ tool compares the community rate, or the town or census tract rates of interest, to the statewide rate, or the rate for the population of Massachusetts.

The MA DPH EJ tool provides information on the four vulnerable health criteria identified above. Data on each criterion are available for different geographies. Heart attack hospitalizations and childhood asthma are available at the community level, while low birth weight and childhood blood lead exposure are available at the census tract level.

The DPH Tool was used to evaluate vulnerabilities for the EJ population within one mile of the Project site. The EJ population within the designated geographic area does not meet the vulnerable health criteria for heart attack hospitalizations or elevated childhood blood levels. The Town of Barnstable meets the vulnerable health criteria for childhood asthma, but the Barnstable results are not statistically significantly different from the state rate. The census tract where the EJ community is located also meets the vulnerable health criteria for low birth weight, but results are unstable[2] due to low numbers and are not statistically significantly different from state rates.

Table 3-1 summarizes the vulnerable health criteria results.

Table 3-1 Vulnerable Health Criteria in the Community

Vulnerable Health Criteria	*Geography Type*	*Community Rate per 100,000 People*	*Community Rate Confidence Interval*	*Statistical Significance*	*Stability*	*State Rate per 100,000 People*	*State Rate Confidence Interval*	*>110% of Statewide Rate?*
Heart Attack	Barnstable	28.5	26.1, 30.9	Not statistically significantly different	Stable	26.4	26.2, 26.6	No
Childhood Asthma	**Barnstable**	**93.7**	**80.6, 106.8**	**Not statistically significantly different**	**Stable**	**83.1**	**82.2, 84.0**	**Yes**
Low Birth Weight	Barnstable	205.7	138.5, 272.9	Not statistically significantly different	Unstable	216.8	211.7, 221.9	No
Lead Poisoning	Barnstable	6.1	3.9, 8.3	Statistically significantly lower	Stable	15.0	14.7, 15.3	No
Low Birth Weight	**Census Tract 25001015300**	**411**	**142.5-679.5**	**Not statistically significantly different**	**Unstable**	**216.8**	**211.7, 221.9**	**Yes**

3.3.3.2 Potential Sources of Pollution

As described in the EJ Analysis Protocol, the next step of the enhanced EJ analysis focuses on other potential sources of pollution within the boundaries of any EJ block group within the designated geographic area. Layers from the DPH EJ Tool were downloaded into ArcGIS and any potential sources of pollution were identified within the boundaries of the EJ block group that intersects the 1-mile buffer around the substation. A list of the potential sources is provided below:

- MassDEP Major Air & Waste or EPA Facilities EPA: 10;
- M.G.L. c. 21E Sites: 1 Tier 1 (Barnstable Municipal Airport);
- Tier II Facilities: 29;
- Underground Storage Tanks: 9;

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2 The stability refers to how reliable the rate is. When there are too few cases in a town or census tract, the rate is considered to be unreliable (see MEPHT | Environmental Justice [state.ma.us).

- Road Infrastructure: Routes 6, 28, and 132;
- MBTA Bus and Rapid Transit: the Hyannis branch;
- Regional Transit Agencies: the Cape Cod RTA; and
- Energy Generation and Supply: transmission lines.

There were none of the following sources: MassDEP sites with AULs, MassDEP Groundwater Discharge Permits, Wastewater Treatment Plants, and MassDEP Public Water Suppliers. No enforcement history was identified for the MassDEP facilities.

3.3.3.3 Climate Adaptation (RMAT)

As described in Section 10.1.2, portions of the Project were identified as having high risk for flooding and extreme heat. However, the proposed substation site itself (which is the Project element within one mile of an EJ Population) is in an inland location where it may be exposed to extreme precipitation but where it is not at risk of coastal or riverine flooding.

Additionally, portions of the Project, including the substation, received a "High Exposure" rating for Extreme Heat. This classification was assigned because the Project includes increased impervious area, some tree clearing will occur, existing impervious area is less than 10% on the substation site, the substation site is not located within 100 feet of a water body, and there will be an increase in days over 90 degrees Fahrenheit over the Project life. However, the amount of land alteration necessary for the Project has been minimized through a variety of design measures, and new impervious area has also been minimized. The substation site is described in Sections 1.4.5 and 2.4, and an extensive alternatives analysis of potential substation sites is provided in Section 4.6. Although substation development will involve tree clearing, the site will remain very well buffered by forested land and will not be visible from adjacent areas or from the mapped EJ Population. The proposed substation will be approximately 2.4 miles from the nearest residential structure within the mapped EJ Population. Further, the substation will not contain surfaces that would be expected to contribute to an urban heat island effect, since the substation yard and access road will largely be gravel. For these reasons, the Project is not expected to have a material effect on temperatures in the surrounding area.

The Proponent also considered the potential for future Extreme Heat conditions to adversely affect the proposed Project. Based on the Proponent'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 in the *Guidelines*. 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. The proposed substation is being designed to operate safely under the full range of ambient temperatures in Barnstable, including heat waves.

3.3.3.4 EJScreen

EJScreen analysis was conducted for the EJ Block Group that is within one mile of the proposed substation site (census tract 153). All of the environmental indicators for this EJ Block Group were below the 80th percentile compared to state estimates. EPA considers indicators that exceed the 80th percentile to be a concern for EJ populations. Table 3-2 provides the estimated percentiles and actual values for the EJ Block Group compared to the state. Where available, health-based standards are provided for context. As shown in Table 3-2, average values for all the indicators are well below health-based standards where these are available.

Table 3-2 EJScreen Results (Census Tract 153, Block Group 1)

Indicator	*State Percentile*	*Block Group Average*	*State Average*	*Health-based Standard*
Particulate Matter ($PM_{2.5}$)	10	5.9 μg/m³	6.79 μg/m³	12 μg/m³ (3)
Ozone (ppb)	59	39.6	39.5	70(4)
Diesel Particulate Matter (DPM)	26	0.177 μg/m³	0.307 μg/m³	1.5 μg/m³ (2)
NATA Air Toxics Cancer Risk	54	20 per million	24 per million	100 per million(1)
NATA Respiratory Hazard Index Ratio	22	0.2	0.3	1
Traffic Proximity and Volume (daily traffic count/distance to road)	68	1,700	2,400	N/A
Lead Paint (% pre-1960 housing)	12	0.16	0.49	N/A
Superfund Proximity (site count/km)	16	0.052	0.18	N/A
RMP Facility Proximity (facility count/km)	5	0.06	0.74	N/A
Hazardous Wase Proximity (facility coun/km)	9	0.2	5.6	N/A
Underground Storage Tank (count/km²)	64	3.3	3.4	N/A
Wastewater discharge(toxicity-weighted concentration/m)	N/A	N/A		N/A

Notes: Data from the USEPA EJScreen version 2.1
(1) Upper-end of acceptable EPA cancer risk level
(2) US EPA Reference Concentration for DPM
(3) PM2.5 annual National Ambient Air Quality Standards (NAAQS)
(4) Ozone NAAQS

3.3.3.5 Enhanced EJ Analysis Summary

The Project is proposed and designed to minimize potential impacts to all populations, including EJ populations. Clean energy generated by Commonwealth Wind and delivered by the NE Wind 2 Connector will help displace electricity generated by fossil fuel power plants that have operated near neighborhoods for over a century, affecting air, water, soil, and human health, and thereby prompting attention to EJ. Although some vulnerabilities were identified based on the enhanced

EJ analysis, the Project will not pose a hazard to human health, water resources, or air quality. The Project's only impacts to nearby communities will be temporary construction-related impacts that will be avoided and minimized through the construction-period BMPs described in Section 12. None of these temporary construction-related impacts will materially exacerbate any existing burden on EJ Populations. In fact, while the substation site is located within one mile of an EJ Population, the Project largely avoids EJ Populations (see Figure 3-1). Moreover, the Proponent's outreach to and interaction with neighborhoods and local industries will meet or exceed the intent of EJ policies to involve the public in decision-making about development. Regardless of any legal obligation, and consistent with the Commonwealth's EJ Policy, the Proponent undertook diligent efforts to identify EJ communities in the vicinity of the Project and has undertaken and will continue to undertake extensive community outreach efforts to facilitate meaningful opportunities for all potentially affected parties to participate. Furthermore, as described in Section 1.9.2, the Project is expected to generate numerous economic and community benefits in Massachusetts and across New England, including significant funding for diversity, equity, and inclusion, workforce, and supply chain initiatives that will support local content, increase diversity in the industry, and provide EJ Population residents and other underrepresented populations opportunities to join the offshore workforce and supply chain.

In summary, the NE Wind 2 Connector is consistent with the Commonwealth's EJ Policy and applicable MEPA Protocols in that its impacts to all populations, including EJ populations, will be avoided and minimized, and public participation will meet or exceed the requirements of the EJ Policy. Although the Project does not exceed any ENF thresholds for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal, the Project has made a diligent effort to enhance public participation opportunities for all members of the public, including those with limited English proficiency. Notice of Availability will be translated and distributed to the EJ distribution list. The enhanced EJ analysis indicates that while some vulnerabilities exist, they will not be exacerbated by the Project.

Finally, one purpose of the EJ Policy is to promote climate change resiliency and minimize potential effects from climate change (pages 4 and 5 of the Policy). The Project will bring over 1,200 MW of renewable, emissions-free energy into the ISO-NE electrical grid, advancing greenhouse gas reduction goals and improving air quality.

3.3.4 Effect on EJ Communities Near Ports and O&M Facilities

In Section 3.3.1, the Proponent discussed consistency with EJ Policy for the Project components (specifically state-jurisdictional aspects of the proposed transmission and interconnection to the ISO-New England electrical grid). This section expands the EJ discussion to ports and O&M facilities that may be used by the Proponent. Please note, however, that the Proponent does not consider these Support Facilities as part of the Project currently under MEPA review. Rather, they have been or will be developed by the landowner or facility operator as separate projects that have or will separately complete applicable local, state, or federal permitting and environmental review processes appropriate for that facility, including MEPA. The Proponent intends to utilize existing ports and facilities available at the time when they are needed for the Project and intends to sign lease agreements with the port operator if and when they become available for use. Therefore, any necessary improvements the landowners intend to make to their facilities to make them suitable for various future uses, including to support future offshore wind projects, would not be undertaken by the Proponent. In some cases, the Proponent intends to enter into only short-term leases (2-3 years) when convenient for the support of construction and will identify suitable locations later in the project development phase, or even during the construction phase.

From a broader perspective, Project development will provide environmental and economic benefits to EJ communities. NE Wind 2 Connector will require skilled and unskilled workers, who will be drawn from local areas as available. The proposed development is expected to spur significant direct and indirect local economic growth, while coordinating with existing industries, such as commercial fisheries, to minimize impacts (see Section 1.9 for a discussion of the Project's significant benefits). The energy generation by Commonwealth Wind will be located well offshore minimizing interruption to residential populations, including EJ populations, and will provide competitively priced renewable electricity to the ISO-NE grid.

Each port facility under consideration to support offshore Project construction activities is either: (1) already located within an industrial waterfront area with sufficient existing infrastructure; or (2) identified as an area where other entities intend to develop infrastructure with the capacity to host construction or operation activities. The locations of the possible Support Facilities in Massachusetts that will be used for Commonwealth Wind/NE Wind 2 Connector are shown on Figures 3-2 through 3-4, and include but are not limited to New Bedford and New Bedford Harbor, Vineyard Haven, and Salem. It is not expected that all ports identified herein would be used; rather, it is more likely that only some ports would be used during construction depending on final construction logistics planning and availability. The Proponent would use any existing support facility in accordance with the permitted uses of those facilities. Impacts resulting from the normal operation of an existing port would be typical of other port usage and could include traffic, emissions from support vehicles and vessels, and noise. Use of an existing building to house O&M or Control facilities will yield the positive impact of providing long-term, career-building employment opportunities within the region. Because these impacts are typically proximal to the facility where activities will occur, for purposes of this assessment, study areas for potential Project-related impacts to EJ populations, if identified, are delineated as a one-mile (1.6-km) radius (see Figures 3-2 through 3-4).

A summary of each support facility is provided below, with an associated figure showing the site location and the presence or absence of EJ populations, as identified by MassGIS, within the one-mile (1.6-km) study area.

- **New Bedford Marine Commerce Terminal**: The New Bedford Marine Commerce Terminal, located in the City of New Bedford's extensive industrial waterfront on New Bedford Harbor, is owned by the Massachusetts Clean Energy Center (MassCEC), and was purpose-built to support offshore wind. The site also has ready access to interstate highways. As shown in Figure 3-2, the western half of the study area around the site on the New Bedford side of the waterfront contains minority and/or low-income EJ populations. There is also an EJ population that includes English isolation along with minority and income categories just south of New Bedford Marine Commerce Terminal. Fewer EJ populations are mapped on the eastern side of the Harbor in Fairhaven, with the exception of one mapped low-income area south of Route I-195 and a minority population on the north edge of Route I-195.

- **Other Areas in New Bedford Harbor**: Other possible port facilities have been identified by MassCEC as potentially viable offshore wind ports, if upgrades are made by the owner/lessor. The one-mile (1.6-km) radial study area has been extended northward along the Harbor to map EJ populations in this overall area. These populations include a minority, income, and English isolation EJ population just north of Route I-195 on the western side of the harbor in New Bedford with a few groups in the income and minority categories on the eastern side of the area, as shown on Figure 3-2.

- **Vineyard Haven, Martha's Vineyard:** Vineyard Haven already provides a number of services to vessels as large as 275 feet (84 m) in length and has onshore facilities that house multiple business entities. For example, the owner of the Tisbury Marine Terminal (EEA #16190) has existing plans (irrespective of the Proponent) to upgrade the facilities to accommodate additional marine industrial uses. As shown in Figure 3-3, low-income EJ communities are mapped on the western side of the radial study area, located north, west, and south of Vineyard Haven. An additional EJ community mapped on Martha's Vineyard is a minority community in Aquinnah, on the southwest tip of the island. Many members of the federally recognized Wampanoag Tribe of Gay Head (Aquinnah) reside in this area.

- **Salem Harbor**: Crowley Wind Services recently purchased 42 acres surrounding Salem Harbor Station to make upgrades to the site for use as an offshore wind port facility in Salem ("Salem Wind Port") (see Figure 3-4). 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 for decades into the future. The Proponent is anticipated to lease space at the facility for several years for the main purpose of marshalling and staging of wind turbine generator components prior to going offshore for installation. After the Proponent's lease has concluded, the facility will be marketed by Crowley Wind Services and used by other wind developers or other marine industrial uses as they arise. Crowley Wind Services submitted a Single EIR to the MEPA Office for the Salem Wind Port in May 2023 (EEA# 16618).

Existing ports in the Northeast with the capacity to serve large-scale projects have experienced pulses of development (such as World War II mobilization). These have often been followed by periods of neglect, obsolescence, and abandonment as industries, technologies, and transit requirements change.

Activities that may occur at the port facilities during Project construction include: construction staging; offloading/loading shipments of components; storage of components; component fabrication and assembly; transport of crews, structural components, and equipment to the wind energy generation area in federal waters; repairs; refueling; and restocking of supplies. As noted above, these activities would occur at industrial ports with sufficient existing infrastructure or where other entities intend to develop infrastructure suitable for such uses that would be potentially subject to state, regional and local permitting requirements.

Periodic inspections, maintenance and repairs to offshore facilities are expected to occur during the life of the Project. Such activities are only expected to result in negligible and temporary impacts near port facilities, and would be consistent with other typical and permitted uses of coastal and marine industrial port facilities (e.g., vehicular and vessel transit, intermittent noise). Economic activity around ports is expected to benefit area EJ communities, as goods services, and other items ae expected to be sourced from the surrounding community.

The long-term impacts of the proposed development will include increased jobs and direct and indirect economic opportunities, all of which are expected to benefit area EJ communities. As discussed in Section 1.9, overall workforce and economic impacts are expected to be beneficial due to the increased workforce needed to support development activities, the workforce training opportunities the Proponent has committed to, and the associated economic growth both to businesses directly related to offshore wind and those that will indirectly benefit (e.g., supply chain and area services industries).

3.4 Massachusetts Ocean Management Plan

This section describes how the Project is consistent with the Massachusetts Ocean Management Plan (OMP). Initially released in 2009 and subsequently revised in 2015 and again in 2021, the Massachusetts OMP creates a framework for managing uses and activities within the state's ocean waters. As such, its geographic scope includes the ocean waters, seafloor, and subsurface. Jurisdiction 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). Figure 1-1 illustrates the OECC and shows the limits of Massachusetts waters. As stipulated in the Oceans Act of 2008, and described in Chapter 1 of the OMP, implementation is achieved through existing state review procedures, whereby all licenses, permits, and leases are required to be consistent to the maximum extent practicable with the OMP. Since the OMP is incorporated into the Massachusetts Coastal Zone Management Plan, all federal actions must also be consistent with the OMP, to the maximum extent practicable. Any project that requires an EIR pursuant to MEPA is subject to the OMP. The Plan's mapped resources, as describe further below, guide the scope of relevant aspects of the MEPA review.

The Project is located in the "Multi-Use Area" of the OMP, which covers the majority of the jurisdictional planning area. In Multi-Use Areas, proposed projects are subject to the siting and performance standards associated with allowable uses; those uses are governed by the Ocean

Sanctuaries Act, as modified by the Oceans Act, and include power and communications cables. Cables are allowed in the OMP Multi-Use Area, subject to these siting and performance standards as well as other applicable laws.

A large part of the planning process for the OMP was devoted to mapping and evaluating natural resources and existing water-dependent uses (e.g., navigation and fishing). This resulted in a series of maps identifying SSU resources and existing water-dependent uses that are relevant for particular types of projects. The OMP's general siting and performance standards are directly tied to these SSUs and uses and are discussed below in specific reference to cable projects.

While the OMP identifies some preliminary corridors for offshore wind transmission cables that are in presumptive compliance with the siting standards of the Plan, those corridors are not suitable to the Project. The Project team considered these corridors while assessing offshore routing alternatives, but they were unsuitable for the Project given that water depths within the mapped preliminary corridors are frequently too shallow, and the mapped corridors do not accommodate a landfall site in Barnstable (the Proponent determined such a landfall was needed to minimize onshore and overall routing distances).

The Project is consistent with the OMP because:

- The Project is consistent with the siting and performance standards for cables, as the proposed OECC and Western Muskeget Variant will avoid impacts to North Atlantic right whale core habitat, mapped eelgrass beds, and mapped intertidal flats;

- The proposed OECC and Western Muskeget Variant scenarios are the least environmentally damaging practicable alternatives for the Project, as described in Sections 2.1.3 and 4.0;

- All practicable measures to avoid damage to SSU resources and minimize impacts to those resources will be taken, and installation methodologies have been selected to minimize impacts where avoidance is not possible. The proposed OECC and Western Muskeget Variant avoid, to the maximum extent practicable, areas of hard/complex bottom, only passing through these areas where there is no less damaging practicable alternative (see Section 3.4.2). Where passage through hard/complex bottom is necessary, all practicable measures to avoid damage to SSU resources and minimize impacts to those resources will be taken; and

- The public benefits analysis described in the context of the public benefit determination demonstrates that the Project's public benefits outweigh any detriments (see Sections 1.9 and 3.5).

3.4.1 Management Standards for Special, Sensitive, or Unique Habitats

The OMP and relevant OMP Regulations, found at 301 CMR 28.00, include management standards for SSU Resources. Specific to cable projects, the OMP identifies the following SSUs: (1) core habitat of the North Atlantic right whale, fin, and humpback whales; (2) hard/complex seafloor; (3) eelgrass; and (4) intertidal flats. Activities in SSU areas are permitted if the maps delineating the SSU resources do not accurately characterize the resource based on substantial site-specific information (301 CMR 28.04(2)(b)(1)) or there is no less damaging practicable alternative taking into consideration cost, existing technology, and logistics, all practicable measures have been taken to avoid damage to SSUs (including mitigation measures and time of year controls), and the public benefits outweigh the public detriments (see 301 CMR 28.04(2)(b)(2-4)).

The Proponent completed detailed marine surveys within the OECC proposed for the Project and has refined the SSU areas using data that comply with the data standards requirements in the OMP Regulations at 301 CMR 28.08(1). Specifically, the Proponent has met with representatives of the Secretary of the EEA, CZM, and other relevant agencies before, during, and after marine surveys specifically to discuss refinement of the SSU areas. Data collected as a result of those surveys are based on contemporary and accepted standards, as informed by the multiple consultations described above and therefore is appropriate to use under 301 CMR 28.08(1)(b).

Using the refined SSU delineations generated as a result of marine surveys, the Proponent has determined it is not possible to completely avoid SSUs, specifically hard/complex seafloor, but that no other SSUs will be impacted. Numerous technical and environmental considerations and constraints, including avoidance of SSUs, have factored into the routing of the OECC and Western Muskeget Variant. The OECC and Western Muskeget Variant are consistent with OMP Regulations because no less environmentally damaging practicable alternative exists, all practicable measures have been or will be taken to avoid damage to SSU areas, and the public benefits outweigh the public costs.

3.4.2 Hard and Complex Bottom

Hard seafloor is seabed characterized by exposed bedrock or concentrations of boulder, cobble, or other similar hard bottom distinguished from surrounding unconsolidated sediments. Complex seafloor is a morphologically rugged seafloor characterized by high variability in bathymetric aspect and gradient. Biogenic reefs and man-made structures, such as artificial reefs, shipwrecks, or other functionally equivalent structures, may provide additional suitable substrate for the development of hard bottom biological communities. Hard/complex seafloor is seabed characterized singly or by the combination of hard seafloor, complex seafloor, artificial reefs, biogenic reefs, or shipwrecks and obstructions to navigation.

Cable projects are considered an allowed use under the OMP for certain SSU resources, including hard/complex seafloor. However, the guidelines outlined in the OMP call for the avoidance of hard/complex seafloor to the extent practicable. The Proponent has conducted geological and geotechnical surveys of the OECC to identify locations of hard/complex seafloor as well as performed extensive benthic sampling and imaging to characterize habitat in order to inform the final placement of the offshore export cables to avoid or mitigate the potential effects to this SSU resource.

As a component of evaluating and minimizing potential impacts related to the Project, the Proponent has conducted extensive surveys of the OECC and has mapped hard bottom and complex bottom (bedform fields) (see Section 2.1.3). Hard and complex bottom delineated from survey results is depicted on the plan set in Attachment H1. Based on marine survey data, it is not feasible for cable installation activities to completely avoid hard or complex bottom, particularly in areas such as Muskeget Channel where hard or complex bottom extends across the majority or entire corridor.

The area between Martha's Vineyard and Nantucket, in the vicinity of Muskeget Channel, has shoals and strong tidal currents. The feasible routes through the Muskeget Channel area would all affect some areas mapped in the OMP and confirmed through marine surveys as hard/complex bottom. In addition to the OMP-mapped hard/complex bottom, the marine surveys have identified additional areas where greater than 50% of the seafloor is characterized by higher concentrations of boulders, bathymetric relief, and coverage by coarse material. The Proponent, in identifying the OECC and Western Muskeget Variant, has sought to avoid and/or minimize passage through areas of hard/complex bottom, both due to their value as a resource and for potential installation challenges related to achieving the target cable burial depth. However, some of these areas are unavoidable given other physical constraints related to water depth and currents. Where possible, Project engineers have sought to maintain water depths of approximately 20 feet (6 m).

3.4.3 Eelgrass

Eelgrass (*Zostera marina*) and widgeon grass (*Ruppia maritima*) are both species of submerged aquatic vegetation (SAV) and are important protected resources that represent critical habitat in nearshore coastal ecosystems. These resources are important components of coastal ecosystems and provide food and shelter to numerous aquatic species, cycle nutrients from the water column, and stabilize marine sediments.

Evaluations of SAV within the OECC and Western Muskeget Variant have included a desktop study making use of data from MassDEP's Eelgrass Mapping Project, which mapped eelgrass beds in state waters over multiple years. Although the MassDEP mapping did not suggest eelgrass would be present offshore from the landfall site, the Proponent has also performed nearshore surveys, which have not identified any eelgrass in the Primary OECC or Western Muskeget Variant.

3.4.4 Intertidal Flats

Based on marine survey results to date, there are no intertidal flats in the vicinity of the Project within OMP jurisdiction.

3.4.5 North Atlantic Right Whale Core Habitat

The North Atlantic right whale (*Eubalaena glacialis*) is a state- and federally listed endangered species that regularly uses Massachusetts waters for feeding. The OMP established the North Atlantic right whale core habitat SSU resource based on data that identified statistically significant use of certain areas of the Massachusetts coast by right whales (Massachusetts Geographic Information System [MassGIS], 2020). The Project avoids OMP-mapped core habitat for whales, including the North Atlantic right whale. The Project does not include any structures or work within the area of core habitat for the North Atlantic right whale mapped as an SSU area in the OMP.

3.4.6 Ocean Development Mitigation Fee

The Oceans Act established an Ocean Development Mitigation Fee to be assessed for offshore development projects. As described in Appendix 3 of the 2021 Massachusetts OMP, the purpose of the fee is to compensate the Commonwealth for unavoidable impacts to ocean resources and the broad public interests and rights in the lands, waters, and resources of the OMP areas.

Appendix 3 of the Plan describes how fees may be affected by a project's scope, extent, duration, and severity of impacts. The fee established through MEPA review is based on the full extent of impacts as a result of the proposed Project installation in state waters.

The amount of the fee considers both a project's "footprint" and impacts. Although limited Project impacts will occur outside of the Project footprint, those impacts will be constrained to the construction period and will be temporary in nature; these impacts, such as the temporary trench disturbance or sand wave dredging to achieve sufficient cable burial, are quantified in this DEIR but are distinct from the Project footprint itself.

The purpose of this section is to inform the determination of the Ocean Development Mitigation Fee, as well as to provide the Proponent's proposal for an Ocean Development Mitigation Fee. It reflects and is closely based on the Ocean Development Mitigation Fee determined in the Secretary's Certificate on the FEIR for the NE Wind 1 Connector.

For the NE Wind 1 Connector, the Secretary determined the fee would be structured as follows:

- A minimum of $287,500 based on estimated cable protection and sand wave dredging impacts (for NE Wind 1 Connector, these impacts for purposes of calculating the fee were 12 acres and 110,000 cubic yards, respectively);

- The Proponent will deposit the base fee in the Oceans and Waterways Trust within 60 days of financial close and prior to construction;

- If impacts exceed the identified estimates, based on actual installation and post-construction surveys, the fee will be increased and is not capped;

- Additional impacts will be assessed at $10,000 per acre for any amount of cable protection exceeding the estimated 12 acres up to 15.4 acres, and $25,000 per acre for cable protection exceeding 15.4 acres up to 21.5 acres;

- Additional impacts will be assessed at $500 per 1,000 cubic yards of dredging for any amount of dredging over the estimate;

- If additional impacts are assessed, a second payment will be deposited in the Oceans and Waterways Trust upon completion of cable installation, dredging and post-construction surveys.

The Proponent's fee proposal as set forth below is based on the NE Wind 2 Connector's footprint and impacts relative to the fee hierarchy established in the OMP. This proposal consists of a base fee with an adjustment based on actual impacts, with a total fee of not less than $300,000. The derivation of the fee is discussed below, with a specific proposal presented at the end of this section.

Quantification of Project Footprint. The OMP fee structure in Appendix 3 of the 2021 OMP and as proposed by the Proponent is based, in part, on a project's "footprint". For the NE Wind 2 Connector, the actual Project footprint within the Massachusetts Ocean Management Planning Area will ultimately depend on the final cable alignments and the amount of cable protection required.[3] The footprint calculated below is based on the installation of three 12-inch-diameter offshore export cables along the proposed OECC to the proposed landfall site. While the final length of the export cables may vary slightly due to micrositing within the OECC, the differences are expected to be insignificant and should not affect the calculation of the Ocean Development Mitigation Fee.

The footprint of the offshore export cables is calculated as follows based on the maximum per-cable length of 23 miles within the primary OECC minus 0.3 miles, since the OMP planning area begins 0.3 miles from shore. It is worth noting that the footprint of NE Wind 2 Connector is larger than the footprint calculated for the NE Wind 1 Connector (8.3 acres for NE Wind 2 Connector relative to 4.6 acres for NE Wind 1 Connector) primarily due to the inclusion of a third offshore export cable:

[3] Consistent with the Secretary's Ocean Development Mitigation Fee determinations for the Vineyard Wind Connector and NE Wind 1 Connector, "footprint" for purposes of this fee is the area of occupation, not the area of potential impact. Thus, the project "footprint" for a cable is different from the width of the trench or areas affected by sidecast or suspension of sediments. Impact is nonetheless an important criterion for determining the Fee and is also addressed in this section and accounted for in the proposed fee.

23 miles minus 0.3 miles (or 22.7 miles [119,856 feet]) of state waters within the Ocean Management Planning Area x 12 inches (or 1 foot) x 3 cables = ~360,000 square feet (**8.3 acres**)[4]

In addition to the footprint of the three offshore export cables, Project engineers estimate that approximately 9.8 acres of cable protection may be required along the three offshore export cable alignments, combined, within state waters, assuming all three offshore export cables are installed within the primary OECC. This estimate is based on preferred cable protection methodologies that would have a width of 10 feet (3 m) (see Table 5-1 and Section 5.1.3 for additional details). It is the Proponent's intention to bury the entire cable at an adequately protective depth, thus avoiding and minimizing the need for cable protection (see Section 5.1.3). However, at this point in design, the Project is maintaining a conservative assumption that additional protection may be needed. For the most conservative scenario where two of the three offshore export cables are installed within the Western Muskeget Variant, the comparable cable protection estimate is 12 acres (higher than for the scenario involving all three cables in the primary OECC despite a slightly shorter cable length).

Therefore, the total Project footprint assuming all three cables are installed in the primary OECC would be **18.1** acres. The total Project footprint assuming two of the three cables are installed in the Western Muskeget Variant would be **19.9 acres**.[5] The Proponent believes it would be appropriate to define the minimum fee based on use of the primary OECC, since that is the most likely scenario, and then define a fee adjustment that would be used regardless of whether the primary OECC alone or the Western Muskeget Variant is utilized.

<u>Quantification of Project Impact Volume</u>. Temporary and permanent impacts associated with the OECC are described and quantified in Section 5.1. As described above, the Secretary's Certificate on the FEIR for the NE Wind 1 Connector used sand wave dredging, an activity that will have temporary impacts, as one determinant of the Ocean Development Mitigation Fee. As shown in Table 5-3, the amount of dredging in state waters for all three cables combined for the NE Wind 2 Connector is estimated at 91,500 cubic yards assuming all three cables are installed within the primary OECC (i.e., Scenario 1).

The Proponent's base fee proposal is based on two basic factors: Appendix 3 impact classification as discussed below, and the prior determinations of the OMP Fee for Vineyard Wind Connector and NE Wind 1 Connector.

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4 Note that if the Western Muskeget Variant is utilized, then the maximum per-cable length would decrease to 21.7 miles.

5 [23 miles - 0.3 miles (or 119,856 feet) of state waters within the Ocean Management Planning Area x 1-foot cable diameter x 1 cable] + [21.7 miles - 0.3 miles (or 112,992 feet) of state waters within the Ocean Management Planning Area x 1-foot cable diameter x 2 cables]= ~346,000 square feet (**7.9 acres**) of cable occupation + 12 acres of cable protection = **19.9-acre total footprint if two of three cables utilize the Western Muskeget Variant**

Impact-Based Fee Hierarchy in Ocean Management Plan

The following fee classes are defined in the fee schedule from the OMP:

Class I ($12,000 - $50,000)

Class I is defined in Appendix 3 of the 2021 OMP as:

- Project is limited in scale, size, footprint.
- Project footprint is less than 6 acres and project extent is generally confined to the seafloor (i.e., does not also include, or has only very minor expression in, the water column, water surface, and/or above the ocean).
- Effects are limited in duration (i.e., primarily during construction/installation).
- Project has negligible or minor effects on habitat or natural resources.
- Project has negligible or minor effects on water-dependent uses.

Class II ($100,000 - $350,000)

Class II is defined in Appendix 3 of the 2021 OMP as:

- Project is moderate in scale, size, footprint.
- Project footprint is 6 – 20 acres and project extent may include a limited amount of water column, water surface, and/or area above the ocean.
- Effects are more than temporary, extend beyond construction/installation, or are recurrent.
- Project has moderate effects on habitat or natural resources.
- Project has moderate effects on water-dependent uses.

Class III ($600,000 - $6,000,000)

Class III is defined in Appendix 3 of the 2021 OMP as:

- Project is large and/or complex in scale, size, footprint.
- Project footprint is greater than 20 acres and project extent may include a moderate/major amount of water column, water surface, and/or area above the ocean.
- Effects are frequent, recurring, and/ or continuous in duration and permanent/lasting.
- Project has major effects on habitat or natural resources.
- Project has major effects on water-dependent uses.

Impact-Based Project Fee Classification

The fee established by the Secretary in the Certificate on the FEIR for the NE Wind 1 Connector placed that project towards the upper end of Class II, which is consistent with the Proponent's proposal for NE Wind 2 Connector. With the discussion above as background, the Project footprint of the cables themselves is approximately 8.3 acres (in the Class II range), and will be entirely confined to the seafloor itself, with no impacts on the water column, water surface, or area above the ocean (consistent with Class I). Including the estimated footprint of cable protection, the total Project footprint would be 18.1 acres assuming installation within the primary OECC (which is more likely than the Western Muskeget Variant). This is within the Class II range of 6 to 20 acres. the Project footprint would be almost entirely confined to the seafloor (cable protection would only barely extend into the lowest reaches of the water column). This reflects use of preferred cable protection methodologies having a 10-foot width; if the Proponent is required by agencies to install wider methods of cable protection, then the fee adjustment would be utilized. Furthermore, as described in this DEIR, effects on habitat, natural resources, or water-dependent uses may be considered "generally negligible and limited in duration (i.e., primarily during construction/installation)."

For these reasons, even before consideration of public benefits, the Proponent believes the Project best fits within Class II.

The Project should not fall under Class III for multiple reasons. First, the Project footprint is not likely to exceed 20 acres. Second, any cable protection would be designed to avoid and minimize interference with trawl gear or anchors and can also function as good habitat for marine life. The Proponent is seeking to minimize the amount of cable protection required not only to avoid and minimize environmental impacts but also to reduce installation time and costs. Thus, effects on habitat, natural resources, or water-dependent uses would be less than "Class III" standards. Finally, while cable protection would involve occupation of the seafloor, there still would be no impacts on the water column, sea surface, or space above the sea, which is a lesser impact than contemplated for Class III projects.

The Proponent believes that any fee should take into account the extensive efforts to avoid, minimize, and mitigate temporary impacts and the proposed flexible approach toward final determination of the fee; together, these considerations all support categorization of the NE Wind 2 Connector as Class II.

As identified on Appendix 3 of the 2021 OMP (p. 77), determination of the fee classification can be further affected by other factors, including "public benefits of the project, and other mitigation proposed, separate and distinct from the ocean development fee." The Proponent has indicated why the environmental impacts warrant a Class II determination independent of consideration of those factors, but notes that as described in Section 1.9, the Project offers unique and substantial public benefits and mitigation.

The first category of benefits is intrinsic to the Project itself. The broader offshore wind energy project is being proposed consistent with state energy policy with the goal of bringing the benefits of offshore wind power to the New England power grid. The environmental benefits of the Project are described in Section 1.9.3; they include a massive reduction in greenhouse gas emissions, which in turn directly benefits oceans and the interests protected by the Ocean Management Act. The Project will also contribute to development of the offshore wind industry in New England, which will promote ocean-focused employment and revitalization of ports adjacent to the Ocean Management Planning Area.

Proposal for final Ocean Development Mitigation Fee

As noted, the Proponent proposes a base fee with an adjustment.

Base Fee. The Proponent proposes a **base fee** of **$300,000**. The basis of that proposal is as follows.

The proposed $300,000 base fee is near the upper end of the Class II fee range (i.e., fees at $100,000-$350,000). This fee is consistent with the fee the Secretary established for the NE Wind 1 Connector but also reflects the greater Project footprint due to inclusion of a third offshore export cable. Assuming a conservative estimate for cable protection but also assuming the Proponent is able to select the method of cable protection, the acreage impacted by such protection would be less than the 12-acre estimate used to generate the base fee for NE Wind 1 Connector. In addition, the estimated dredge volume for NE Wind 2 Connector is less than the estimated volume utilized for establishing the base fee for NE Wind 1 Connector (91,500 cubic yards vs. 110,000 cubic yards).

Together, these considerations suggest that the base fee proposed by the Proponent is appropriate and consistent with the OMP.

Adjustment of Fee based on Final Impacts. The Proponent proposes two adjustments to the fee based on actual impacts, consistent with the Secretary's fee structure defined for the Vineyard Wind Connector and as partially utilized for NE Wind 1 Connector: First, the Proponent proposes increasing the fee by **$10,000 per acre** for every acre of cable protection above 9.8 acres in the Ocean Management Planning area. Second, it proposes increasing the fee by **$500 for every 1,000 cubic yards of sand wave dredging** above 91,500 cubic yards in the Ocean Management Planning area.

Payment schedule. The Proponent proposes that payment will be due within 90 days of financial close and before the start of offshore construction in the Ocean Management Planning Area. The Proponent further proposes it will provide its calculation of the adjusted OMP fee based on actual amount of cable protection and dredging at least 60 days prior to the commencement of commercial operations to allow time for the Secretary to review the final fee determination.

3.5 Chapter 91 Regulatory Compliance

This section describes the Project's conformance with the regulatory standards of 310 CMR 9.00 *et* seq. (the "Waterways Regulations"). In this instance, Chapter 91 jurisdiction applies to (1) flowed tidelands[6], which extend seaward of the current Mean High Water (MHW) mark, and (2) filled tidelands[7], which extend landward to the historic high water mark or the most landward tide line which existed prior to human alteration by filling, dredging, impoundment, or other means. No work is proposed within landlocked tidelands.[8]

Portions of the NE Wind 2 Connector will be constructed within Chapter 91 Jurisdiction, and will be subject to review under MGL Chapter 91 (Public Waterfront Act) and the Waterways Regulations.

Chapter 91 jurisdiction relative to Project elements is illustrated on Figure 3-5. Specifically, elements within Chapter 91 jurisdiction include:

- The entirety of the offshore export cables in flowed Commonwealth Tidelands[9];

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6 Per 310 CMR 9.01, Flowed Tidelands means present submerged lands and tidal flats which are subject to tidal action.

7 Per 310 CMR 9.01, Filled tidelands means former submerged lands and tidal flats which are no longer subject to tidal action due to the presence of fill.

8 Per 310 CMR 9.01, Landlocked Tidelands means any filled tidelands which on January 1, 1984 were entirely separated by a public way or interconnected public ways from any flowed tidelands, except for that portion of such filled tidelands which are presently located: (a) within 250 feet of the high-water mark, or (b) within any DPA. Said public way or ways shall also be defined as landlocked tidelands, except for any portion thereof which is presently within 250 feet of the high-water mark.

9 Per 310 CMR 9.02, Commonwealth Tidelands means tidelands held by the Commonwealth, or by its political subdivisions of quasi-public agency or authority, in trust for the benefit of the public; or tidelands held by a private person by license or grant of the Commonwealth subject to an express or implied condition subsequent that it be used for a public purpose. In applying this definition, the Department shall act in accordance with the following provisions:

a. The Department shall presume that tidelands are Commonwealth tidelands if they lie seaward of the historic low water mark or of a line running 100 rods (1,650 feet) seaward of the historic high water mark, whichever is farther landward; such presumption may be overcome only if the Department issues a written determination based upon a final judicial decree concerning the tidelands in question or other conclusive legal documentation establishing that, notwithstanding the Boston Waterfront decision of the Supreme Judicial Court, such tidelands are unconditionally free of any proprietary interest in the Commonwealth;

b. The Department shall presume that tidelands are not Commonwealth tidelands if they lie landward of the historic low water mark or of a line running 100 rods (1,650 feet) seaward of the historic high-water mark, whichever is farther landward; such presumption may be overcome only upon a showing that such tidelands, including but not limited to those in certain portions of the Town of Providence, are not held by a private person.

- HDD used to complete the offshore-to-onshore transition at the landfall site, including the transition joint bays and connecting duct banks within filled tidelands in the paved parking lot at the landfall site;
- Duct bank to be installed within filled tidelands along a portion of the paved causeway leading to Dowses Beach;
- While on East Bay Road, onshore cables crossing unnamed tidal creek connecting to East Bay; and
- While on Bumps River Road, onshore cables crossing a tidal portion of Bumps River.

The Project's compliance with applicable Chapter 91 standards is described below. The Proponent will submit a Waterways License application to MassDEP that will include an updated discussion of Project compliance with Chapter 91 regulations as well as draft Waterways License plans.

3.5.1 Water-Dependency

The NE Wind 2 Connector is 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 a transmission project designed to connect infrastructure in an offshore Wind Development Area located in federal waters to an interconnection point on shore that is part of the regional electric grid, the NE Wind 2 Connector must necessarily cross flowed tidelands and cannot be located away from those tidelands while achieving the expressed Project purpose. Under 301 CMR 13.04, water-dependent projects are presumed to meet the criteria in 301 CMR 13.04 and provide adequate public benefit and therefore a Public Benefit Determination is not necessary.

3.5.2 Compliance with Chapter 91 Standards

The Waterways Regulations (310 CMR 9.01(2))'s general purposes are to:

- Protect and promote the public's interests in tidelands;
- Preserve tidelands for water-dependent purposes;
- Protect public health, safety, and general welfare;
- Support public and private efforts to revitalize unproductive property along urban waterfronts; and
- Foster the right of people to natural, scenic, historic, and esthetic qualities of the environment.

As described in Section 1.9, the Project will provide public benefits pertaining to reliability of the electrical grid, reductions of air emissions (including CO_2, NOx, and SO_2), and economic benefits to the host communities and region. Aside from temporary construction activities, the Project will not restrict or constrain activities in tidelands, including along the proposed OECC.

Project compliance with Chapter 91 Standards is demonstrated below.

<u>Chapter 91 License Terms (310 CMR 9.15)</u>

The Proponent is requesting a 30-year term for the license, with the explicit right to extend the term of the license for an additional 30 years, contingent upon payment of applicable then-existing tidelands occupation fee regulations.

Such an extension is warranted for a number of reasons, including financing requirements, the expected life of the improvements to be developed at the Project site by the Proponent, the long-term nature of the uses proposed, and the overall consistency of the Project with Chapter 91 and its implementing regulations. The benefits of the Project are detailed in Section 1.9 and include a number of benefits that will accrue throughout the life of the Project and beyond the typical 30-year term. In support of granting of the right to extend the term of the license upon conclusion of its initial 30-year term the Proponent provides the following:

- The Project is being designed and engineered to give it an expected useful life of greater than 30 years.

- The Project will likely be financed by customary commercial debt and equity sources, each of which will expect and require that the regulatory framework under which the Project is constructed is generally consistent in its durability and longevity with the durability and longevity of the Proponent's control over the Project. Because the Proponent will own the Project in fee, the Project's capital market participants will require a similarly durable series of fundamental governmental approvals for the construction and operation of the Project.

- The Project will result in large reductions in emissions of greenhouse gases and other pollutants throughout its life and beyond a 30-year time frame (see Section 1.9).

- The Project will connect to the bulk power system on Cape Cod, and thus will increase the supply of power to the Cape and southeastern Massachusetts, an area which has experienced significant recent as well as future planned generation unit retirements. Because of its interconnect location and generation type, adding more than 1,200 MW of offshore wind generation to the current power generation portfolio in Massachusetts will provide fuel diversification and enhance the overall reliability of power generation and transmission in the region and in particular the southeast Massachusetts area. This will mitigate future costs for ensuring reliable service for Massachusetts customers.

- Project construction will generate substantial economic benefits throughout its life and beyond a 30-year time frame, as discussed in greater detail in Section 1.9.2. These benefits include on-going opportunities for regional maritime industries, including but not limited to tug charters, other vessel charters, dockage, fueling, inspection/repairs, and provisioning.

Basic Requirements and Proper Public Purpose Requirement (310 CMR 9.31)

This Project conforms with 310 CMR 9.31(1) of the Waterways Regulations, which defines the basic requirements for waterways licenses and permits. As a water-dependent use project that crosses Commonwealth Tidelands, the Project is presumed to serve a proper public purpose in accordance with 310 CMR 9.31(2)(a).

Categorical Restrictions on Fill and Structures (310 CMR 9.32)

The Project meets the threshold statutory tests for fill and structures on tidelands as presented within the Waterways Regulations at 310 CMR 9.32. The use is categorically allowed, as the Project is a water-dependent facility associated with offshore wind that is not in an Area of Critical Environmental Concern (ACEC) or a Designated Port Area (DPA). Pursuant to 310 CMR 9.32(1)(a)(2), a license may be granted for *"fill or structures for water-dependent use located below the high water mark, provided that, in the case of proposed fill, reasonable measures are taken to minimize the amount of fill…"* The Project does not include fill.

Environmental Protection Standards (310 CMR 9.33)

The Waterways Regulations at 310 CMR 9.33 require all projects to *"comply with applicable environmental regulatory programs of the Commonwealth."* The reviews, approvals, and permits identified in Table 1-1 will be sought in support of the Project, consistent with all applicable authorizations and approvals.

Conformance with Municipal Zoning and Harbor Plans (310 CMR 9.34)

There are no Municipal Harbor Plans in the Project area.

The Proponent has met with officials from the Town of Barnstable, including with regard to the underground cables that would be located in tidelands. Zoning generally does not apply to land below the low water mark. With regard to land in the intertidal zones subject to Chapter 91 jurisdiction, the underground cables are unlikely to require any zoning relief. In November 2022, the Proponent filed a Chapter 40A Zoning Petition with the DPU requesting specific and comprehensive zoning exemptions from the Zoning Ordinance of the Town of Barnstable, a request which would include zoning applicable to underground cables in tidelands. That petition has been consolidated with the EFSB proceeding. The Proponent is seeking these exemptions to avoid doubt and to allow for the timely construction of the NE Wind 2 Connector and avoid the substantial public harm that would result from delay in the construction and operation of the Project.

The Proponent has presented the Project to the Town Council, has and will continue to have good faith discussions with Barnstable officials regarding the Project, and will continue to make a good faith effort to abide by reasonable recommendations from Barnstable.

<u>Standards to Preserve Water-Related Public Rights (310 CMR 9.35)</u>

In accordance with 310 CMR 9.35, Chapter 91-jurisdictional projects are required to preserve any rights held by the Commonwealth in trust for the public to use tidelands and waterways for lawful purposes, and to preserve any public rights of access that are associated with such use. The consistency of the Project with each of these protected rights is described below.

Navigation

The Regulations at 310 CMR 9.35(2)(a) stipulate that a project *"shall not significantly interfere with public rights of navigation."*

Any potential Project-related impacts to navigation in the Commonwealth will be temporary in nature, with the greatest number of Project-related vessels limited to the construction period and primarily in the area of active cable installation. The Proponent will coordinate with the U.S. Coast Guard, the Massachusetts Steamship Authority, and other ferry operators prior to initiating cable installation activities; this coordination will address the best way to communicate with fishermen, commercial vessel operators, and recreational boaters to advise all users of the location of the active work zone. Once installed, the proposed offshore export cables will be located beneath the seafloor and will pose no hazard to navigation. The Project will have a dedicated Marine Coordinator to facilitate offshore navigation. Navigation and vessel traffic are discussed in Section 6.3.

Free Passage Over and Through Water

As stipulated by 310 CMR 9.35(2)(b), a project *"shall not significantly interfere with public rights of free passage over and through water."*

The Project will not impede public rights of free passage over and through water within the Commonwealth other than necessary temporary restrictions for safety purposes during cable installation activities.

Access to Town Landings

Pursuant to 310 CMR 9.35(2)(c), a project *"shall not significantly interfere with public rights associated with a common landing, public easement, or other historic legal form of public access from the land to the water that may exist on or adjacent to the project site."*

As discussed in Section 12, some temporary restrictions to access will occur during the construction period to maintain public safety, but they will be limited in duration and extent. The Proponent has designed the HDD staging area in a manner to maintain public access to the parking lot and pier at the east end of the landfall site during construction. Access to the paved parking lot at the landfall site via the causeway will be temporarily restricted during duct bank installation along the causeway during non-summer months.

Fishing and Fowling

As required by 310 CMR 9.35(3)(a), a project *"shall not significantly interfere with public rights of fishing and fowling…"*

The Project will not result in the elimination of fishing or fowling locations used by the public. The Project will have no significant permanent adverse effects on any fishing ground (see Section 7.1). No permanent changes in bottom topography are expected within Commonwealth tidelands, except for minor alterations where cable protection measures may be needed (see Section 5.1.3), and existing organisms and habitat along the portion of the route proposed for cable installation area adapted to disturbances associated with active sediment transport and resuspension due to strong tidal currents and storm activity. Access to the fishing pier will be maintained during the construction period. Access to the paved parking lot at the landfall site via the causeway will be temporarily restricted during duct bank installation along the causeway during non-summer months.

On-Foot Passage

As set forth by 310 CMR 9.35(3)(b), a project *"shall not significantly interfere with public rights to walk or otherwise pass freely on private tidelands for purposes of fishing, fowling, navigation, and the natural derivatives thereof…"*

The Project will not interfere with public rights to pass freely on tidelands. As discussed in Section 12, some temporary restrictions to access will occur during the construction period to maintain public safety, but they will be limited in duration and extent.

Compensation for Interference with Public Rights in Commonwealth Tidelands

Pursuant to 310 CMR 9.35(4), *"any water-dependent use project which includes fill or structures for private use of Commonwealth tidelands…shall provide compensation to the public for interfering with its broad rights to use such lands for any lawful purpose. Such compensation shall be commensurate with the extent of interference caused, and shall take the form of measures deemed appropriate by the Department to promote public use and enjoyment of the water, at a location on or near the project site if feasible."*

No fill will occur in Commonwealth tidelands as part of this Project, as the Project does not involve placement of any unconsolidated material. Although the cable will be located within Commonwealth tidelands, it will be buried and will not interfere with any public uses other than during brief construction-related periods. Some cable protection, in the form of rock placement or concrete mattresses, may be needed if burial to full depth is unsuccessful. The Proponent will seek to avoid and/or minimize the use of such cable protection, minimizing potential impacts (see Section 5.1.3).

Management of Areas Accessible to the Public

Pursuant to 310 CMR 9.35(5), *"[a]ny project that includes tidelands… accessible to the public… shall provide for long-term management of such areas which achieves effective public use and enjoyment while minimizing conflict with other legitimate interests, including the protection of private property and natural resources."*

The Project does not propose any new permanent limitations on public access since the proposed cables will be buried. The Project will not permanently alter any tidelands or access thereto.

<u>Standards to Protect Water-Dependent Uses (310 CMR 9.36)</u>

The regulations at 310 CMR 9.36 are designed to protect any water-dependent uses occurring at or proximate to the project. Subpart (1) indicates that the *"project shall preserve the availability and suitability of tidelands for water-dependent purposes…"*; Subpart (2) states that *"[t]he project shall not significantly interfere with littoral or riparian property owners' right to approach their property from a waterway, and to approach the waterway from said property…"*; Subpart (3) stipulates that *"[t]he project shall not significantly disrupt any water-dependent use in operation…"*; Subpart (4) states that *"[t]he project shall not displace any water-dependent use that has occurred on the site within five years prior to the date of license application…"*; and, under Subpart (5), *"[t]he project shall not include fill or structures for nonwater-dependent or water-dependent, non-industrial uses which preempt water-dependent-industrial use within a Designated Port Area (DPA)."*

The Project is a water-dependent use that will not adversely affect other water-dependent uses occurring at or proximate to the proposed cable corridors. The Project will not interfere with littoral or riparian property owners' rights to approach their property from a waterway or to gain access to the waterway and will not permanently disrupt any water-dependent use in operation. The Project will not alter access to waterways, other than construction-period limitations to maintain safety. The proposed Project occurs entirely outside any DPA.

<u>Engineering and Construction Standards (310 CMR 9.37)</u>

The regulations at 310 CMR 9.37 govern the structural stability of proposed projects constructed in tidelands. Specifically, 310 CMR 9.37(1) requires that *"[a]ll fill and structures shall be designed and constructed in a manner that: (a) is structurally sound, as certified by a Registered Professional Engineer; (b) complies with applicable state requirements for construction in flood plains, in accordance with the State Building Code, 780 CMR 744.00 and as hereafter may be amended, and* *will not pose an unreasonable threat to navigation, public health or safety, or adjacent buildings or structures, if damaged or destroyed in a storm; and (c) does not unreasonably restrict the ability to dredge any channels."*

All structures (which by definition include cable) will be designed and certified by a Registered Professional Engineer and constructed in a manner that is structurally sound. The Project will not restrict the ability to dredge any channels. Although the portion of the cable located in the intertidal zone will be within the 100-year floodplain, the infrastructure will be located underground and will not impede or otherwise exacerbate floodwaters.

<u>Use Standards for Recreational Boating Facilities (310 CMR 9.38)</u>

The Project does not involve a recreational boating facility; therefore, these standards do not apply.

<u>Standards for Marinas, Boatyards, and Boat Ramps (310 CMR 9.39)</u>

The Project is not a marina, boatyard, or boat ramp; therefore, these standards do not apply.

<u>Standards for Dredging and Dredged Material Disposal (310 CMR 9.40)</u>

Pursuant to 310 CMR 9.40(1)(a) and (b), a *"project shall not include any dredging of channels, mooring basins, or turnaround basins to a mean low water depth greater than 20 feet…"* and *"if the project is located in an ACEC, the project shall not include any of the following activities: improvement dredging… dredged material disposal…"*

The Project does not include any dredging of channels, mooring basins, or turnaround basins, nor is it located within an ACEC.

The Regulations at 310 CMR 9.40(2) are intended to provide resource protection by limiting the timing of dredging to minimize impacts on fish, shellfish, fishery resource areas, and submerged aquatic vegetation. The Proponent will continue to consult with the Massachusetts DMF regarding construction methodology and schedule to arrive at a construction plan that avoids and minimizes impacts, while maintaining constructability.

Regulations at 310 CMR 9.40(3) are intended to limit the extent of dredging to the minimum area necessary to satisfy the purpose of that dredging. For the proposed Project, dredging is proposed only to achieve sufficient burial of the offshore export cables; no dredging beyond that purpose is proposed.

Regulations at 310 CMR 9.40(4) pertain to dredged material disposal. For this Project, dredged sand is proposed to be released within similar areas of the surveyed OECC that contain sand waves.

Consistent with the regulations at 310 CMR 9.40(5), the Proponent will notify MassDEP at least three days before commencing any authorized dredging.

Conservation of Capacity for Water-Dependent Use (310 CMR 9.51)

The Regulations at 310 CMR 9.51 state that *"a nonwater-dependent use project that includes fill or structures on any tidelands shall not unreasonably diminish the capacity of such lands to accommodate water-dependent use."*

The Project is water-dependent; therefore, this section does not apply.

Utilization of Shoreline for Water-Dependent Purposes (310 CMR 9.52)

Pursuant to 310 CMR 9.52, *"a nonwater-dependent use project that includes fill or structures on any tidelands shall devote a reasonable portion of such lands to water-dependent use…"*

The Project is water-dependent; therefore, this section does not apply.

Activation of Commonwealth Tidelands for Public Use (310 CMR 9.53)

The Regulations at 310 CMR 9.53 state that a *"nonwater-dependent use project that includes fill or structures on Commonwealth tidelands, except in Designated Port Areas, must promote public use and enjoyment of said lands…"*

The Project is water-dependent; therefore, this section does not apply.

Consistency with Coastal Zone Management Policies (310 CMR 9.54)

Pursuant to 310 CMR 9.54, *"nonwater-dependent use projects located in the coastal zone shall be consistent with all policies of the Massachusetts Coastal Zone Management Program…"*

The Project is water-dependent; therefore, this section does not apply. Nonetheless, the Project is consistent with the coastal zone management program. The Proponent submitted a Federal CZM Consistency Statement for both phases of New England Wind (i.e., Park City Wind and Commonwealth Wind) on September 14, 2022. A public notice indicating that the project is undergoing federal consistency review was published in the *Environmental Monitor* on September 23, 2022. The federal review process includes CZM as an active participant. CZM and the Proponent are currently working together so the agency receives the information it needs to address Project consistency.

Standards for Nonwater-Dependent Infrastructure Facilities (310 CMR 9.55)

The Project is water-dependent; therefore, these standards do not apply.

Standards for Facilities of Limited Accommodation (310 CMR 9.56)

The Project is not a Facility of Limited Accommodation; therefore, these standards do not apply.

3.6 Sustainable Development Principles

The Project's consistency with each of the Commonwealth's ten Sustainable Development Principles[10] is discussed below. These principles were developed as part of the Massachusetts Climate Protection Plan (2004) to encourage public agencies, businesses, industries, and citizens "to take cost-effective, common-sense steps toward reducing GHG emissions in ways that also advance other important state policies and objectives."

1. Concentrate Development and Mix Uses: This principle encourages reuse of previously developed sites as well as the creation of mixed-use districts. The Project's proposed onshore export cable route will not result in any change in land use, as it utilizes roadway layouts and existing utility ROWs.

2. Advance Equity: The Project will generate numerous public benefits described in Section 1.9, including the creation of jobs. Broader benefits will be associated with enhanced reliability of the New England power grid as well as air quality benefits associated with more than 1,200 MW of clean, renewable energy.

3. Make Efficient Decisions: As one of the first offshore wind projects in Massachusetts, the Project is providing an opportunity for relevant agencies to develop efficient permitting and approval policies to efficiently address this important new type of energy project in the region.

4. Protect Land and Ecosystems: The proposed offshore and onshore export cable routes have been selected to avoid and minimize potential impacts to natural and human environments. The offshore export cable corridors specifically avoid and minimize impacts to SSU resources as defined in the Massachusetts OMP, and the onshore export cable routes minimize disturbance to high-density residential areas, wetlands, and high-traffic areas.

5. Use Natural Resources Wisely: The Proponent is committed to delivering more than 1,200 MW of clean, renewable energy to enhance the reliability and sustainability of the New England electric grid. The Proponent has also assessed the potential effects from sea level rise and shoreline change and has selected a preferred landfall site that is accreting rather than eroding (see Section 10.1 for additional details regarding climate change resiliency).

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10 Found at; https://www.mass.gov/doc/notice-of-funding-availability-commonwealths-sustainable-development-principles/download

6. Expand Housing Opportunities: The Project does not involve housing; therefore, this principle is not applicable.

7. Provide Transportation Choice: The Project does not involve transportation or uses that will affect transportation; therefore, this Principle is not applicable.

8. Increase Job and Business Opportunities: Job and business-related Project benefits are described in detail in Section 1.9. The Project has Massachusetts-based offices in and has engaged a number of Massachusetts-based professionals to support elements of the design effort, licensing, and permitting. In addition, the Project will create a number of job opportunities within the marine trades and affiliated industries, and will have a positive impact on those sectors, particularly those heavily influenced by seasonal hiring. The Project will endeavor to make local/regional purchases of construction materials, and once operational, the Project will create a significant number of O&M jobs.

9. Promote Clean Energy: The Project is proposed to deliver more than 1,200 MW of clean, renewable energy to New England's electrical grid, and as such is another important step toward establishing a strong offshore wind industry in New England.

10. Plan Regionally: The Project will benefit both the energy grid on Cape Cod and the greater region, as described in Section 1.9.1.

3.7 Massachusetts Coastal Zone Management Federal Consistency Statement

The NE Wind 2 Connector complies with the enforceable policies of Massachusetts' approved Coastal Zone Management Plan and will be conducted in a manner consistent with such policies. The Company filed a CZMA Consistency Statement as Appendix III-S of the COP, and it was provided as Attachment H to the ENF. *See* 26 U.S.C. 1451 et seq. (CZMA); 15 CFR Part 930 (implementing regulations); 301 CMR 20.00 (Massachusetts regulations). The Consistency Statement addresses New England Wind in its entirety, and therefore pertains to Park City Wind/NE Wind 1 Connector as well as Commonwealth Wind/NE Wind 2 Connector. CZM will complete a formal review of the Consistency Statement, and it may be updated during that review. The Project's compliance with the Coastal Zone Management Plan is set forth in the Consistency Statement previously provided as ENF Attachment H.

3.8 Conformance with Water Quality Certification Criteria (314 CMR 9.00)

The MassDEP 401 Water Quality Certification (WQC) Program regulates the discharge of dredged or fill material, dredging, and dredged material disposal in Waters of the U.S. in the Commonwealth for the purpose of reviewing the effects of the discharge on state water quality standards.

The Proponent will seek a permit under the Massachusetts 401 WQC Regulations for the following activities occurring within the Massachusetts seaward boundaries (the three-nautical mile limit):

- Discharge of dredged materials from localized sand wave dredging within the OECC; and

- Activities that may potentially change the bottom elevation: installation of offshore export cables where temporary resuspension and settlement of sediments may potentially modify bottom elevation and placement of cable protection for the offshore export cables (if/where needed).

The following sections describe Project conformance with Section 401 WQC Criteria.

3.8.1 Criteria for Evaluation of Discharge of Dredged or Fill Material

In accordance with 314 CMR 9.06(1) through (7), the Project conforms to WQC criteria for discharge of dredged or fill material as follows:

1. *No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.*

   The Project is a water-dependent project for which there is no practicable alternative but to cross Nantucket Sound. Nonetheless, to consider all reasonable routing options, which included consideration of minimizing adverse impacts on the aquatic ecosystem, the Proponent initially delineated a routing study area that encompassed all of southeastern Massachusetts as well as eastern Rhode Island. The routing analysis included numerous geographic routing alternatives involving various potential interconnection locations, landfall sites, substation sites, and onshore and offshore cable routing, including the assessment of approximately 50 possible landfall sites along the south coast of Cape Cod and on the east coast of Buzzards Bay. These various alternatives are described in Section 4.0.

   In addition to identifying an offshore route that minimized the impacts of cable installation, the Proponent has also assessed alternative methods of cable installation. These include a range of methods directed at minimizing impacts through adjustment of technique depending upon environment. As proposed, the nearshore installation will entail the use of HDD, while offshore installation will likely include both jet-plow and mechanical plowing; descriptions of each potential installation technique are provided in Section 12.1.

2. *No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will avoid and minimize potential adverse impacts to the bordering or isolated vegetated wetlands, land under water or ocean, or the intertidal zone. However, no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species.*

The Proponent will avoid and minimize potential adverse impacts to wetlands through careful routing and the selection of appropriate cable installation techniques. The selection of the OECC is described in Section 2.1.3, while installation techniques are described in Section 12.1. Section 5 describes wetlands, potential impacts, and measures to avoid and minimize those impacts.

BOEM is the lead federal agency for permitting Commonwealth Wind (the wind energy generation facility for which the NE Wind 2 Connector transmission is proposed) and is overseeing federal Endangered Species Act (ESA) consultation. A detailed description of federally threatened and endangered species found within the Offshore Project Area, along with measures to avoid, minimize, or mitigate potential impacts, is included in Volume III of the COP. The Project is not expected to jeopardize the continued existence of a listed species or affect critical habitat (see Section 7.2). Because all of Nantucket Sound is listed as Priority Habitat, the Proponent has initiated consultations with NHESP and will submit a MESA Project Review Checklist which will enable NHESP to make a determination as to whether a conservation and management permit is required for the Project.

3. *No discharge of dredged or fill material shall be permitted to Outstanding Resource Waters…*

   The Project is not proposed within Outstanding Resource Waters; therefore, this criterion does not apply.

4. *Discharge of dredged or fill material to an Outstanding Resource Water specifically identified in 314 CMR 4.06(1)(d)… is prohibited as provided therein unless a variance is obtained under 314 CMR 9.08.*

   The Project does not involve the discharge of dredged or fill material to an Outstanding Resource Water (or other areas identified in 314 CMR 9.06(4)); therefore, this criterion does not apply.

5. *No discharge of dredged or fill material is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation.*

   The Project does not involve the discharge of dredged or fill material for the impoundment or detention of stormwater; therefore, this criterion does not apply.

6. *Stormwater discharges shall be provided with stormwater best management practices to attenuate pollutants and to provide a setback from the receiving water or wetland in accordance with the following Stormwater Management Standards…*

   Within Section 401 WQC jurisdiction, the Project will not result in any permanent changes in drainage patterns, runoff volume or capacity, or stormwater management. Outside of Section 401 WQC jurisdiction, land-side construction-period Best Management Practices (BMPs) to manage stormwater will include the use of silt fence and/or hay bales around the construction staging and temporary work areas (see Section 12.5.2). These controls will be maintained throughout construction until any disturbed surfaces have been stabilized. There will be no new direct discharges of untreated stormwater as a result of the Project.

7. *No discharge of dredged or fill material shall be permitted in the rare circumstances where the activity meets the criteria for evaluation but will result in substantial adverse impacts to the physical, chemical, or biological integrity of surface Waters of the Commonwealth.*

   The Project is not a “rare circumstance” where it meets the above criteria yet still results in substantial adverse impacts.

Physical Substrate

Multiple seasons of offshore field programs (2017 through 2020) have been completed to determine the surficial and subsurface geology within the OECC (see Section 2.1.3). While the introduction of cable protection in limited locations, if needed, will constitute a change in the physical substrate, such changes will only impact a small fraction of the overall habitat. In addition, any dredged material removed from sand waves will be repositioned within the same OECC and will be deposited on a similar sandy substrate; no disposal of dredged material will be allowed on hard bottom areas.

Water Quality

Offshore water quality is discussed in Section 6.2. The Project is not expected to result in a change in water chemistry or seafloor bathymetry (other than minimal changes due to the possible addition of cable protection in limited locations). The Project is also not expected to obstruct water flow. Sediment dispersion modeling has demonstrated that excess suspended sediments are temporary and typically dissipate within 4-6 hours, and often in only 1-2 hours (see Section 6.2.1). Therefore, all impacts from elevated turbidity will be localized and short-term.

Contaminant Determinations

Section 2.1.3.3 describes geology along the OECC, in which most of the sediments are sands with varying amounts of silt. Significant contamination is not expected within this predominantly sandy offshore environment. Temporary disturbances to these sediments from cable installation and dredging are not expected to introduce, relocate, or increase contaminants.

In general, contaminants may enter the marine environment in nearshore areas from sources such as stormwater runoff, direct discharges, or accidental spills. In addition, commercial and recreational marine traffic as well as shoreline activities (e.g., marinas, launch ramps) can generate by-products from vessel operations that may be introduced into the water column and sediments. The highest concentrations tend to be found closest to the source.

Contaminants tend to accumulate in areas of reduced current flow where these materials can be deposited with finer-grained sediments. Dredging, if necessary, will occur in portions of the OECC that contain mobile sand waves, features that are an indication of active sediment transport and scour on the bottom. It is unlikely that contaminants would accumulate in these high-current, well-mixed areas. There are no designated dumping sites along the OECC, and there is no historical evidence of dumping or other releases of chemical contaminants. Furthermore, all sand wave dredging is anticipated to be well offshore (more than a mile), so no impacts from shoreline activities is anticipated. Considering all of these factors, no chemical contamination is expected to be present along the OECC where dredging may occur.

<u>Aquatic Ecosystem and Benthic Organisms</u>

Section 2.1.3 describes the existing benthic habitat and resources within the OECC and discusses Project techniques for avoiding and minimizing impacts. Impacts are anticipated to be short-term and localized, and recovery is expected.

In general, impacts to the aquatic ecosystem will primarily occur during the offshore construction period, and ongoing discharges of dredged or fill material after initial construction are not expected. Impacts associated with cable installation activities (including cable protection and sand wave dredging) are described in Section 5.1, while the results of sediment dispersion modeling are presented in Section 6.2.1. Overall, impacts from sand wave dredging are anticipated to be short-term and localized, and recovery is expected.

In addition, the introduction of cable protection measures, if needed, may function as an artificial reef, and provide rocky habitat previously absent from the area.

3.8.2 Criteria for Evaluation of Dredging and Dredged Material Management

The Project complies with applicable criteria for dredging and dredged material disposal as stipulated in 314 CMR 9.07.

As described in Section 5.1.4, during TSHD operations, once the hopper is full, the dredge will navigate several hundred meters away and deposit the dredged material within an area of the surveyed corridor that also contains sand waves. No upland reuse or disposal in designated disposal areas is proposed.

Project compliance with applicable general dredging performance standards defined at 314 CMR 9.07(1)(a-k) is described below:

(a) No dredging shall be permitted unless appropriate and practicable steps have been taken which will first avoid, and if avoidance is not possible then minimize, or if neither avoidance or minimization are possible, then mitigate, potential adverse impacts to land under water or ocean, intertidal zone, and special aquatic sites. No dredging shall be permitted if there is a practicable alternative that would have less impact on the aquatic ecosystem. However, no

such dredging may be permitted which will have any adverse effect on specified habitat sites of Rare Species unless the work is subject to a Conservation and Management Permit or Determination of No Take issued by the Division of Fish and Wildlife.

As discussed in Section 5.1.4, there is no alternative to dredging in locations where large sand waves may prevent cable burial within the stable seabed. Dredging will be minimized and is only proposed where needed (within larger sand waves) to achieve adequate cable burial in the stable seabed. Dredging will be conducted in a manner to minimize short-term, long-term, and cumulative impacts on the aquatic ecosystem and to provide protection to human health. Dredging will occur within sand waves and dredged sediments will be released in areas within the surveyed OECC that already have a similar sandy composition.

Since all of Nantucket Sound is listed as Priority Habitat, the Proponent has initiated NHESP consultations and will submit a MESA Project Review Checklist which will enable NHESP to make a determination as to whether a conservation and management permit is required for the proposed Project.

For the design option that involves a microtunnel crossing of East Bay, the selected installation method will not restrict tidal flow over the full natural tidal range. The trenchless crossing, as proposed, is a proven method for installing conduits beneath the waterway without affecting the tidal flow.

For these reasons, and the reasons identified in Section 3.8.1, the Project meets the criteria in 314 CMR 9.07(1)(a).[11]

(b) All applications, except for maintenance projects, shall include a comprehensive analysis of practicable alternatives as defined in 314 CMR 9.07(1)(a). The scope of alternatives to be considered shall be commensurate with the scale and purpose of the proposed activity, the impacts of the proposed activity, and the classification, designation and existing uses of the affected wetlands and waters in the Surface Water Quality Standards at 314 CMR 4.00: Massachusetts Surface Water Quality Standards.

As discussed in Sections 5.1.4, there is no alternative to dredging in locations where large sand waves may prevent cable burial within the stable seabed. Dredging will be minimized and is only proposed where needed (within larger sand waves) to achieve adequate cable burial in the stable seabed. Dredging will be conducted in a manner to minimize short-term, long-term, and cumulative impacts on the aquatic ecosystem and to provide protection to

[11] In addition to the text presented above, 314 CMR 9.07(1)(a) contains additional standards associated with the construction, repair, replacement, or expansion of a stream crossing. These standards do not apply to the Project as there are no proposed activities that would result in the construction, repair, replacement, or expansion of a stream crossing.

human health. Dredging will occur within sand waves and dredged sediments will be released in areas within the OECC that have a similar sandy composition. Apart from dredging, the Project does not involve the discharge or introduction of any pollutants to the surface water.

Refer to Section 6.2.1 for a detailed discussion regarding the potential impacts to water quality and measures to avoid, minimize, and mitigate those potential impacts. In summary, sediment dispersion modeling results indicate that excess TSS concentrations associated with both dredging and cable installation activities settle out rapidly and only persist for 4 to 6 hours (and frequently only 1-2 hours) within relatively localized areas. These short-term, localized impacts are not expected to cause a significant impact to water quality.

For context, the BOEM stated in the DEIS for the Vineyard Wind project, which will largely utilize the same OECC with similar construction methodologies, that “suspended sediment concentrations between 45 and 71 mg/L can occur in Nantucket Sound under natural tidal conditions and increases in suspended sediment concentrations due to jet plow are within the range of variability already caused by tidal currents, storms, trawling, and vessel propulsion.” Further, BOEM concluded that it expects only minor impacts on water quality due to suspended sediment during installation, dredging, and cable-laying because of the brief duration and small area of impact.

For these reasons, the Project meets the criteria in 314 CMR 9.07(1)(b).

(c) *Dredging and dredged material management shall be conducted in a manner that ensures the protection of human health, public safety, public welfare and the environment.*

The Project is not a typical dredging project, as cable installation involves the repositioning of a narrow band of seafloor sediments as well as some discontinuous dredging of the tops of sand waves to achieve adequate burial depth. Although a limited amount of dredged material is proposed to be released within the surveyed OECC, as described in Section 5.1.4, the Project does not involve traditional dredged material removal or disposal. The Project also does not involve improvement dredging and will be conducted in a manner that protects human health, public safety, public welfare, and the environment.

For these reasons, the Project meets the criteria in 314 CMR 9.07(1)(c).

(d) *Applications submitted to the Department shall meet the criteria and performance standards of 314 CMR 9.07. If the project submitted by the applicant does not meet a particular provision of 314 CMR 9.07 and criteria of 314 CMR 4.00: Massachusetts Surface Water Quality Standards, the applicant shall demonstrate to the Department’s satisfaction that the project will provide an equivalent level of environmental protection.*

For the reasons the Project meets the criteria in 314 CMR 9.07(1)(d), refer to the compliance discussion for the criteria in 314 CMR 9.07(1)(b) above.

(e) *Dredged material shall not be disposed if a feasible alternative exists that involves the reuse, recycling, or contaminant destruction and\or detoxification.*

In addition to the text presented above, 314 CMR 9.07(1)(e) contains additional standards associated with the disposal and treatment of dredged material. This criterion is not applicable to the Project as none of the dredged material is to be removed and disposed. The Project is not a typical dredging project as cable installation involves the repositioning of a narrow swath of seafloor sediments as well as some discontinuous dredging of the tops of sand waves to achieve adequate burial depth.

(f) *The Department may consider any additional information including but not limited to that submitted under MEPA or NEPA on impacts from the dredging activity, management of the dredged material, the alternatives available for reuse or disposal techniques, alternative sites for the various management activities, or information related to other Department programs.*

For the reasons above in the context of compliance with 314 CMR 9.07(1)(b), the Project meets the criteria in 314 CMR 9.07(1)(f).

(g) *Dredged material management activities or facilities subject to the 401 Water Quality Certification, shall comply with the provisions of 314 CMR 9.00 and the conditions of the 401 Water Quality Certification. The Certification does not relieve the proponent of the obligation to comply with all other applicable federal, state and local statutes and regulations including without limitation the antidegradation provisions of 314 CMR 4.04(3): Protection of Outstanding Resource Waters.*

The Project has been designed to comply with all applicable federal, state, and local statues and regulations. Refer to Section 1.7 for a description of all required permits, reviews, and approvals. For this reason, the Project meets the criteria in 314 CMR 9.07(1)(g).

(h) *Dredged material, including sediment, placed on or in the land at an upland location is subject to the release notification requirements and thresholds of 310 CMR 40.0300: Notification of Releases and Threats of Release of Oil and Hazardous Materials; Identification and Listing of Oil and Hazardous Materials and 40.1600: Massachusetts Oil and Hazardous Materials List for soil, unless such placement is in accordance with the provisions of 310 CMR 40.0317(10) and 314 CMR 9.07 (4), (6), (9), (10), or (11).*

This criterion is not applicable to the Project, as none of the dredged material is to be removed and disposed. The Project is not a typical dredging project as cable installation involves the repositioning of a narrow band of seafloor sediments as well as some discontinuous dredging of the tops of sand waves to achieve adequate burial depth.

(i) *No dredging is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation.*

This criterion is not applicable to the Project, as none of the dredging is related to stormwater management.

(j) *No dredging shall be permitted in the rare circumstances where the activity meets the criteria for the evaluation but will result in substantial adverse impacts to the physical, chemical, or biological integrity of waters of the Commonwealth.*

The Project is not a "rare circumstance" where it meets the above criterion yet still results in substantial adverse impacts.

(k) *Except as otherwise provided in 314 CMR 9.07(1)(k)1 through 5, no dredging shall be permitted in Outstanding Resource Waters.*

The Project is not proposed within Outstanding Resource Waters; therefore, this criterion does not apply.

In addition, the Project will comply with the applicable Sampling and Analysis Requirements in the dredging performance standards defined at 314 CMR 9.07(2)(a-b). The "dredging" associated with the Project is limited to sand wave dredging (likely via a TSHD, see Section 5.1.4) and cable installation (see Sections 5.1.1 and 12.1). While both sand wave dredging and cable installation could be considered "dredging" as defined at 314 CMR 9.02, impacts from each activity are distinct, with much less significant impacts than more typical "dredging" activities. In addition, the Project does not include unconfined open water disposal or upland reuse of any "dredged material". The Proponent completed a due diligence review to determine the potential for sediment proposed to be dredged along the Project to have concentrations of oil or hazardous materials, as defined in 310 CMR 40.000: *Massachusetts Contingency Plan* and consulted with the USACE regarding the need to perform bulk sediment chemistry analysis for sand wave areas and cable installation areas proposed to be "dredged". During due diligence, the Proponent did not encounter any information suggesting such testing would be warranted. In general, contamination is more typically present in sediments near harbors and industrial sites than offshore waters because coastal development is the primary source of contaminants.[12]

For sampling prior to 2020, based on the due diligence and given the coarse-grained characteristics of sediment along the OECC, no bulk sediment chemistry was performed. The USACE agreed that no bulk sediment chemistry was required for the "dredging" along the

12 US Department of Energy, Minerals Management Service (USDOE MMS). (2009). Final environmental impact statement for the proposed Cape Wind Energy Project, Nantucket Sound, Massachusetts (Adopted), DOE/EIS-0470. Retrieved from https://www.boem.gov/Cape-Wind-FEIS/

Project, and MassDEP determined the same during permitting of the Vineyard Wind Connector. In summer 2020, the Proponent submitted a survey plan to MassDEP for state waters in the OECC that included a commitment to perform chemical testing on any vibracore samples containing more than 10% fine material (material passing the No. 200 U.S. Standard Series Testing Sieve), consistent with MassDEP regulations at 314 CMR 9.07(2)(b)(6). MassDEP approved this plan in August 2020. Grain size and chemical results were submitted to MassDEP as part of permitting for the NE Wind 1 Connector, and these results demonstrated that contamination was not a concern. In Fall 2022, the Proponent consulted with MassDEP regarding vibracores collected offshore from the landfall site, and the Department confirmed no further testing was warranted. The Proponent will present this information in its application for a 401 WQC.

The Project will comply with the applicable Dredging Performance Standards defined at 314 CMR 9.07(3)(a-e):

(a) The resuspension of silt, clay, oil and grease and other fine particulate matter shall be minimized to protect aquatic life and other existing and designated uses of waters of the Commonwealth.

In general, impacts to the aquatic ecosystem will primarily occur during the offshore construction period and ongoing discharges of dredged or fill material after initial construction are not expected. Potential impacts to wetland resources are described in Section 5, and Section 6.2 describes potential impacts to offshore water quality, including results from sediment dispersion modeling. Overall, the dredging and bottom dumping impacts are anticipated to be short-term and localized, and recovery is expected.

(b) Improvement dredging activities shall minimize and, to the maximum extent possible, avoid affecting areas of ecological importance including but not limited to vegetated wetlands, shellfish habitat, spawning habitat, habitat of state-listed rare wildlife, salt marsh, intertidal zone, riffles and pools, and vegetated shallows.

The Project does not involve improvement dredging activities; therefore, this criterion does not apply.

(c) Where feasible, a minimum of 25 feet shall remain unaltered between the edge of vegetated wetlands, salt marsh or vegetated shallows, and waterward edge of the top of the slope of a dredging area.

The Project will not impact vegetated wetlands, salt marsh, or vegetated shallows. Furthermore, the alignment of the HDD proposed to accomplish the offshore-to-onshore transition will avoid any impacts to eelgrass beds.

(d) *Dredging shall not be undertaken during migration, spawning, or juvenile development periods of finfish, shellfish, crustaceans or merostomatans in locations where such organisms may be affected, except as specifically approved by the Department…*

The timing of export cable installation and potential time-of-year (TOY) restrictions is discussed in detail in Section 12.7.2.

The "dredging" associated with the Project is limited to sand wave dredging (likely via a TSHD, see Section 5.1.4) and cable installation (see Sections 5.1.1 and 12.1). While both sand wave dredging and cable installation could be considered "dredging" as defined at 314 CMR 9.02, impacts from each activity are distinct with much less significant impacts than more typical "dredging" activities. In addition, the Project does not include unconfined open water disposal or upland reuse of any "dredged material".

3.9 Cape Cod Commission Regional Policy Plan

The Cape Cod Commission's (CCC's) most recent Regional Policy Plan (RPP) became effective in December 2018 and was amended on March 30, 2021. The 2018 RPP is the fifth plan prepared by the CCC. The first was adopted on September 6, 1991, with updated plans in 1996, 2002, and 2009. The 2018 RPP is an evolution of those previous plans, building on the goals and policies set forth and integrating stakeholder input to better define and characterize current challenges and solutions.

The RPP identifies goals and objectives in the areas of natural systems (water resources, ocean resources, wetland resources, wildlife and plant habitat, open space protection), built systems (community design, coastal resiliency, capital facilities and infrastructure, transportation, energy, and waste management), and community systems (cultural heritage, economy, and housing).

The Project is subject to review by the CCC as a Development of Regional Impact (DRI). Full consistency with the RPP will be demonstrated in the DRI Application, which will be submitted following completion of MEPA review. This section describes Project consistency relative to the natural, built, and community systems.

3.9.1 Natural Systems

According to the RPP, 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 transmission system is predominantly located within existing roadway layouts. The Project is consistent with open space-related goals and will not have any significant permanent impacts to designated open space. As described in Section 2.3.5.2, a microtunnel is an alternative methodology that could be used to cross East Bay instead of installing duct bank within the existing paved causeway (which is the preferred methodology). The staging area for the microtunnel receiving operation would be primarily located within the maintained lawn area immediately northeast of the intersection between East Bay Road and the causeway leading to Dowses Beach. Existing vegetation consisting of several trees, shrubs, and ground cover would be cleared for the operation (see Attachment C4, Sheet 3). Vegetation in the area consists of substantial amounts of invasive species as well as native species that would all be removed and replaced in accordance with a restoration plan that would be developed during the permitting phase of the Project, but is anticipated to be focused on replacing invasive species with native species to enhance the area following construction.

All offshore and onshore export cables will be installed underground and will have no permanent effects on the use of lands through which they pass. The only above-ground element of the Project is the proposed substation, which will be located on a collection of privately-owned parcels west of Oak Street (see Section 2.4). The site is north of Route 6 and is less than a quarter mile west of the existing West Barnstable Substation where the Project's interconnection will occur. The parcels are comprised primarily of undeveloped wooded uplands with one of the parcels developed with one single-family home. No mapped wetlands, vernal pools, or rare species habitat are located on the site. The Project will employ BMPs and techniques associated with cable installation to avoid and minimize potential impacts to natural resources. Open space mitigation will be provided to offset impacts related to tree clearing; the precise form of that open space mitigation will be defined during the Cape Cod Commission's review of the Project.

3.9.2 Built Systems

Infrastructure-related objectives of the RPP are to use infrastructure efficiently while promoting long-term sustainability and resiliency on Cape Cod. This Project is proposed to provide more than 1,200 MW of clean, renewable energy from offshore wind, 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 in Barnstable, utilizing existing roadway layouts and utility ROWs (see Section 4).

3.9.3 Community Systems

The RPP's economic development goal is to promote a sustainable regional economy comprised of a broad range of businesses providing employment opportunities to a diverse workforce. The Plan also calls for an adequate, reliable, and diverse supply of energy to serve Cape Cod.

The Project promises numerous benefits associated with energy reliability and the economy, as detailed in Sections 1.9.1 and 1.9.2, respectively. One of the key benefits is the Project would enhance the reliability and diversity of the energy mix on Cape Cod and in the Commonwealth of Massachusetts, hence enabling development and redevelopment. NE Wind 2 Connector would improve reliability by feeding power into the center of the Cape Cod transmission system. Connecting a substantial electricity supply to Cape Cod will mitigate future costs for ensuring reliable service to Massachusetts customers.

3.10 Martha's Vineyard Commission Regional Policy Plan

Adopted in 2009, the Island Plan was facilitated by the Martha's Vineyard Commission (MVC) to provide guidance for future development and community decisions on Martha's Vineyard. The Project is subject to review by the MVC as a DRI. Full consistency with the MVC's Island Plan will be demonstrated in the DRI Application, which will be submitted following completion of MEPA review, but this section describes Project consistency relative to economic development, adequacy of infrastructure, and open space.

3.10.1 The Island Plan (2009)

The Island Plan encourages economic diversity and efforts to combat climate change, such as the reduction of fossil fuel use. The Project will be another major step in meeting the region's growing demand for clean energy and offers many environmental and economic benefits (see Section 1.9). More specifically, the Project will serve the public interest by delivering over 1,200 MW of power to the ISO-New England electrical grid, thus making a substantial contribution to meeting regional renewable energy requirements.

Neither the offshore wind energy generation project nor the associated transmission is proposed on Martha's Vineyard; therefore, the Project will not affect infrastructure on the island. This Project is proposed to provide over 1,200 MW of clean, renewable energy from offshore wind, and in so doing will improve the reliability and diversity of the energy mix on Cape Cod (and, by association, Martha's Vineyard since the island is connected via cables to Cape Cod). Through a thorough routing analysis, the Proponent is seeking a carefully considered route to the necessary grid interconnection at the West Barnstable Substation; this route involves a portion of the proposed offshore export cables passing through waters within the boundary of the Town of Edgartown. Therefore, the Project will not affect open space on the island of Martha's Vineyard.

3.10.2 Wind Energy Plan for Dukes County (2012)

The Wind Energy Plan for Dukes County is an effort, facilitated by the MVC and involving a working group of representatives of the seven towns and other organization, to help the community deal with the potential and challenges of wind energy. The plan recommends regulations, thresholds, and criteria to provide a reasonable and balanced approach to assess wind energy developments.

Thorough analyses have been carried out so the Project is reasonable and balanced, resulting in minimal impacts to offshore and onshore resources. The Project is proposed to provide over 1,200 MW of clean, renewable energy from offshore wind, enhancing the reliability and diversity of the energy mix on Cape Cod and in the Commonwealth of Massachusetts.

3.10.3 DRI Policies

The MVC has adopted policies covering a broad range of issues to help applicants and members of the public understand how the MVC evaluates proposed Developments of Regional Impact. These policies outline the MVC's general goals and objectives for each topic, as well as providing specific criteria and guidance which the MVC believes will further its goals and objectives. The polices are intended to assist applicants in designing projects and preparing proposals that address the MVC's concerns such as water quality, open space preservation, and energy.

The Project is consistent with DRI policies, and has been designed to minimize Project impacts. Moreover, the Project will promote the highlighted DRI policies including delivering over 1,200 MW of renewable energy to the ISO-NE electrical grid, displacing fossil-fueled generation, and thereby reducing CO_2e emissions by approximately 2.35 million tons per year across the ISO-NE electrical grid. No open space will be impacted on Martha's Vineyard, since the only portion of the Project in proximity to the island will be sections of each of the three offshore export cables that will pass through waters within the boundary of the Town of Edgartown.

Section 4.0

Alternatives Analysis

4.0 ALTERNATIVES ANALYSIS

This section describes numerous potential alternatives to the proposed Project, or elements of the proposed Project that have been considered, and identifies why those alternatives have been determined to be inferior to the Project as proposed. The potential Project alternatives considered in this analysis are:

- The "No Build" alternative;
- Transmission alternatives (cable technology, number of interconnection locations, shared transmission); and
- Geographic routing alternatives (interconnection points, landfall sites, onshore routing, and substation sites).

For a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this analysis.

4.1 No Build

Under the No-Build Alternative, the Proponent would not pursue the NE Wind 2 Connector, preventing the delivery of over 1,200 MW of renewable 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 1.8, and it would deprive the region of a key project to help achieve greenhouse gas reduction goals. It bears noting that offshore wind has been determined to be an indispensable component of the Commonwealth's plan to meet mandates of the Global Warming Solutions Act, as no other renewable energy source that is reasonably available offers the scale of clean energy from offshore wind.

Similarly, non-transmission alternatives, sources of power other than offshore wind (such as solar, onshore wind, or combustion-based generation), and load management would not allow the delivery of offshore wind energy to the regional grid. Replacing the Project with an alternative other than offshore wind generation would frustrate the Commonwealth's objectives, including under Section 83C and the Massachusetts Clean Energy and Climate Plan (CECP) for 2025 and 2030, which the Proponent hopes to support.

None of these alternatives would meet the region's offshore wind energy generation requirements and none would satisfy Section 83C (see Section 1.2.2). For these reasons, they were not considered further.

4.2 Transmission Alternatives

The following subsections describe potential transmission alternatives for the Project in terms of cable technologies and interconnection strategies. The discussion focuses on practical aspects of transmission alternatives as well as implications for reliability, environmental impacts, and cost.

4.2.1 Cable Technology Alternatives

4.2.1.1 HVAC vs. HVDC

For the NE Wind 2 Connector, HVAC is preferred to high-voltage direct current (HVDC) transmission because it is more cost effective given the transmission length, highly reliable and consistent with the cable technology approved for the Vineyard Wind Connector and proposed for the NE Wind 1 Connector, and available within a timeframe consistent with the schedule for the NE Wind 2 Connector. HVAC cables are more expensive than HVDC cables because each HVAC cable has three circuits, requiring three copper conductors. HVDC cables only have one circuit in each cable, a (+) and a (-), requiring less copper. However, HVDC converter stations are more expensive than HVAC substations. Therefore, for offshore export cable lengths significantly greater than 62-75 miles (100-120 km), the developer will generally accrue enough cable savings to offset the extra costs of the converter stations required for HVDC transmission, making HVDC more economical for longer lengths. In terms of reliability, because each HVAC cable has three complete circuits, they provide more reliability than HVDC cables because if one circuit goes offline, power can still be transmitted through one of the remaining circuits.

HVDC is used successfully for long-distance power transmission and has been proposed for long-distance projects in the Northeast such as the Champlain Hudson Power Express and Clean Path New York, neither of which would be an offshore application.[1] Only three U.S. offshore wind projects with an offtake agreement have proposed HVDC technology due to their longer offshore routes which rendered HVAC infeasible or less cost-effective: Sunrise Wind in New York (168.4 km[2]); Beacon Wind 1 in New York (> 250 km[3]); and Mayflower Wind in Massachusetts (156 – 200 km[4]). Globally, most offshore wind projects constructed to date have been constructed with HVAC

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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 March 14, 2023). 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 March 14, 2023).

2 https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/SRW01_COP_Rev3_2022-08-19_508.pdf

3 https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Developer-Summaries-Compiled.pdf

4 https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Mayflower%20Wind%20COP%20Volume%20I_0.pdf

systems. Several large HVDC projects in the United Kingdom are currently under construction (Dogger Bank and Sofia) or in development (East Anglia 3, Hornsea 3, and Norfolk Boreas and Norfolk Boreas), but manufacturing capacity for the necessary cables is limited due to the limited HVDC project and supply chain experience. This imposes significant lead-time requirements for HVDC cables that are incompatible with the Commonwealth Wind and NE Wind 2 Connector project schedule. In contrast, the cable manufacturer for NE Wind 2 Connector, Prysmian, is developing a manufacturing facility at Brayton Point in Massachusetts that will supply HVAC offshore cables for the NE Wind 2 Connector on a timeframe consistent with the expected schedule for the Project. While HVDC did not fit with Prysmian's initial business objective for its Brayton Point facility, HVDC technology is continually being developed and may become available following additional offshore wind project developments within the region.

The proposed Project design is based on HVAC cable technology. To date, U.S. projects with offshore routes less than 62-75 miles (100-120 km), as is the case with Commonwealth Wind and the NE Wind 2 Connector, have all been proposed with HVAC cable technology. For all these reasons, HVAC transmission was selected over HVDC as the most suitable and cost-effective solution for Commonwealth Wind and the NE Wind 2 Connector.

4.2.1.2 Transmission Voltage

The voltage of the proposed export transmission system will be 275 kV. For some time, 220 kV has been the standard and accepted operating voltage for comparable connections of offshore projects in Europe. The 275-kV cables are similar in construction and physical size to 220-kV cables but operate at higher voltage/lower amperage for a given power rating. The higher-voltage cables have lower power losses and can have lower magnetic field levels for a given power flow.

An even higher voltage such as 345 kV could theoretically be used for an offshore wind project, but there are no tested offshore cables of this type, and a long type-testing process would be required.

Voltages lower than 275 kV are not desired for this Project, as they would increase the number of cables required and increase overall power losses. Therefore, selecting lower-voltage cables than 275 kV would increase Project costs, extend the installation schedule, and enlarge the area impacted in the offshore and onshore environments.

4.2.1.3 Cable Type

Cross-linked polyethylene plastic (XLPE) insulation will be used for the Project's offshore and onshore cables, and XLPE is considered state-of-the-art technology for offshore transmission worldwide. XLPE cables are solid dielectric cables that do not contain any type of insulating fluids (unlike high-pressure fluid-filled [HPFF] pipe type cables), and have been proven to be more reliable with greater ease of handling than high-pressure fluid-filled (HPFF) or oil-impregnated cables. XLPE also allows for standard and quicker jointing and termination.

The proposed offshore and onshore export cables are described in greater detail in Sections 1.3.2 and 1.3.4, respectively.

4.2.2 Single vs. Multiple Interconnection Locations

An assessment of potential interconnection locations is provided in Section 4.3 in the context of the Project's route alternatives analysis. In designing the Project, the Proponent also considered whether the NE Wind 2 Connector should connect to the regional electrical grid at a single interconnection point or multiple interconnection points. Specifically, the Proponent considered a Dual Interconnection Alternative that would have interconnected 400 MW in Acushnet and 800 MW in West Barnstable. This alternative would have required a second OECC making landfall within a town located along Buzzards Bay, and was considered in case technical engineering or other issues were identified with accommodating all three proposed circuits at the landfall site, along the onshore route, or at the proposed interconnection at the West Barnstable Substation.

A preliminary interconnection load flow analysis shows that the Project could interconnect over 1,200 MW at the existing 345-kV West Barnstable Substation, provided certain infrastructure improvements are made at the substation (see Section 1.3.7). Furthermore, engineering confirmed the viability of accommodating the three circuits at the landfall site and along the onshore route, allowing the Proponent to dismiss the Dual Interconnection Alternative. Maintaining a single point of interconnection at the West Barnstable Substation results in a cost-effective and efficient construction sequence. It also eliminates the need for additional onshore cabling, a second distinct OECC, construction of new substations in multiple locations, and significantly reduces impacts related to installation of offshore and onshore cables as well as landing at two separate sites.

It would not be feasible to interconnect 1,200 MW of power in Acushnet under existing conditions, and the Proponent is not aware of any plans to expand the capacity of the substation to accommodate more than 400 MW of new power. Such expansions typically take years of study and significant, costly upgrades, and therefore sending 1200 MW to Acushnet would cause unacceptable delays and uncertainties to the Project. Use of the Acushnet interconnection was only considered as a contingency and its use for anything more than 400 MW (or 1 circuit) was only considered an option if technical engineering or other issues were identified with accommodating all three proposed circuits at the landfall site, along the onshore route, or at the proposed interconnection at the West Barnstable Substation.

As described in Section 4.3, multiple potential interconnection points on Cape Cod were considered for the Project. The West Barnstable Substation was determined to be the best interconnection location for the Project. Based on this, the Proponent sought and now holds ISO-NE interconnection queue positions (QP) 806 and QP 1109 for an interconnection at West Barnstable Substation. Moreover, the Proponent has been able to secure an option to purchase parcels totaling approximately 29 acres less than a mile west of the existing West Barnstable Station.

4.2.3 Generator Lead Line Approach vs. Shared Transmission

The Proponent considered a shared transmission option for Commonwealth Wind, but rejected that approach for the reasons discussed below. Coordinating shared transmission solutions could conceivably provide benefits for some projects in the future, but it is not a viable solution for the NE Wind 2 Connector. Because of the characteristics of Commonwealth Wind and Lease Area OCS-A 0534, a generator lead line is superior to a shared transmission alternative based on cost, reliability, and environmental grounds. The Lease Area is relatively close to available interconnection locations on Cape Cod, and this direct route enables the transmission from multiple projects (i.e., Vineyard Wind Connector, NE Wind 1 Connector, and NE Wind 2 Connector) to be located within the same OECC. Such projects can be developed expeditiously to deliver the benefits of offshore wind energy generation to New England in a timely manner without the inherent risks associated with shared transmission investments.

A shared transmission strategy for NE Wind 2 Connector would have additional drawbacks, including substantial technological, development, and regulatory risks, which are currently not present in the generator lead line approach for NE Wind 2 Connector. For example, any delay or other issue that affects timing, cost, or design of shared transmission infrastructure could significantly impact the timing, cost, or design of an offshore wind project and vice versa. In a generator lead line approach, a single party is responsible for the generation and transmission component of an offshore wind project, and can take an integrated approach to design, development, financing, construction, and operation, internalizing the costs thereof. Shared transmission introduces significant coordination challenges with respect to project development, permitting, stakeholder engagement, and other processes that determine impacts and mitigation techniques. Beyond the increased risks, for the NE Wind 2 Connector to be developed with a shared transmission approach, the associated shared transmission approach would need to be developed, proposed, and likely selected through a competitive process. Those steps have not occurred to date and pursuing them would not allow the development of the associated offshore wind energy generation facility and the delivery of the associated clean energy on the anticipated timeline. In addition, requiring such an approach would gravely jeopardize the ability of this project to be online to meet the Commonwealth's climate target goals of 2030.

While Avangrid supports shared transmission solutions where they are appropriate, in terms of grid reliability there are many unknowns and risks associated with this approach that have yet to be thoroughly studied or addressed in the regulatory environment, and therefore make the timeline for implementation infeasible for this Project. For example, individual wind energy generation facilities operating within a shared transmission system may be impacted if a fault were to occur on a section of the shared transmission system. It is unclear how this would impact the generation facilities connected to the shared transmission system, including whether all wind turbines would be tripped offline and how each facility would bear the costs of such a fault, including how this would impact the terms and conditions in respective Power Purchase Agreements (PPAs). It is also unclear how the regional grid operator, ISO-New England, would operate the power grid during such conditions to ensure grid reliability. These are critical issues that need to be addressed through thoughtful and thorough analyses by the states, ISO-NE, and other affected stakeholders before a shared transmission system is adopted as part of future offshore wind procurements.

Moreover, shared transmission infrastructure is not necessarily preferable from an environmental perspective for the NE Wind 2 Connector. Consider a scenario in which a shared transmission network was developed for 1,600 MW of offshore wind capacity interconnecting to ISO-NE. The current maximum loss of source for a Normal Design Contingency, utilized for planning purposes in ISO-NE, is approximately 1,200 MW. This effectively limits the amount of capacity that can interconnect to the grid from a single source to approximately 1,200 MW regardless of whether transmission is independently developed or a project-specific generator lead line. To comply with this limit, a shared transmission infrastructure designed to support 1,600 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. In this scenario, the resulting shared transmission infrastructure would not yield any environmental advantages relative to project-specific generator lead lines developed for the same capacity of offshore wind. Finally, to the extent that shared transmission infrastructure is likely to increase complexity and 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.

There are additional technological constraints on the development of a shared transmission system. A shared transmission solution would require HVDC cables with a large power rating to ensure wind generation commitment with sizable procurement steps (e.g., 1600 MW or greater). This would require an HVDC technology system with voltage class greater than the current 320 kV model, for example, to implement. Higher HVDC transmission voltage classes, such as a 525 kV system, have not been sufficiently type-tested for offshore wind projects and may not be fully available on a commercial scale for several more years. Waiting several years for the needed technology to mature or materialize would delay realization of the benefits of offshore wind.

Experience to date has been that offshore wind projects with generator lead lines, rather than shared transmission projects, are selected through state procurements. The first Massachusetts Section 83C procurement, issued in Fall 2017, included a provision for a shared transmission option. That option was not selected; rather, the initial 800-MW PPA went to Vineyard Wind LLC. The Vineyard Wind offering was based on a wind turbine array in Lease Area OCS-A 0501 and a generator lead line. Use of a proven, cost-effective HVAC cable technology, together with a modest cable length and an interconnection that could be accomplished without significant system upgrades, were significant elements of Vineyard Wind's cost-competitive 800-MW proposal for Vineyard Wind 1/Vineyard Wind Connector. The state, regional, and local permitting of the Vineyard Wind Connector was completed in approximately two years.

Since the initial Section 83C award to Vineyard Wind, other offshore wind projects have been advanced from U.S. lease areas, all involving generator leads (i.e., direct transmission interconnections). They include (in approximate chronological order of offtake award):

- South Fork Wind (Orsted), 130 MW (connection into Long Island Power Authority (LIPA) system, eastern end of Long Island);
- Skipjack Wind 1 (Orsted), 120 MW (connection into Pennsylvania-Jersey-Maryland [PJM] system, Maryland or Delaware for offtake in Maryland);
- MarWin (US Wind), 270 MW (connection into PJM system, Delaware for offtake in Maryland);
- Revolution Wind (Orsted and Eversource), 704 MW (interconnection to ISO-NE grid at Davisville Substation, Rhode Island [RI]);
- Empire Wind 1 (Equinor Wind US LLC), 816 MW (interconnection at Gowanus Substation in Brooklyn, New York [NY]);
- Sunrise Wind (Orsted and Eversource), 880 MW (grid interconnection into Holbrook and West-Bus substations in Brookhaven, NY in east-central Long Island);
- Ocean Wind 1 (Orsted and PSEG), 1,100 MW (interconnection into PJM system in Oyster Creek, New Jersey [NJ]);
- Mayflower Wind (Shell and EDP Renewables); 804 MW + 400 MW in subsequent 2021 award (connection to ISO-NE grid at Brayton Point, Somerset, MA);
- Park City Wind/NE Wind 1 Connector, 804 MW (connection to ISO-NE grid at the 345-kV West Barnstable Substation);
- Empire Wind 2 (Equinor Wind US LLC), 1,260 MW (interconnection at Barrett Substation, Oceanside, NY);
- Beacon Wind (Equinor Wind US LLC), 1,230 MW (interconnection at Astoria Substation in Queens, NY);
- Ocean Wind 2 (Orsted), 1,148 MW (interconnection into PJM system in Ocean City, NJ);
- Atlantic Shores 1 (Shell and EDF), 1,510 MW (interconnection into PJM system at Cardiff Substation, Egg Harbor, NJ);
- Commonwealth Wind/NE Wind 2 Connector, 1,232 MW (connection to ISO-NE grid at the 345-kV West Barnstable Substation);
- Skipjack Wind 2 (Orsted), 846 MW (connection into PJM system, Maryland or Delaware for offtake in Maryland);
- Momentum Wind (US Wind), 809 MW (connection into PJM system, Delaware for offtake in Maryland); and
- Coastal Virginia Offshore Wind (Dominion Energy), 2,640 MW (connection into Dominion system, Virginia).

Shared transmission will likely be considered in future Massachusetts solicitations. Building on the 2016 Energy Diversity Act, in 2018 Massachusetts passed An Act to Advance Clean Energy which required DOER to (1) require the EDCs to conduct solicitations and procurements for up to

1,600 MW of additional offshore wind; and (2) require solicitation of transmission from wind energy areas.[5] In response to this legislative mandate, 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.[6] A transmission-only solicitation has not occurred in Massachusetts to date.

Recent solicitations outside of Massachusetts for shared transmission have not yet yielded results. Specifically, in April 2021, New Jersey issued a solicitation for offshore wind shared transmission solutions. Thirteen developers submitted 80 projects, and in October 2022 New Jersey announced awards from that solicitation. Despite the number of proposals, the New Jersey Board of Public Utilities (NJBPU) did not select any proposal for construction of shared transmission offshore; only on-land system upgrades were approved. In deciding not to award any offshore component, NJBPU indicated that shared transmission will be a component of a future offshore wind solicitation.

4.2.4 Conclusion on Transmission Alternatives

For the reasons discussed above, the design proposed for the NE Wind 2 Connector, where up to three 275-kV circuits are used to deliver clean energy from an offshore wind energy generation facility to the ISO-NE electrical grid at a single interconnection point, is not only preferred but is superior to other transmission alternatives.

4.3 Interconnection Points

To ensure that all reasonable options for interconnection were considered, the Proponent delineated a Study Area that encompassed all of southeastern Massachusetts as well as eastern Rhode Island. Features within the Study Area of particular importance and identified in Figure 4-1 include:

- Locations of possible interconnection points to the electrical grid with existing transmission infrastructure with capacity for accommodating a minimum of 1,200 MW of energy injection with reasonable upgrades;
- Locations of existing offshore cables; and
- The boundaries of the NE Wind 2 Connector OECC.

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5 In 2021, two acts provided further authority for soliciting shared transmission options. *See* An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, St. 2021 c. 8, § 95, An Act Making appropriations for the Fiscal Year 2022, St. 2021, c. 24, § 72. That authority was further elaborated upon in the 2022 Act Driving Clean Energy and Offshore Wind, St. 2022, c. 179, §§ 70, 82.

6 DOER. May 2019. *Offshore Wind Study*. Prepared with support from Levitan & Associates. https://www.mass.gov/files/documents/2019/05/31/OSW%20Study%20-%20Final.pdf.

Route Selection for the Project was determined by several key factors. As described in Section 4.2.2, a dual interconnection alternative was dismissed in an effort to minimize construction impacts, environmental impacts, and cost. Therefore, the Proponent sought a grid interconnection point that could accommodate at least a 1,200-MW injection of power to avoid the need to construct multiple onshore export cable routes and substations. This injection capacity requires a robust substation with a connection to the transmission system at 345 kV or above. Substations that can potentially accommodate at least 1,200 MW located near the coastline within southeastern Massachusetts and Rhode Island include the following substations, which are shown on Figure 4-1:

- Kent County Substation
- Brayton Point
- Canal Substation
- West Barnstable Substation
- Pilgrim Substation

Once the array of potential interconnection points was identified, the Proponent considered the potential routing distance between those points and Lease Area OCS-A 0534 (see Table 4-1 and Figure 4-1).

Table 4-1 Universe of Routing Options (all lengths approximate)

Interconnection Point	*Approximate Export Cable Length within Primary OECC*					
	Offshore[7]		*Onshore*		*Total*	
	miles	**km**	**miles**	***km***	***miles***	***km***
Kent County Substation (National Grid), RI	109	175	3	5	112	180
Brayton Point	74	119	<1	<1.6	75	121
Canal Substation, via Cape Cod Canal	88	142	<1	<1.6	89	144
Canal Substation, via onshore route parallel to the Cape Cod Canal	82	132	7	11	89	143
West Barnstable Substation	47	76	7	11	54	87
Pilgrim Substation, via ocean route	140	225	<1	<1.6	141	227

7 The approximate lengths of offshore export cable reported in Table 4-1 are measured from the northernmost portion of the area of Lease Area OCS-A 0534 to an assumed landfall site on the mainland. An additional length of offshore export cable within the portion of Lease Area OCS-A 0534 that will be utilized for Commonwealth Wind (up to approximately 26 miles [approximately 42 km] per cable, but likely less) will be needed to reach the electrical service platform(s).

During the previously-completed siting and permitting processes for Lease Area OCS-A 0501 and the northern portion of Lease Area OCS-A 0534 that will be utilized for Park City Wind/NE Wind 1 Connector, it was determined that the proposed OECC allowed for less environmental impacts than any other alternative evaluated due to its direct (i.e., shortest) route to the mainland from the lease areas and siting, which minimizes impacts to sensitive habitats. As described further in Section 2.1.3, extensive survey data have been collected within the OECC to confirm it is technically viable for cable installation as well as to document its characteristics and identify how impacts can be avoided, minimized, and mitigated. Additionally, the direct route of the OECC results in lower electrical line losses (i.e., more efficient transmission) and lower installation and operational costs than any other alternative. Further, as described in Section 4.2.1.1, the Project is utilizing High Voltage Alternative Current (HVAC) cable technology for several important reasons including maturity of the technology, availability of HVAC cables for the Project schedule, cost, and reliability. Therefore, 345-kV interconnection points that are compatible with use of the OECC and limited offshore cable lengths were advanced in the routing assessment.

Project engineers identified roughly 75 miles (120 km) as the approximate maximum length of a 275-kV Alternating Current (AC) export cable. The actual maximum distance is not a definitive value, as it depends on the precise technology used, such as voltage level and cable design. Project-specific variables such as cable design, cable loading (power and thermal cycling), power costs, technical requirements established by the connecting grid, and others may influence the cable length limitations. Soil resistivity at the end point of the offshore export cable also impacts its maximum feasible length. The targeted capacity of the cable is also relevant, as increasing the distance of export cable effectively lowers the capacity of the cable due to line losses.

Accordingly, the first step in screening early interconnection point alternatives was to eliminate any option that significantly exceeded 75 miles (120 km) in total route length; the options eliminated on the basis of excessive length are shaded in light gray in Table 4-1.

The Proponent also assessed the viability of various potential interconnection points within the Study Area based on queue capacity and the ability to utilize the shared OECC. Results from this assessment, described below, indicate that after consideration of cable length, queue capacity, and the ability to utilize the shared OECC, the West Barnstable Substation is the most viable point of interconnection to the ISO-NE electrical grid for the Project.

4.3.1 Kent County Substation

Kent County Substation is a 345-kV substation located in Kent County, Rhode Island (see Figure 4-1). This substation is connected to the bulk power grid by two 345-kV lines which run towards northern Rhode Island and eastern Connecticut. The surrounding system is predominantly composed of 115-kV transmission elements, which would require significant reinforcements to accommodate the minimum 1,200 MW capacity of the NE Wind 2 Connector.

In addition, the offshore export cable route to Kent County Substation would be approximately 109 miles (175 km) which would significantly exceed the feasible length identified by project engineers and would also be more environmentally impactful and costly than the proposed OECC. The route to this alternative interconnection point would also stray far outside the shared OECC and undermine the objective of the shared OECC, which is to use a common corridor for offshore cable infrastructure. The Massachusetts Ocean Management Plan (OMP) encourages the use of common corridors for infrastructure such as offshore cables:

> *"The intent of the ocean plan is to minimize the cumulative impact of future development by requiring that linear infrastructure be co-located within common or adjacent corridors to the maximum extent practicable, with allowances for sufficient space between projects for necessary operations and maintenance."* (p35-36)

For these reasons, this potential grid interconnection point was eliminated from further consideration.

4.3.2 Brayton Point Substation

Brayton Point is the site of a retired 1,600 MW multi-unit coal/oil fired, steam cycle base load power plant located on an approximately 300-acre site in the Town of Somerset on Mount Hope Bay and the Taunton River (see Figure 4-1). The National Grid-owned substation which served Brayton Point is connected to the bulk power grid by two 345-kV lines which run north to Medway as well as a number of 115-kV lines running to the north, east, and west. SouthCoast Wind (formerly Mayflower Wind Energy LLC) has filed a Petition with the Energy Facilities Siting Board (EFSB 22-04) that includes a 1,200-MW interconnection at Brayton Point. In total, there are at least 3,600 MW of active queue generation seeking interconnection at the Brayton Point Substation. Given the projects ahead of the Proponent in the ISO-NE queue, and the amount of capacity being proposed at Brayton Point, it is highly unlikely that this interconnection alternative would have sufficient transmission capacity to accommodate the NE Wind 2 Connector without significant grid upgrades.

At approximately 75 miles (121 km) long, the route to Brayton Point from the Lease Area is approximately 21 miles (34 km) longer than the route to Barnstable. This distance to Brayton Point assumes that cables are routed on the east side of Aquidneck Island (Sakonnet River) and traverse the narrow Sakonnet channel between the north end of Aquidneck and the mainland (Tiverton, Rhode Island area). The Sakonnet channel is crossed by power cables and pipelines as well as a bridge. There are also two marked pipeline crossing areas further south along Aquidneck Island. A route on the west side of Aquidneck Island would add some distance to the 75-mile (121-km) preliminary route. It would also stray far outside the shared OECC and undermine the objective of the shared OECC which is to use a common corridor for offshore cable infrastructure, consistent with the Massachusetts OMP.

Aside from considerations of route length and capacity limitations, Brayton Point poses other challenges. The route to Brayton Point traverses a 20-mile stretch of Rhode Island waters, and cable installation in Rhode Island waters would require several separate Rhode Island reviews and approvals, adding complexity to an already complex undertaking. Mount Hope Bay is traversed by the dredged Taunton River Federal Navigation Channel (serving Brayton Point, Fall River, the former Montaup Station, and the former Shell marine fuels terminal, among others). Cable installation would need to cross the navigation channel at some point, and the installation would need to proceed through some areas of historic contamination and fine-grained sediments.

For these multiple reasons, this potential grid interconnection point was eliminated from further consideration.

4.3.3 Canal Substation

The 345-kV Canal Substation is located in Sandwich, Massachusetts (see Figure 4-1). The Eversource/NSTAR-owned substation currently serves the Canal Generating Station and is connected to the bulk power grid by two 345-kV lines which run north to the Carver and Pilgrim substations as well as three 115-kV lines running south to Bourne.

The substation already has two existing combined cycle generators and one simple cycle generator with a combined capacity of approximately 1,500 MW. These units currently operate during periods of extended cold weather, and until the Canal units retire from the ISO-NE system, there is no available transmission capacity to accommodate large injections of new energy generation without a significant rebuild of the existing transmission system. Under these current conditions, an offshore wind energy generation project interconnecting at the Canal Substation would need to curtail operations during cold periods when the Canal units are firing, thus substantially reducing the ability of that offshore wind project to mitigate winter price spikes and supply zero-emissions energy.

Recently, the owner of the Canal Plant requested that rules governing the pending Massachusetts offshore wind solicitation be amended to allow for offshore wind developers to use the Canal substation during periods of time when the Canal Plant is not generating power. The Department of Energy Resources and the electric distribution companies have opposed this request. Regardless of how that is resolved, the opportunity to connect offshore wind farms is based on each developer's rights to connect into the ISO-NE grid. Currently, Commonwealth Wind does not have queue rights to connect at Canal Substation. Due to significant queue backlog and long study timelines in the ISO-NE interconnection process, identifying new interconnection points outside of the existing West Barnstable Substation would push the Project to well past the target for the Commonwealth's climate goals.

In addition, potential routing to this interconnection point either through the Cape Cod Canal or by transitioning at the western end of the canal and traveling onshore parallel to the canal from there, the route would be approximately 65% longer than the route to the West Barnstable Substation (see Table 4-1). Installation within the Cape Cod Canal itself would be expected to be very challenging from technical and regulatory perspectives given periodic dredging as well as activities under the Sagamore Bridge and Bourne Bridge. The offshore portion of this route would also significantly diverge from the shared OECC compared to the West Barnstable interconnection, undermining the objective of the shared OECC. Further, making an overland connection to Canal Substation with landfall in a southern portion of Falmouth or Mashpee would likely require an onshore route in excess of 20 miles, approximately three times the length of the proposed onshore transmission route for the Project.

For these reasons, this potential grid interconnection point was eliminated from further consideration.

4.3.4 West Barnstable Substation

Based on an ISO-NE Feasibility Study and the First Cape Cod Resource Integration Study (CCRIS), the 345-kV West Barnstable Substation has sufficient capacity to accommodate the NE Wind 2 Connector with modifications and upgrades to certain 345-kV transmission lines near that substation. Furthermore, the Proponent has queue rights to interconnect at this location. The grid upgrades required to interconnect at the West Barnstable Substation are not as significant as those that would be expected at other potential interconnection locations such as Canal Substation or Brayton Point Substation, due to the presence of existing generation and/or significant amount of proposed generation capacity already seeking to interconnect at those substations. In addition, the onshore export cable route to the West Barnstable Substation would be of feasible length. The 345-kV West Barnstable Substation is located on a 12-acre parcel at the confluence of utility Right-of-Way (ROW) #381 and ROW #342 (see Figure 4-1). The West Barnstable Substation was originally constructed as part of a series of projects (known as NSTAR's Lower SEMA project) designed to improve reliability on the Cape. The core of the Lower SEMA project was to bring a new 345-kV line across the Cape Cod Canal from the Carver Substation to the West Barnstable Substation. This approximately 13-mile 345-kV line was created by changing the operating voltage on an existing line from 115-kV to 345-kV (the line had been constructed with 345-kV capability), and the West Barnstable Substation serves as the terminus of the 345-kV line (Line 399). The northern part of the same parcel contains the 115-kV Oak Street Substation.

The West Barnstable Substation is also the proposed interconnection point for the NE Wind 1 Connector associated with the Park City Wind project. ISO-NE interconnection studies for the NE Wind 2 Connector have assumed interconnection of the Park City Wind/NE Wind 1 Connector project as well. The West Barnstable Substation has available capacity to accommodate interconnection of both projects with reasonable grid upgrades.

The ISO-NE Feasibility Study for the NE Wind 2 Connector's planned 345-kV interconnection at the West Barnstable Substation determined bus work, feeders, a new autotransformer, and breaker bay will be required to accommodate the Project. It is expected that work at the West Barnstable Substation will be designed, constructed, and operated by Eversource.

4.3.5 Pilgrim Substation

The 345-kV Pilgrim Substation is located in Plymouth, Massachusetts (see Figure 4-1). The Eversource/NSTAR-owned substation served the 677-MW Pilgrim Nuclear Generating Station until the plant's retirement in 2019. The substation is connected to the bulk power grid by three 345-kV lines which run north to Holbrook, west to Carver, and south towards Canal in Sandwich.

Pilgrim Substation currently has approximately 1,200 MW of generation in the queue for proposed interconnection, and while it could likely accommodate additional capacity, it would require significant transmission system reinforcements to accommodate the full capacity of NE Wind 2 Connector.

Additionally, interconnecting at the Pilgrim Substation would require the longest offshore export cables from the Lease Area (approximately 140 miles [225 km]) and would require laying offshore export cables around outer Cape Cod through either the Cape Cod Ocean Sanctuary or Stellwagen Bank National Marine Sanctuary (see Figure 4-1). Use of this alternative interconnection point would also stray far outside the shared OECC and undermine the objective of using the common corridor. Therefore, this potential grid interconnection point was eliminated from further consideration.

4.3.6 Conclusion on Interconnection Points

Table 4-2 compares the various potential interconnection points considered for the Project. The West Barnstable Substation was determined to be the most favorable point of interconnection for the Project within the technological boundaries that would not impose significant additional costs and potential environmental impacts.

Table 4-2 Summary comparison of potential interconnection points

	Kent County	*Brayton Point*	*West Barnstable*	*Canal*	*Pilgrim*
Capacity to accept at least 1,200 MW?	**Yes**	**Yes**	**Yes**	**Only when Canal is not generating**	**Yes**
Sufficient Queue Capacity in light of other OSW projects?	**Yes**	No	**Yes**	No	**Yes**
Ability to use the Shared OECC?	No	No	**Yes**	No	No
Cable route of acceptable length?	No	No	**Yes**	No	No
Retained for routing analysis?	No	No	**Yes**	No	No

4.4 Landfall Sites

Simultaneous with the assessment of potential interconnection points, initial route screening included a broad assessment to identify potential landfall sites where the transition from offshore cabling to onshore cabling could occur. Criteria used to identify potential landfall sites in this initial step included:

- A beach-front parking area or similar available land with an appropriate area available to accommodate the offshore-to-onshore transition facilities required for the Project along with HDD staging and operations (approximately 1-1.25 acres);
- Technically feasible egress onto a public roadway of sufficient width to accommodate the onshore export cable duct bank component of the Project;
- Sufficient water depths (of 10 to 20 feet [3 to 6 m]) within approximately 3,000 feet (914 m) offshore to accommodate the required support barges for the HDD transition in the nearshore area;
- Enough space to accommodate the entry pits and drilling equipment associated with HDD;
- 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 residents;
- 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.

Initially, more than 50 possible landfall sites were identified along the south coast of Cape Cod and on the east coast of Buzzards Bay (see Figure 4-2). These initial landfall sites were reviewed in the context of cable length limitations and proximity to the potential grid interconnection points. They were then evaluated and graded based on the availability of adequate workspace, adjacent environmental resources, and sufficient inland egress to a suitable grid interconnection point. Some of the landfall sites were disqualified because they lacked sufficient workspace in which to stage construction operations or conflicted with private land ownership; many others were designated as “less preferable” due to potential impacts to environmental resources or poor egress (i.e., potentially inadequate road width, insufficient space for Project infrastructure, or routing through the densely developed Hyannis business district or year-around residential areas). The remaining landfall sites were graded as “potentially promising”. This preliminary landfall site evaluation is summarized in Table 4-3 (see corresponding Figure 4-2).

This array of landfall sites was also considered for the Vineyard Wind Connector and NE Wind 1 Connector, and in some cases the grading changed from project to project due to new information. For example, Craigville Public Beach in Barnstable was initially considered as a potentially promising landfall site, but was ultimately eliminated from consideration for the NE

Wind 2 Connector, as two offshore export cables for the NE Wind 1 Connector will make landfall at Craigville Public Beach. Infrastructure associated with NE Wind 1 Connector's cables will occupy a portion of the paved Craigville Public Beach parking lot, limiting the space available for additional cable landings. Even more significantly, the NE Wind 1 Connector will utilize the most favorable onshore route from the Craigville Public Beach Landfall Site to the West Barnstable Substation, leaving inadequate onshore route options for a project such as NE Wind 2 Connector.

The Proponent undertook the assessment of potential landfall sites with the goal of identifying a single landfall site which could accommodate all three HDDs while satisfying the other landfall site criteria. While it would theoretically be possible to make landfall at two or three separate landfall sites, that strategy would be flawed for multiple reasons. First, it would abandon the strategy of utilizing a common offshore corridor for routing offshore cables and thus avoiding many separate cable routes (a strategy encouraged by the Massachusetts OMP). Second, it would involve construction disturbances at more than one landfall site, projecting temporary construction-related impacts over multiple portions of the community. Third, utilizing more than one landfall site would require distinct onshore duct bank routes at least until the duct banks could be routed to join into a common duct bank. This would involve temporary construction-related disturbances along three separate onshore routes and would greatly complicate traffic management while exacerbating impacts to residences and businesses. It would also involve greater disruption to existing subsurface utilities. Finally, this strategy would likely entail much higher costs which, in the context of greater impacts, would be unreasonable.

It is crucial to note that for a Project of this complexity, there are interrelated aspects of the routing, each of which is important, and all of which must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this Analysis. The preliminary landfall site evaluation provided in Table 4-3 provides an early assessment of potential landfall site options, which ultimately must be evaluated in light of the selected interconnection point and the desire to utilize a common OECC consistent with guidance from the Massachusetts OMP.

Table 4-3 Preliminary Cable Landfall Site Evaluation

ID	Name	Town	Grade	Comments
1	Bell Ave	Bourne	Potentially promising	Good egress on canal service road. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
2	Jeffersons Cove	Bourne	Disqualified	Insufficient space for HDD setup. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
3	Causeway	Bourne	Disqualified	Insufficient workspace. Poor egress through dense residential area. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
4	Chester Park	Bourne	Less preferable	Limited workspace within public recreation area. Potential conflicts with moorings. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
5	Monument Beach	Bourne	Less preferable	Good egress, but potential conflicts with town marina and boat moorings. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
6	Mashnee Island	Bourne	Disqualified	Insufficient space for HDD setup. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
7	Wing's Neck Light	Bourne	Disqualified	Multiple conflicts with private land ownership. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
8	Barlows Landing	Bourne	Disqualified	Insufficient space for HDD setup. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
9	Patuissett Island	Bourne	Disqualified	Insufficient space for HDD setup. Use of this landfall site would assume a grid interconnection at Canal Station (ultimately eliminated for the Project).
10	Megansett	Falmouth	Less preferable	Poor egress on narrow streets through densely settled residential area.
11	Old Silver Beach	Falmouth	Less preferable	Egress requires bridge crossing and lengthy onshore transmission route.
12	Chapaquoit Beach	Falmouth	Less preferable	Egress requires bridge crossing through environmentally sensitive area.
13	Woodneck Beach	Falmouth	Less preferable	Poor egress through environmentally sensitive area.
14	Trunk River Lot	Falmouth	Disqualified	Insufficient space for HDD setup.
15	Elm Road Lot	Falmouth	Disqualified	Insufficient space for HDD setup.
16	Mill Road Lot	Falmouth	Potentially promising	Good egress but lengthy onshore transmission route.
17	Surf Drive Lot	Falmouth	Potentially promising	Good egress but lengthy onshore transmission route.

Table 4-3 Preliminary Cable Landfall Site Evaluation (Continued)

ID	Name	Town	Grade	Comments
18	Clinton Avenue	Falmouth	Disqualified	Insufficient space for HDD setup.
19	Tides Motel	Falmouth	Potentially promising	Good egress but lengthy onshore transmission route.
20	Falmouth Heights	Falmouth	Potentially promising	Good egress but lengthy onshore transmission route.
21	Bristol Beach	Falmouth	Potentially promising	Fair egress but lengthy onshore transmission route.
22	Maravista	Falmouth	Disqualified	Insufficient space for HDD setup.
23	In Season Resort	Falmouth	Potentially promising	Fair egress but lengthy onshore transmission route.
24	Menauhant	Falmouth	Less preferable	Egress requires multiple bridge crossings through environmentally sensitive area.
25	Southcape West	Mashpee	Less preferable	Poor egress through environmentally sensitive area. Lengthy onshore transmission route.
26	Southcape East	Mashpee	Potentially promising	State owned lands. Good egress, but lengthy onshore transmission route.
27	Popponesset Beach	Mashpee	Disqualified	Insufficient space for HDD setup.
28	Wading Place	Mashpee	Disqualified	Insufficient space for HDD setup.
29	Mashpee River	Mashpee	Disqualified	Inland location with significant impact to wetlands and rare species habitats required.
30	Loop Beach	Barnstable	Less preferable	Insufficient space in parking area for HDD staging and operations, and shallow offshore water depths insufficient for the HDD transition operations in the nearshore area.
31	Cotuit Landing	Barnstable	Less preferable	Insufficient space in parking area for HDD staging and operations, and shallow offshore water depths insufficient for the HDD transition operations in the nearshore area. Would result in conflicts with moorings and boating interests.
32	Prince's Cove	Barnstable	Less preferable	Would result in direct impacts to estuarine habitat, and has shallow offshore water depths insufficient for the HDD transition operations in the nearshore area. Would result in conflicts with moorings and boating interests.
33	Dowses Beach	Barnstable	Potentially promising	Sufficient space for HDD staging and operations, engineering has demonstrated adequate egress.
34	East Bay Boat Ramp	Barnstable	Less preferable	Insufficient space for HDD staging and operations. Potential conflicts with commercial shell fishing and boating interests. Non-HDD construction within environmentally sensitive East Bay, which may also conflict with a dredged channel at the narrow entrance to the bay.
35	McCarthy's Landing	Barnstable	Less preferable	Insufficient space for HDD staging and operations. Potential impacts to estuarine habitat and possible conflicts with boating interests.
36	Centerville River	Barnstable	Less preferable	Inland location with anticipated impact to estuarine habitat.
37	Craigville Beach	Barnstable	Less preferable	Landfall and egress to be utilized by NE Wind 1 Connector, leaving inadequate space for NE Wind 2 Connector within roadway layouts.

Table 4-3 Preliminary Cable Landfall Site Evaluation (Continued)

ID	Name	Town	Grade	Comments
38	Covell's Beach	Barnstable	Less preferable	Landfall and egress to be utilized by Vineyard Wind Connector, leaving inadequate space for NE Wind 2 Connector.
39	Hyannisport	Barnstable	Disqualified	Insufficient space for HDD setup.
40	Keyes Beach	Barnstable	Less preferable	Potentially promising as a landfall site alone with good egress, but onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector. Depending on the onshore transmission route from this landfall site may require routing through Hyannis commercial center, which is occupied by an existing National Grid buried duct bank.
41	Kalmus Beach	Barnstable	Less preferable	May require onshore routing through Hyannis commercial center which is already occupied by a National Grid buried duct bank. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
42	Veterans Park	Barnstable	Less preferable	Onshore route may require routing through Hyannis commercial center which is already occupied by a National Grid buried duct bank. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
43	Hyannis Marina	Barnstable	Disqualified	Insufficient space for HDD setup. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
44	Bayview Beach	Yarmouth	Less preferable	Egress requires routing past hospital entrance. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
45	Grove Street	Yarmouth	Disqualified	Insufficient space for HDD setup. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
46	Vernon Street	Yarmouth	Disqualified	Insufficient space for HDD setup. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
47	Red Jacket Resort	Yarmouth	Less preferable	Landing site has limited workspace located on private property. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
48	Colonial Acres	Yarmouth	Disqualified	Insufficient space for HDD setup. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
49	Englewood Beach	Yarmouth	Less preferable	Potentially promising as a landfall site alone, but onshore transmission route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector. Potential conflicts with boating and other recreational interests and Lewis Bay shellfish impacts.

Table 4-3 Preliminary Cable Landfall Site Evaluation (Continued)

ID	Name	Town	Grade	Comments
50	Great Island	Yarmouth	Disqualified	Multiple conflicts with private land ownership. Impacts to rare species habitat. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.
51	Seagull Beach	Yarmouth	Disqualified	Potential impacts to wide band of eelgrass directly offshore. Onshore route would likely require duct bank crossings of Vineyard Wind Connector and/or NE Wind 1 Connector.

As the evaluation of the landfall sites was proceeding, the West Barnstable Substation was determined to be the most favorable interconnection point for the Project. This narrowed the analysis of potential landfall sites to the stretch of the south coast of Cape Cod in Barnstable highlighted on Figure 4-2 and shaded in gray in Table 4-3 to provide the most efficient routing options to the interconnection location. Landfall sites further east from Covell's Beach were excluded since onshore routes would likely require duct bank crossings of the Vineyard Wind Connector and/or NE Wind 1 Connector. One of the challenges when designing duct banks for underground electrical transmission is dissipating heat from the cables, which is accomplished by optimizing conduit placement, constructing the duct bank with thermal concrete, and using thermal backfill above the duct banks. In a scenario where two such duct banks would cross, it would be difficult to design a crossing that could properly dissipate heat from both duct banks, which could reduce the current-carrying capacity of the circuits and thus reduce the amount of power that can be delivered to the grid. A duct bank crossing of this type would require a large physical space and would necessitate installing one of the duct banks quite deep to maintain adequate spacing; this could exceed the cable design limits and result in challenges with existing and planned underground utilities and other infrastructure.

Landfall sites further west from Loop Beach (Landfall ID #30) were excluded since they would require a longer OECC spur offshore as well as longer onshore routes to the point of interconnection. From the next feasible landfall site along the coast west of Loop Beach (i.e., Southcape East, #26 on Figure 4-2), an onshore route would likely be on the order of approximately 13.5 miles, which is approximately twice as long as the Preferred Route from the Dowses Beach Landfall Site.

Within the area of focus, the Proponent completed additional engineering, environmental, and constructability evaluations for each landfall site (see Attachment O). Figure 4-3 identifies these potential landfall sites and Table 4-4 summarizes the results of the Proponent's evaluation. This more design-based assessment of landfall site feasibility was based on the following criteria:

1. A minimum 68-foot (nominal 20-meter) offshore export cable centerline separation is required to maintain these three-conductor cables at an acceptable thermal range based on Project ampacity requirements. (Each three-conductor offshore export cable will be

spliced into three single-conductor onshore export cables in a transition joint bay. The nine onshore export cables will be contained in a single duct bank designed to maintain an acceptable thermal range based on the Project ampacity requirements.)

2. The HDD exit location in the seafloor is to be located approximately 2,000 feet from the shoreline or at a minimum water depth of 10 to 15 feet based on existing NOAA Chart information, whichever point is further from shore. This water depth is needed to safely accommodate the cable-laying vessel.

3. The anticipated maximum feasible length of each HDD installation is approximately 3,000 feet for proper execution of the HDD operation and to maintain an appropriate depth to achieve cable ampacity requirements.

4. HDD alignments shall not be routed under or near existing onshore structures to avoid the risk of property damage from construction.

As presented below, the Proponent concluded that the paved parking lot located at Dowses Beach is the most suitable, and therefore preferred, landfall site for the Project.

Table 4-4 Summary of Potential Landfall Sites

ID on Figure 4-3	*Name*	*Comments*
A	Loop Beach	Insufficient space in parking area for offshore-to-onshore transition facilities for all three circuits. Shallow offshore water depths is below the minimum requirement and the HDD length would be well in excess of maximum feasible HDD length. Open trenching to this landfall site would also interfere with a dredge channel at the entrance to Cotuit Bay (see Figure 4-3). See more in-depth discussion in Section 4.4.1 and Attachment O.
B	Cotuit Landing	Insufficient space in parking area for offshore-to-onshore transition facilities for all three circuits. Threading the cable through the channel would not be feasible due to the difficulty in bending the cable and steering limitations of HDD. Shallow offshore water depths mean HDD length would be well over the maximum feasible HDD length. Would result in conflicts with moorings and boating interests. Open trenching to this landfall site would also interfere with a dredge channel at the entrance to Cotuit Bay (see Figure 4-3). See more in-depth discussion in Section 4.4.2 and Attachment O.
C	Prince's Cove	Insufficient space for offshore-to-onshore transition facilities for all three circuits. Threading the cable through the channel would not be feasible due to the difficulty in bending the cable and steering limitations of HDD. Shallow water depths mean HDD length would be well over the maximum feasible HDD length. Would result in direct impacts to estuarine habitat. Would result in conflicts with moorings and boating interests. See more in-depth discussion in Section 4.4.3 and Attachment O.

Table 4-4 Summary of Potential Landfall Sites (Continued)

ID on Figure 4-3	*Name*	*Comments*
D	Dowses Beach	Sufficient space for offshore-to-onshore transition facilities, technically feasible egress for onshore export cable duct bank to public roadways with sufficient width and available space to accommodate the onshore export cable 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 environmentally sensitive areas, and has a direct route to point of interconnection. See more in-depth discussion in Section 4.4.4 and Attachment O.
E	East Bay Boat Ramp	Insufficient space for offshore-to-onshore transition facilities for all three circuits. HDD length would exceed the maximum feasible HDD length. Would result in direct impacts to estuarine habitat and conflicts with boating interests. See more in-depth discussion in Section 4.4.5 and Attachment O.
F	McCarthy's Landing	Insufficient space for offshore-to-onshore transition facilities for all three circuits. HDD alignment would route under/near residential structures. Would result in direct impacts to estuarine habitat and has conflicts with boating interests. See more in-depth discussion in Section 4.4.6 and Attachment O.
G	Craigville Beach	NE Wind 1 Connector landfall site. Insufficient space in roadway layouts from landfall for the onshore export cable duct bank to the West Barnstable Substation. See more in-depth discussion in Section 4.4.7 and Attachment O.
H	Covell's Beach	Vineyard Wind Connector 1 landfall site. Transition vaults for that project installed in April 2022. Insufficient space for offshore-to-onshore transition facilities for all three Project circuits. Insufficient space in roadway layouts for the onshore export cable duct bank to the West Barnstable Substation. See more in-depth discussion in Section 4.4.8 and Attachment O.
I	Wianno Avenue	Insufficient space for offshore-to-onshore transition facilities of all three circuits. HDD length would exceed maximum feasible HDD length. See more in-depth discussion in Section 4.4.9 and Attachment O.

4.4.1 Loop Beach

Loop Beach is a small public beach owned and managed by the Town of Barnstable off Ocean View Avenue on the west side of Cotuit Bay (see Figures 4-3 and 4-4). Its small parking area of approximately 0.22 acres is inadequate for the offshore-to-onshore transition facilities for the three offshore export cables proposed for the Project (see Attachment O, Sheet 3). In addition, while the site features good egress on public roads, it has shallow offshore water depths insufficient for the HDD transition operations in the nearshore area. In addition, the presence of a dredge channel at the entrance to Cotuit Bay would require sufficient separation from non-HDD cable installation and would further complicate construction in that area (see Figure 4-4).

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of the Loop Beach alternative landfall site location:

1. Current property constraints only allow potential for a maximum of two offshore export cable landings.
2. The area offshore from Loop Beach is very shallow and does not meet the required minimum water depth of 10 to 15 feet until a distance of approximately 6,000 feet from shore. This is well in excess of the maximum feasible HDD length of 3,000 feet, resulting in a fatal flaw for this landing location.
3. Even absent the clear constraint associated with HDD length, this alternative landfall site also presents the following concerns:
    a. The existing topography steps down from the edge of parking lot to beach area, creating a challenge for design and construction.
    b. Oceanview Avenue in the vicinity of the construction area would be used for construction laydown/staging and would, therefore, need to be closed for the duration of construction.
    c. Approximately 0.5 acres of tree and greenspace clearing would be required around the work area.
    d. The existing structure within the parking area would need to be demolished.
    e. The temporary work space necessary to execute the HDD would need to use adjacent private property.
    f. Loop Beach would be completely closed during the entire construction duration, since construction staging would require the entire parking lot and adjacent sections of Oceanview Avenue, cutting off beach access.
    g. An onshore duct bank route from Loop Beach would be approximately 9 miles long to the proposed substation site, approximately 34% longer than the preferred transmission route. And since this site could only accommodate two cable landfalls, additional length would need to be added for the third circuit coming from a separate landfall site.

The Loop Beach alternative landfall site is not feasible due to excessive HDD Length. Due to this reason and the other reasons identified above, the Loop Beach alternative landfall site was eliminated from further consideration.

4.4.2 Cotuit Landing

Cotuit Landing is a public boating facility located at 37 Oyster Place Road on the west side of Cotuit Bay (see Figures 4-3 and 4-5). Its small parking area of approximately 0.33 acres is inadequate for the offshore-to-onshore transition facilities for the three offshore export cables proposed for the Project (see Attachment O, Sheet 4). In addition, while the site features good egress on public roads, there is no reasonably practicable means of bringing the offshore cables to the landfall site. Shallow offshore water depths are insufficient for the HDD transition operations in the nearshore area, which would require an excessively long and impracticable HDD passing under Dead Neck Island. Non-HDD cable installation within Cotuit Bay would occur within environmentally sensitive areas within Cotuit Bay, which DMF has designated as potential shellfish habitat for Quahog, Softshell Clam, and Bay Scallop. Furthermore, non-HDD cable installation to this landfall site would be constrained by the presence of a dredge channel at the entrance to Cotuit Bay (see Figure 4-3). Due to technical and environmental constraints, non-HDD installation is infeasible.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of an HDD installation at the Cotuit Landing alternative landfall site location:

1. Current property constraints only allow one potential offshore export cable landing (see Attachment O, Sheet 4).

2. Using HDD, it would not be feasible to thread an offshore export cable through the channel between Dead Neck Island and Oceanview Avenue due to the difficulty of bending the cable and steering limitations of HDD. Therefore, any HDD alignment would need to extend from the boat dock area under Cotuit Bay and then under the Sampsons Island Wildlife Sanctuary on Dead Neck Island. This would add significant distance to the HDD length to reach the shoreline along Sampsons Island, resulting in a total HDD length greater than 5,000 feet, which is well over the maximum feasible HDD length of 3,000 feet. This is a fatal flaw for landing at this location using HDD.

3. Even absent the clear constraint associated with HDD length, this alternative landfall site also presents the following concerns:

    a. Approximately 0.7 acres of tree and greenspace clearing would be required adjacent to the parking area for HDD staging.

    b. Access to the boat dock and adjacent beach area would be needed for construction laydown/staging and those areas would, therefore, be completely closed for the duration of construction, which would occur over one construction (i.e., winter) season.

    c. HDD would occur under the existing dock, potentially impacting its foundation.

    d. If HDD were pursued, a utility easement would be required through Sampsons Island Wildlife Sanctuary.

e. The site affords insufficient area for vehicle turnaround, requiring vehicles to back out of/back into site along Oyster Place. This will significantly reduce productivity and increase construction risk.

f. Oyster Place Road would need to be closed for the duration of construction.

g. Significant disruption would occur to the intersection between Oyster Place, Main Street, and School Street during construction to route construction vehicle traffic.

h. The Project's duct bank from this alternative landfall site would extend for a total length of 7.5 – 8.4 miles to the Route 6 trenchless crossing adjacent to the new substation, longer than the Project's Preferred Route. Further, since this alternative site could only accommodate a single circuit, additional duct bank would be required an additional landfall site(s) to complete the Project.

The Cotuit Bay alternative landfall site is not feasible due to excessive HDD Length. Due to this reason and the other reasons identified above, the Cotuit Landing alternative landfall site was eliminated from further consideration.

4.4.3 Prince Cove Marina

Prince Cove Marina is a public marina operated by the Town of Barnstable near the intersection of Cedar Tree Neck Road and Prince Avenue in Marstons Mills (see Figures 4-3 and 4-6). Prince Cove is part of a large estuary that extends inland from North Bay in the village of Cotuit. The Prince Cove Marina site is inadequate for accommodating the offshore-to-onshore transition facilities for the three offshore export cables proposed for the Project (see Attachment O). In addition, the location has shallow water depths that are insufficient for HDD. Non-HDD cable installation is also infeasible, since it would need to extend through multiple bays and up to Price Cove to an open-cut offshore-to-onshore transition, which would result in direct impacts to estuarine habitats and other environmentally sensitive areas located within the Three Bays area of Barnstable (i.e., Cotuit Bay, West Bay, and North Bay) (see Figure 4-6). Impacts would occur within shellfish suitability areas for Quahog, Bay Scallop, and Softshell Clam designated by Massachusetts DMF. Furthermore, non-HDD cable installation at this landfall site would be constrained by the presence of a dredge channel at the entrance to Cotuit Bay (see Figure 4-3). Due to technical and environmental constraints, non-HDD installation is infeasible.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of an HDD installation at the Prince Cove Marina alternative landfall site location:

1. Current property constraints only allow potential for a maximum of two offshore export cable landings (see Attachment O Sheet 5).

2. Using HDD, it would not be feasible to thread an offshore export cable through the channel between Dead Neck Island and Oceanview Avenue, then under Cotuit Bay and North Bay through the narrow channel leading to Prince Cove due to the difficulty of

bending the cable and steering limitations of HDD. Therefore, any HDD alignment would need to extend from the marina area under Prince Cove, North Bay, and West Bay to the sea. This would add approximately 15,000 feet to the HDD length to reach the shoreline, resulting in a total HDD length of greater than 17,000 feet, which is well over the maximum feasible length of 3,000 feet. This results in a fatal flaw for landing at this location using HDD.

3. Even absent the clear constraint associated with HDD length, use of HDD at this site also presents the following concerns:

    a. Approximately 0.6 acres of tree and greenspace clearing would be required adjacent to the parking area to accommodate HDD, including the entire area of trees between the marina parking area and Cedar Tree Neck Road.

    b. Access to and use of the Prince Cove Marina would be completely closed for the duration of construction.

    c. Traffic management on Cedar Tree Neck Road and Price Avenue in the vicinity of the marina would be significantly disrupted by construction vehicle routing.

    d. Each HDD alignment would include one horizontal curve, which is not preferred since it would add steering challenges and create additional stress for the drill pipes, casing pipe, and cable.

    e. Utility easements would be required in many (more than 20) private properties between the landfall location and shoreline.

    f. It may not be possible to design an alignment with sufficient clearance from all building foundations.

    g. The Project's duct bank from this alternative landfall site would extend for a total length of 5.1 miles to the Route 6 trenchless crossing adjacent to the new substation. Further, since this alternative site could only accommodate two circuits, additional duct bank would be required from another landfall site to complete the Project.

The Prince Cove Marina alternative landfall site is not feasible due to excessive HDD Length. Due to this reason and the other reasons identified above, the Prince Cove Marina alternative landfall site was eliminated from further consideration.

4.4.4 Dowses Beach

Dowses Beach is a residents-only beach that is owned and managed by the Town of Barnstable and has an approximately 2.5-acre paved parking lot. The parking lot is situated on a peninsula between East Bay and the Centerville Harbor away from nearby residences (see Figures 1-6 and 4-3). A Massachusetts DMF shellfish suitability area for Surf Clam is located immediately off

Dowses Beach to a distance of approximately 1,200 feet (366 m) offshore, but use of HDD would avoid this area. The distance from the paved parking lot to ten feet of water depth is approximately 2,200 feet, which is technically feasible for HDD. The paved parking lot has adequate space for the offshore-to-onshore transition facilities associated with HDD (see Section 12.2 for a detailed discussion of HDD at the landfall site). It also has a technically feasible option to install the onshore export cable duct bank from the parking lot to public roadway layouts of sufficient width and with available space to accommodate the onshore export cables. Further, this location provides a relatively direct route of reasonable length to the point of interconnection at the West Barnstable Substation.

4.4.5 East Bay Boat Ramp

This site is located at a boat ramp owned and operated by the Town of Barnstable along the east-facing shore of East Bay (see Figures 4-3 and 4-7). Non-HDD cable installation would travel through East Bay, consisting of construction within environmentally sensitive areas where Massachusetts DMF has designated potential shellfish habitat for Quahog and Softshell Clam. In addition, the narrow entrance to the bay has been dredged in the past, which could further constrain cable placement to avoid future conflicts. Due to technical and environmental constraints, non-HDD installation is infeasible.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of an HDD installation at the East Bay Boat Ramp alternative landfall site location:

1. Significant grading would be required to establish an appropriate HDD work area. The area between East Bay Road and the shoreline would need to be built up to construct a flat work area, including installation of a retaining wall along the shoreline. Even if the area was graded to support HDD activities, the current property constraints would only allow potential for one offshore export cable landing (see Attachment O, Sheet 6).

2. Adjacent, privately-owned property would need to be acquired to support the construction area.

3. HDD at this location would extend from the boat ramp and cross under East Bay and Dowses Beach. This would add approximately 2,400 feet to the HDD length, resulting in a total HDD length of approximately 4,400 feet, which exceeds the maximum feasible length of 3,000 feet. This results in a fatal flaw for landing at this location using HDD.

4. Even absent the clear constraint associated with HDD length, use of HDD at this site also presents the following concerns:

    a. The boat ramp and East Bay Road would be used for construction staging/laydown and would, therefore, need to be completely closed for the duration of one construction season for the single-cable landfall.

b. Approximately 0.5 acres of tree and greenspace clearing would be required between East Bay Road and the shoreline to accommodate HDD activities, and construction equipment would likely be setup in an environmentally sensitive area.

c. The construction workspace is constrained, requiring equipment to back out of or back into the work area from East Bay Road for access, reducing productivity and adding construction risk.

d. The proximity of the HDD activity to the water's edge would limit the space available for spill containment.

5. The Project's duct bank from this alternative landfall site would extend for a total length of approximately 6.4 miles to the Route 6 trenchless crossing adjacent to the new substation. Further, since this alternative site could only accommodate one circuit, additional duct bank(s) would be required from another landfall site(s) to complete the Project.

The East Bay Boat Ramp alternative landfall site is not feasible due to excessive HDD Length. Due to this reason and the other reasons identified above, the East Bay Boat Ramp alternative landfall site was eliminated from further consideration.

4.4.6 McCarthy's Landing

This site is a small gravel parking area associated with a public boat ramp owned and operated by the Town of Barnstable located on the north side of the Centerville River approximately one mile upstream of East Bay (see Figures 4-3 and 4-8). The size of the site is inadequate for the offshore-to-onshore transition facilities and HDD staging needed for the three offshore export cables (see Attachment O), and non-HDD installation would require construction within environmentally sensitive areas inside East Bay and the Centerville River. Within this stretch of the Centerville River, Massachusetts DMF has designated suitable habitat for a variety of commercially important shellfish species including Quahog, American Oyster, and Softshell Clam. In addition, use of this site would potentially conflict with boating interests since the ramp would be inaccessible during construction. In addition, routing cables within the Centerville River could conflict with navigation since the waterbody requires periodic dredging to maintain adequate depths for vessel passage. Lastly, non-HDD cable installation could be constrained at the narrow entrance to East Bay, which has been dredged in the past, to avoid future conflicts. Due to technical and environmental constraints, non-HDD installation is infeasible.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of an HDD installation at the McCarthy's Landing alternative landfall site location:

1. Current property constraints only allow potential for a maximum of two offshore export cable landings (see Attachment O, Sheet 7).

2. Using HDD, it would not be feasible to thread an offshore export cable through the East Bay Channel and then through the narrow channel between Long Beach and Main Street/South Main Street to McCarthy's Landing due to the difficulty of bending the cable through the channel and HDD steering limitations. Therefore, any HDD would need to extend from the McCarthy's Landing area under the Long Beach Road barrier beach to the shoreline. This would add approximately 1,000 feet to the HDD length to reach the shoreline, resulting in a total HDD length of approximately 3,000 feet. This HDD alignment would require use of compound curves (overlapping horizontal and vertical curves) in an attempt to navigate between existing structures, significantly increasing construction complexity, risk, and cost. However, it was concluded that this alignment would be routed under or near residential structures as it crosses the barrier beach, resulting in a risk of foundation damage to privately-owned houses from settlement and drilling fluid propagation. This is a fatal flaw for this alternative.

3. Even absent the clear constraint associated with the HDD alignment, use of HDD at this site also presents the following concerns:

    a. Utility easements would be required at approximately four private properties.

    b. The entire McCarthy's Landing area would be needed for construction staging/laydown and would, therefore, be completely closed for the duration of construction.

    c. Approximately 0.7 acres of tree and greenspace clearing would be required around the parking area to accommodate HDD activities.

    d. Significant traffic disruption would occur along Hayward Avenue, Coddington Road, and South Main Street.

    e. There would be potential for settlement-related damage to the existing dock foundation.

    f. There is insufficient area available for vehicle turnaround, which would require vehicles to back out of/back into the construction site along Hayward Road, significantly reducing productivity and increasing construction risk, duration, and cost.

    g. Routing the duct bank north on South Main Street for eventual routing under Craigville Beach Road to the new substation site would not be possible since the NE Wind 2 Connector duct bank cannot be co-located in a single road with the NE Wind Connector 1 duct bank. Therefore, the duct bank would travel southwest on South Main Street with a crossing at Bumps River and would extend for a total length of approximately 5.9-7.2 miles to the Route 6 trenchless crossing adjacent to the new substation. Further, since this alternative site could only accommodate two circuits, an additional duct bank would be required from another landfall site to complete the Project.

The McCarthy's Landing alternative landfall site is not feasible since it would require HDD routing under/near residential structures. Due to this reason and the other reasons identified above, the McCarthy's Landing alternative landfall site was eliminated from further consideration.

4.4.7 Craigville Public Beach

The Craigville Public Beach Landfall Site is located within a 3.5-acre paved parking area associated with a public beach that is owned and managed by the Town of Barnstable (see Figure 4-3). The landfall site is located in the central part of the Centerville Harbor bight in an area where the shoreline is relatively stable.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of the Craigville Public Beach alternative landfall site location for the NE Wind 2 Connector:

1. The Craigville Public Beach parking lot is the location of the NE Wind 1 Connector landfall, and the onshore duct bank associated with the NE Wind 1 Connector is being installed almost entirely within public roadway layouts from the landfall site to the point of interconnection.

2. Even with use of this site for the NE Wind 1 Connector, the parking lot could likely accommodate all three offshore export cable landings for the NE Wind 2 Connector.

3. The duct bank routing from this landfall site is considered a fatal flaw based on the following:

    a. The duct bank cannot be routed east on Craigville Beach Road because it cannot be co-located in the same roadway with the Vineyard Wind Connector duct bank due to space constraints.

    b. The duct bank cannot be routed west on Craigville Beach Road because it cannot be co-located with the NE Wind 1 Connector duct bank. In addition, there is insufficient space for a second microtunnel for the NE Wind 2 Connector circuits to cross the Centerville River.

The Craigville Public Beach alternative landfall site is not feasible due to the absence of a viable onshore transmission corridor. Due to this reason, the Craigville Public Beach alternative landfall site was eliminated from further consideration.

4.4.8 Covell's Beach

Covell's Beach is the landfall site for the Vineyard Wind Connector, for which transition vaults were installed in the existing parking lot in April 2022 (see Figure 4-3). Onshore export cables associated with the Vineyard Wind Connector 1 are being installed within public roadways from this landfall site.

The landfall site engineering feasibility report provided as Attachment O presents the following assessment of the Covell's Beach alternative landfall site location for the NE Wind 2 Connector:

1. The Covell's Beach parking lot is the landfall site for the Vineyard Wind Connector.

2. Even with use of this site for the Vineyard Wind Connector, the parking lot could likely accommodate two of the NE Wind 2 Connector offshore export cable landings.

3. The two-circuit duct bank routing from this landfall site is considered a fatal flaw based on the following:

    a. The duct bank cannot be routed east on Craigville Beach Road because it cannot be co-located in the same roadway with the Vineyard Wind Connector duct bank due to space constraints.

    b. The duct bank cannot be routed west on Craigville Beach Road because it cannot be co-located with the NE Wind 1 Connector duct bank. In addition, there is insufficient space for a second microtunnel for the NE Wind 2 Connector to cross the Centerville River.

The Covell's Beach alternative landfall site is not feasible due to the absence of a viable onshore transmission corridor. Due to this reason, the Covell's Beach alternative landfall site was eliminated from further consideration.

4.4.9 Wianno Avenue

This site is a small, paved parking area at the end of Wianno Avenue, south of the intersection of Wianno Avenue and Sea View Avenue (see Figures 4-3 and 4-9). DEP-mapped eelgrass habitat is located offshore from the Wianno Avenue Landfall Site just outside the OECC. In addition, the Massachusetts DMF has designated an area of shellfish suitability for Surf Clam (*Spisula solidissima*) immediately offshore from the landfall site and extending to a distance of approximately 1,150 feet (350 m). These environmentally sensitive areas could be avoided by HDD; however, from a technical perspective this location is better suited for an open trench method of offshore-to-onshore transition due to the elevated onshore topography, slope of the parking lot, and shoreline that has been previously altered by the installation of a riprap seawall (see Figure 4-9).

Even if these technical challenges could be overcome, the Wianno Avenue alternative landfall site appears to be capable of accommodating only one land-based HDD alignment (see Attachment O). This is not recommended, since two additional offshore export cables would need to make landfall at another location(s). For this single HDD installation, the entire length of Wianno Avenue and Sea View Avenue to the next nearest intersections would be needed for construction staging/laydown and would, therefore, need to be closed during the entire construction duration (see Attachment O, Sheet 1). Private property would need to be used to support construction, including placement of slurry separation equipment, pumps, and tanks, and to accommodate construction vehicle traffic. Approximately 0.3 acres of tree and greenspace clearing would be required adjacent to the parking area to stage equipment and material, and the overhead utility power cables along the side and crossing the site would need to be relocated during construction.

The Wianno Avenue alternative landfall site is not preferred because the site lacks adequate space to accommodate the offshore-to-onshore transition facilities for three HDD installations. Use of the site for only a single HDD installation would have significant impacts, and for these reasons it was eliminated from further consideration.

4.4.10 Conclusion on Landfall Sites

As more fully described above, several of the nine potential landfall sites were eliminated from further consideration because they would have required HDD installations that exceeded the maximum feasible length of 3,000 feet and, in many cases, also lacked sufficient space to accommodate all three offshore export cable landings. Craigville Beach and Covell's Beach were eliminated due to the absence of a viable onshore transmission corridor. A summary matrix of considerations associated with HDD cable landfalls at the nine potential landfall sites is provided on the final page of Attachment O.

The landfall site engineering feasibility study provided as Attachment O concluded that the paved parking lot located at Dowses Beach is the preferred landfall site for the NE Wind 2 Connector Project for the following reasons:

1. All three offshore export cable landings can be accommodated;
2. Partial beach access can be maintained during construction;
3. The landfall site provides the shortest duct bank route of all options considered;
4. Use of the landfall site would avoid the use of multiple duct bank routes;
5. HDD construction would be set back from residents; and
6. HDD activities at the landfall site would not require tree clearing, use of private property, or utility easements.

4.5 Onshore Transmission Routes

From the preliminary screening process, the Proponent initially identified seven onshore export cable routes (T1 through T7) connecting the preferred landfall site with the proposed onshore substation site that were suitable for more detailed assessment (see Figure 4-10).

As shown on Figure 4-10, two route segments are common to all seven of the evaluated routes. The first common segment is a 0.2-mile segment of the existing paved causeway leading to Dowses Beach from the parking lot at the landfall site to the intersection of the causeway and East Bay Road. The second common segment starts at the intersection of Oak Street and Service Road where the routes follow Service Road for approximately 0.2 miles to the proposed staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site.

Through the route evaluation process performed for the EFSB, a Preferred Route and a Noticed Alternative Route were selected. Those two routes and the five remaining candidate/alternative routes are described below.

4.5.1 Preferred Route (Main Street) (Originally Candidate/Alternative Route T6)

The Preferred Route (shown as Candidate/Alternative Route T6 on Figure 4-10) 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. The route begins in a paved parking lot at the landfall site and proceeds generally northwest on the existing paved causeway 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 and then turns east 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 for another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site.

The Preferred Route will temporarily impact buffer zone to coastal wetland resource areas in the vicinity of the landfall site and causeway. The route will pass within the 100-foot buffer zone of BVW near the intersection of the causeway and East Bay Road and within the 100-foot buffer zone of several freshwater wetlands along Main Street, Old Falmouth Road, Old Stage Road, and Oak Street. In total, the route will cross approximately 0.5 miles (2,447 linear feet) of buffer zone. The Project will pass through approximately 0.3 miles (1,514 linear feet) of LSCSF, but the Project will have no permanent impacts to this resource since the underground duct bank will not alter existing topography or flood storage capacity. The route will also cross approximately 0.2 miles (872 linear feet) of RFA associated with two perennial streams along Old Falmouth Road and Oak Street. Wetland resource areas in the vicinity of the Preferred Route are further described in

Section 5.3.1. Although there are BVWs and Riverfront Areas along the public roadway layouts, duct bank installation will occur within the roadway layout and no direct impacts are expected to wetland resource areas. Additionally, construction-period BMPs would be implemented to avoid and minimize potential impacts to these wetland resource areas and their buffer zones (see Section 12).

The Preferred Route will pass through or directly adjacent to approximately 810 linear feet of mapped rare species habitat (described in greater detail in Section 7.2.3). The only location where the Preferred Route will pass through or directly adjacent to mapped rare species habitat is within the existing paved parking lot area at the landfall site and along the existing causeway (a stretch common to all routing alternatives). Along the causeway, rare species habitat is mapped along the north side (East Bay side). The duct bank will be located within the paved Town-owned parking lot and the three-circuit duct bank will be arranged in a twelve conduit wide by one conduit deep configuration when crossing an existing box culvert in the causeway to avoid impacting functionality of the culvert and to avoid impacting coastal wetland resources such as bank, dune, or salt marsh. The construction footprint would be limited to the roadway layout of the causeway and East Bay Road. The implementing regulations of the MESA (321 CMR 10.00) contain an exemption from review for projects in Priority Habitat for *"installation, repair, replacement, and maintenance of utility lines (gas, water, sewer, phone, electrical) for which all associated work is within ten feet from the edge of existing paved roads"* (321 CMR 10.14(b)(10)). Because the onshore duct bank will be installed beneath or within ten feet of road pavement where the duct bank route will pass directly adjacent to rare species habitat, construction in those areas is exempt from review under the MESA, and accordingly, there is not expected to be any impact to rare species habitats by the duct bank installation.

4.5.2 Noticed Alternative Route (Old Mill Road) (Originally Candidate/Alternative Route T1)

The Noticed Alternative (shown as route T1 on Figure 4-10) is approximately 6.6 miles long and is located entirely within public roadway layouts or within the existing parking lot area at the landfall site. This route begins in the paved parking lot at the landfall site and proceeds generally northwest on an existing paved causeway 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, Route T1 crosses Main Street and proceeds in a northeasterly direction for 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 for 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 proposed trenchless crossing of Route 6 into the proposed onshore substation site.

Similar to the Preferred Route, the Noticed Alternative will temporarily impact buffer zone to coastal wetland resource areas in the vicinity of the landfall site and existing causeway. From the landfall site to the intersection of East Bay Road and Main Street, the Noticed Alternative will pass through approximately 0.5 miles (2,790 linear feet) of LSCSF. The Project will have no permanent impacts to this resource since the buried duct bank will not alter existing topography or flood storage capacity. No above-ground structures or changes to topography are proposed within LSCSF. The route will also traverse buffer zone and RFA.

The Noticed Alternative shares the same common segment from the paved parking lot at the landfall site along the causeway to East Bay Road. As such, the Noticed Alternative passes through or directly adjacent to the same approximately 810 linear feet of mapped rare species habitat along the causeway. The Noticed Alternative also passes through or directly adjacent to mapped rare species habitat from the intersection of Old Mill Road and Bumps River Road, north of the crossing with Bumps River. Along this stretch, the Noticed Alternative passes through or directly adjacent to approximately 444 linear feet of mapped rare species habitat. No impacts to rare species habitat are expected along the Noticed Alternative.

4.5.3 Candidate/Alternative Route T2 – Old Mill Road and Eversource ROW #345

Candidate/Alternative Route T2 is approximately 6.7 miles long and begins in the paved parking lot at the landfall site and proceeds generally northwest on an existing paved causeway to East Bay Road (see Figure 4-10). 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 for 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, which it follows for approximately 1.0 mile to Eversource ROW #345. The route then proceeds along ROW #345 in a northeasterly direction for approximately 2.4 miles to Eversource ROW #381 where it turns north and proceeds along ROW #381 for approximately 0.1 miles to Service Road. Turning west on Service Road, the route follows Service Road for approximately 0.5 miles to the staging area for the proposed trenchless crossing of Route 6 to the proposed onshore substation site. Almost 40% of Candidate Route T2 is located off-road and within existing utility ROWs. The balance of the route is located within public roadway layouts or within the existing paved parking lot area at the landfall site.

Given the stretch of utility ROW utilized by this route alternative, tree clearing may be necessary along approximately 2.2 miles of the alignment since the ROW has not been maintained at its full width. This is significantly more tree clearing than almost any other route considered (with the exception of Candidate/Alternative Route T4). Largely due to this level of impact, candidate/alternative route T2 was eliminated in favor of other more favorable route options. In addition to the potential tree clearing, the work within the ROW would cross many privately owned parcels of land, requiring extensive coordination between the property owners, Eversource, and the Proponent.

4.5.4 Candidate/Alternative Route T3 – Main Street

Candidate/Alternative Route T3 is approximately 6.6 miles long and is located entirely within public roadway layouts or within the existing parking lot area at the landfall site (see Figure 4-10). Candidate Route T3 begins in the paved parking lot and proceeds generally northwest on an existing paved causeway to East Bay Road. From there, the route proceeds for approximately 0.7 miles in a northwesterly direction along East Bay Road. At the north end of East Bay Road, the route turns to the west and follows Main Street for approximately 1.4 miles to Osterville-West Barnstable Road, which it then follows in a northerly direction for approximately 1.9 miles to Old Falmouth Road. The route follows Old Falmouth Road in a northeasterly direction for approximately 0.9 miles to Old Stage Road. At Old Stage Road, the route turns to the east for approximately 0.2 miles to the Oak Street intersection. Turning north on Oak Street, the route proceeds on Oak Street for approximately 1.0 mile before turning west on Service Road and continuing for another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site.

In addition to having one of the higher counts of residential units (383), this route alternative also has one of the highest counts of commercial/industrial units (194). Furthermore, the candidate/alternative route T3 has more sensitive receptors (9) than either the Preferred Route or Noticed Alternative Route (7 and 3, respectively). In addition, T3 has the second-highest count of historic resources (354) of all routes considered. For all of these reasons, candidate/alternative route T3 was eliminated in favor of other more favorable route options.

4.5.5 Candidate/Alternative Route T4 – Main Street and Eversource ROW #345

Candidate/Alternative Route T4 is approximately 7.0 miles long and begins in the paved parking lot at the landfall site and proceeds generally northwest on an existing paved causeway to East Bay Road (see Figure 4-10). From there, the route proceeds approximately 0.7 miles in a northwesterly direction along East Bay Road. At the north end of East Bay Road, the route turns to the west and follows Main Street for approximately 1.4 miles to Osterville-West Barnstable Road, which it then follows in a northerly direction for approximately 1.1 miles to Eversource ROW #345. The route then proceeds along ROW #345 in a northeasterly direction for approximately 2.9 miles to Eversource ROW #381, where it turns north to follow ROW #381 for approximately 0.1 miles to Service Road. At Service Road, the route turns to the west and follows Service Road for approximately 0.5 miles to the staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site. Approximately 43% of the route is located off-road and within existing utility ROWs. The balance of the route is located within public roadway layouts or within the existing paved parking lot area at the landfall site.

Given the stretch of utility ROW utilized by this route alternative, tree clearing may be necessary along approximately 2.7 miles of the alignment since the ROW has not been maintained at its full width. This is significantly more tree clearing than any other route considered. Largely due to this level of impact, candidate/alternative route T4 was eliminated in favor of other more favorable route options.

4.5.6 Candidate/Alternative Route T5 – South County Road

Candidate/Alternative Route T5 is approximately 8.3 miles long and is located entirely within public roadway layouts or within the existing paved parking lot area at the landfall site (see Figure 4-10). The route begins in the paved parking lot and proceeds generally northwest on an existing paved causeway to East Bay Road. From there, the route proceeds approximately 0.7 miles in a northwesterly direction along East Bay Road. At the north end of East Bay Road, the route turns to the west and follows Main Street for approximately 1.4 miles to the intersection of Osterville-West Barnstable Road where it heads in a north/northwesterly direction and follows South County Road for approximately 1.0 mile to Falmouth Road (Route 28). At the intersection with Falmouth Road, the route T5 turns west and proceeds for approximately 0.5 miles on Falmouth Road (Route 28), then turns toward the northeast on Cotuit Road and Prospect Street (Route 149), which it follows for approximately 0.9 miles to Old Falmouth Road. At this point, the route follows Old Falmouth Road for approximately 2.1 miles to Old Stage Road. The route then turns east on Old Stage Road for approximately 0.2 miles then continues on Oak Street for approximately 1.0 mile before turning west on Service Road and continuing for another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site.

Of all the route alternatives considered, T5 is the longest (8.3 miles). It also has the second-highest count of residential units (418) and the highest count of commercial/industrial units (259) of any of the routes. Further, T5 also has the highest count of historic resources (468) and the longest length through areas of moderate or high archaeological sensitivity (7.5 miles). For these reasons, candidate/alternative route T5 was eliminated in favor of other more favorable route options.

4.5.7 Candidate/Alternative Route T7 – Wianno Avenue and Old Mill Road

Candidate/Alternative Route T7 is approximately 7.3 miles long and is located entirely within public roadway layouts or within the existing paved parking lot at the landfall site (see Figure 4-10). The route begins in the paved parking lot and proceeds generally northwest on an existing paved causeway 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 then turns east and follows Main Street for approximately 0.3 miles to Old Mill Road. The route proceeds in a northeasterly direction for 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, which it follows for approximately 1.5 miles to Old Falmouth Road. The route then turns and continues in a northeast direction along Old Falmouth Road for approximately 0.9 miles to Old Stage Road. At Old Stage Road, the route turns to the east 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 for another 0.2 miles to a staging area for the proposed trenchless crossing of Route 6 into the proposed onshore substation site.

At 7.3 miles, this route alternative is the second-longest of all routing alternatives considered and has the greatest potential for traffic congestion (using MassDOT road classification as a measure). It also has the second longest length through areas of moderate or high archaeological sensitivity (6.4 miles). For these reasons, candidate/alternative route T7 was eliminated in favor of other more favorable route options.

4.5.8 Conclusion on Onshore Transmission Routes

As described above, the Proponent objectively and comprehensively assessed a wide array of potential routes within a defined study area. At the conclusion of this process, the Proponent selected Candidate/Alternative Route T6 (Wianno Avenue and Main Street) as the Preferred Route and Candidate/Alternative Route T1 (Old Mill Road) as the Noticed Alternative.

The Preferred Route and the Noticed Alternative Route are both of similar length and are equivalent from cost and engineering perspectives.

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 aboveground historic features than the Noticed Alternative Route. The Noticed Alternative Route is located within public roadway layouts closer to the coastline (i.e., East Bay Road) for a greater distance, increasing potential impacts to wetlands resources. While there are more businesses located along the Preferred Route, the Company's current traffic impact analysis indicates that detours for the Noticed Alternative Route will be longer distances than detours identified for the Preferred Route. The Proponent anticipates working with the Town and community members, including residents and business owners to minimize construction-related traffic and other impacts.

The potential opportunity to accelerate water quality improvements in Osterville by coordinating with Town sewering plans along the Preferred Route provides a compelling public-interest basis to support the selection of Candidate Route T6 (Wianno Avenue and Main Street) as the Preferred Route over the Noticed Alternative. The Vineyard Wind Connector project collaborated with the Town, and the NE Wind 1 Connector project is collaborating with the Town on the installation of sewer infrastructure, resulting in reduced road closures and millions of dollars in cost savings to the Town associated with pre-design investigative work and the final coating and repaving. The Proponent believes that similar coordination for the NE Wind 2 Connector has the potential to result in similar benefits. Coordinating construction activities with the Town's sewer project has the potential to accomplish several important objectives: minimize the overall disturbance to residents and businesses along the route; expedite immediate improvements in water quality in Osterville; and save the Town significant costs. The Proponent understands that Main Street will be excavated for installation of a gravity sewer main regardless of whether the NE Wind 2 Connector duct bank is installed within Main Street. Installing the onshore export cables along the Preferred Route in the areas that overlap with the Town's sewer project could result in the important public benefits listed above, whereas based on the current CWMP, there is less potential for similar public benefits along the Noticed Alternative Route.

After selecting the Preferred Route and Noticed Alternative Route, the Proponent also included a Main Street Variant, which provides a 0.3-mile link between the Preferred Route and Noticed Alternative (see Figure 4-10). This variant provides an alternative method for allowing the onshore duct bank route to leave the landfall site and reach the wider roadway network, should the Preferred Route not be practicable in this area.

4.6 Substation Sites

As described in Section 2.4, the Project will require a new onshore substation where the 275-kV voltage in the onshore export cables will step up to 345 kV in preparation for interconnection to the grid at the West Barnstable Substation. The Proponent completed a thorough search to identify potential locations suitable for the new onshore substation. To facilitate this search, the Proponent 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 the preferred landfall site;
- Suitable surrounding land uses;
- Suitable site topography;
- Accessibility from public roadways; and
- Suitable existing environmental site features.

The Proponent identified four potential substation sites for the new onshore substation, all of which are located in the Town of Barnstable and accessible by at least one of the onshore routing options considered. These potential substation sites are described below and are identified in Figure 4-11.

4.6.1 Clay Hill Parcels, West of Oak Street

The Clay Hill parcels originally consisted of three adjacent privately-owned, wooded parcels totaling 15.2 acres located west of Oak Street in West Barnstable (see Figure 4-12). Since the filing of the ENF, five additional privately-owned parcels of property located west of Oak Street, adjacent to the original three privately-owned parcels have been identified for inclusion in the onshore substation site; the eight contiguous privately owned parcels total approximately 29 acres, which allows the Proponent to optimize the substation layout. The parcels are comprised primarily of undeveloped wooded uplands with one of the parcels developed with one single-family home. There is an existing access road that provides access to these parcels as well as an existing Department of Conservation and Recreation (DCR) Fire Tower located on an adjacent parcel. Aside from the single residence, the parcels are not located near other residences or businesses and are surrounded by undeveloped forested land and Route 6. To the west, the parcels are bordered by undeveloped land. To the north, the parcels are bordered by the existing Eversource utility ROW #342 and two protected parcels that are part of the Spruce Pond Conservation Area owned by the Town of Barnstable and managed by the Conservation Commission and Falcon Road Conservation Area. To the south is the Route 6 layout managed by MassDOT. The Clay Hill parcels are located approximately 0.25 miles west of the existing West Barnstable Substation.

No mapped wetlands, vernal pools, or rare species habitat are located on the site (see Figure 4-12). As further described in Section 2.7.5, there is Article 97-protected land bordering on the site as well as a strip of Article 97-protected land on the southeast portion of the site.

As described in Section 2.4.3, the proposed onshore substation site is located within a Potential Public Water Supply Area mapped by the Cape Cod Commission (CCC); however, the site is located outside of any Freshwater Recharge Area, Zone I and II Wellhead Protection Areas, and Barnstable Groundwater Protection Overlay District (see Figure 4-13). None of the substation equipment will contain polychlorinated biphenyls (PCBs). The Proponent will provide full-volume (110%) containment systems for major substation components that use dielectric fluid for cooling (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable). In addition, these containment systems will include additional capacity to contain the requested 30-inch PMP rain event.

4.6.2 Massachusetts Department of Transportation Parcels, Off Shootflying Hill Road

This site consists of two adjacent parcels totaling approximately 9.2 acres owned by MassDOT (see Figure 4-14). The parcels largely consist of undeveloped wooded land with the exception of where Eversource ROW #343 crosses the parcels at their southern extent. Where Eversource ROW #343 crosses the two parcels, the parcels have been cleared and the ROW is developed with existing transmission lines and access roads. The undeveloped wooded portions of these parcels total approximately eight acres. The parcels are located just south of the Route 6/Route 132 interchange and are approximately one mile east of the West Barnstable Substation as measured along the utility ROW. To the west is the existing motel parcel that will be developed for the NE Wind 1 Connector substation. No wetlands, vernal pools, or rare species habitat are located on-site, and no Article 97-protected land is present.

As shown on Figure 4-15, this site is located within a Potential Public Water Supply Area mapped by the CCC that is also contiguous with a Zone II Wellhead Protection Area and the Barnstable Groundwater Protection Overlay District. The site is just outside of a mapped Freshwater Recharge Area. As described in Section 4.6.1, no impacts to groundwater resources would occur from the proposed substation since none of the substation equipment will contain PCBs and the Proponent will provide full-volume (110%) containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable).

Due to the limited acreage at this location, this alternative was eliminated from further consideration since it could not accommodate the proposed infrastructure.

4.6.3 Old Falmouth Road Parcels

The Old Falmouth Road site consists of four parcels of varying size which together total approximately 18.5 acres (see Figure 4-16). Developed portions of the parcels include several existing structures, internal roadways, and a contractor yard(s). Undeveloped portions of the site are wooded. Residential areas are located to the east, west/northwest, and north of the parcels. South/southeast of the parcels across Old Falmouth Road is an existing commercial building with multiple tenants. Multiple ground-mounted solar developments are located west and south of the parcels. The Old Falmouth Road parcels are located over 2.5 miles from the West Barnstable Substation.

No wetlands, vernal pools, or rare species habitat are located on-site, and no Article 97-protected land is present (see Figure 4-16).

As shown on Figure 4-17, this site is located within the Barnstable Groundwater Protection Overlay District that is also contiguous with a Zone II Wellhead Protection Area. As described in Section 4.6.1, no impacts to groundwater resources would occur from the proposed substation since none of the substation equipment will contain PCBs and the Proponent will provide full-volume (110%) containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable).

Of the four parcels that comprise the site, only two were available to the Proponent through option agreements, and those two alone would not have provided enough space to accommodate the proposed substation. Further, even had the real estate been available, this alternative site would have added distance to the overall duct bank route.

4.6.4 Osterville-West Barnstable Road/Falmouth Road (Route 28) Parcels

The Osterville-West Barnstable Road/Falmouth Road parcels consist of two privately owned parcels (separate ownership) totaling approximately 24 acres (see Figure 4-18). The larger approximately 19-acre parcel is zoned Industrial, portions of which are developed as a sand and gravel pit and storage yard. The northern portion of the larger parcel is crossed by Eversource ROW #345 and includes transmission lines and an access road. Wooded areas are located between Eversource ROW #345 and other developed portions of the parcel. The smaller, five-acre parcel is zoned Commercial and is developed with existing buildings. Residential areas are located to the east, west, and south of the parcels. North of the parcels and Eversource ROW #345 are multiple ground-mounted solar developments.

No wetlands, vernal pools, or rare species habitat are located on-site (see Figure 4-18). No Article 97-protected land is present on-site, though an Article 97-protected parcel does abut the site to the west.

As shown on Figure 4-19, this site is located within the Barnstable Groundwater Protection Overlay District that is also contiguous with a Zone II Wellhead Protection Area. As described in Section 4.6.1, no impacts to groundwater resources would occur from the proposed substation since none of the substation equipment will contain PCBs and the Proponent will provide full-volume (110%) containment systems for major 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 some of the parcels were available to the Proponent, there was not enough property available to the Proponent to accommodate the new onshore substation. Further, even had the necessary land area been available, this alternative site would have added distance to the overall duct bank route.

4.6.5 Conclusion on Substation Sites

As described above, while four initial alternative substation sites were considered for the proposed Project, in one case the site was not large enough and in two other cases ownership could not be obtained. The Clay Hill Parcels, however, generally meet the siting considerations for the proposed substation and, importantly, the Proponent was able to secure an option to purchase the parcels, and thus has site control. Therefore, the Clay Hill Parcels are the proposed substation site for the Project.

4.7 Grid Interconnection Routes

The Proponent identified three grid interconnection route options for the 345-kV portion of the onshore export cables that will connect the new onshore substation to the regional electric grid at the West Barnstable Substation (see Figure 4-20). The following sections describe the three grid interconnection route options.

4.7.1 Preferred Grid Interconnection (Fire Tower Access Road to Oak Street) (Originally Option G1)

The preferred grid interconnection route (originally option G1) is approximately 0.4 miles in length and includes installing the grid interconnection cables within the Fire Tower Access Road off Oak Street, then northeasterly along Oak Street and into the northern portion of the West Barnstable Substation parcel (see Figure 4-20). The route would exit the proposed substation site in the southeastern corner of Parcel 195-007 and cross the easternmost substation parcel (Parcel 195-008). Grid interconnection cables would then cross two additional parcels before reaching Oak Street. These two parcels are owned by the Town of Barnstable (Parcel 195-009, Kuhn Property) and the Barnstable Fire District (Parcel 195-010). The Kuhn property is Article 97-protected (see Section 2.6). As proposed, the Fire Tower Access Road would be improved with gravel surfacing and widened to approximately 20 feet along its entire length. At Oak Street, the preferred grid interconnection route would follow Oak Street north for approximately 0.15 mile to the West Barnstable Substation parcel.

Tree clearing associated with the Preferred grid interconnection route alone would be approximately 0.2 acres, bringing the total tree clearing associated with the substation development plus development of the Preferred grid interconnection route to approximately 13.5 acres (see Section 2.5).

As shown on Figure 2-3 and in the engineering plans provided as Attachment C7, a variant (i.e., Variant 1) to the Preferred grid interconnection route has also been identified. This variant would avoid the parcel owned by the Fire District by instead continuing east on what would be a new 20-foot-wide gravel access road cleared to Oak Street. This variant would only be utilized if it were infeasible to follow the route of the existing access road through the Fire District parcel, which requires obtaining an easement (see Section 2.5.1 for additional details). Tree clearing associated with Variant 1 alone would be approximately 0.4 acres, bringing the total tree clearing associated with the substation development plus use of Variant 1 to approximately 13.7 acres, just 0.2 acres more than the total clearing for the substation and Preferred grid interconnection route.

4.7.2 Noticed Alternative Grid Interconnection Route (Eversource ROW #342) (Originally Option G2)

The Noticed Alternative grid interconnection route (originally option G2) is approximately 0.6 miles in length and includes installing the grid interconnection cables to the north within the approximately 40-foot-wide “panhandle” to the existing electric transmission corridor (Eversource ROW #342) (see Figure 4-20). The route would then turn to the east and be constructed within the existing Eversource ROW #342 corridor, crossing Plum and Oak Streets, and connecting into the northern portion of the West Barnstable Substation parcel. This grid interconnection route option would exit the proposed substation to the north and follow the approximately 20-foot-wide paved detention basin access road until it reached the approximately 40-foot-wide “panhandle” where it would then follow the panhandle north to existing Eversource ROW #342. The “panhandle” does not include an existing access road, and construction of this route would require tree clearing and grading on topographically challenging terrain. Based on the terrain along the narrow “panhandle,” the current engineering design requires grading and vegetation removal on adjacent parcels to the east and west subject to Article 97 jurisdiction (see Section 2.6). To the extent practicable, the approximately 20-foot-wide grid interconnection route will be designed to be consistent with the limits of the existing access road within the Eversource easement. Additional rights would need to be obtained from Eversource to locate the grid interconnection cables within their ROW. Additionally, while the route would be located within the existing Eversource ROW, the route would cross or require clearing and grading on up to 6 parcels of privately owned property. Further, the existing intersection / crossing with Plum Street may be redesigned to provide access to Oak Street.

Tree clearing associated with the Noticed Alternative grid interconnection route alone would be approximately 0.5 acres, bringing the total tree clearing associated with the substation development plus development of the Noticed Alternative grid interconnection route to approximately 13.8 acres.

4.7.3 Grid Interconnection Option G3 (Route 6 State Highway Layout to Oak Street)

Grid interconnection route option G3 is approximately 0.6 miles in length and includes installing the grid interconnection cables within the northern portion of the existing Route 6 State Highway Layout from the proposed onshore substation site to Oak Street (see Figure 4-20). This route would be located within a new 20-foot-wide paved access road that would need to be constructed within the northern portion of the existing Route 6 State Highway Layout from the proposed onshore substation up to the intersection with Oak Street, then would turn north along Oak Street for approximately 0.25 miles, and then into the northern portion of the West Barnstable Substation parcel. Grid interconnection route option G3 would exit the proposed substation site along its southern boundary, west of the existing DCR Fire Tower. This grid interconnection route option would require additional access permits and coordination with MassDOT. Clearing vegetation within the state highway layout would be required and could reduce the vegetative visual buffer between Route 6 and the new onshore substation. Tree clearing associated with grid interconnection route option G3 alone would be approximately 1.9 acres, bringing the total tree clearing associated with the substation development plus development of G3 to approximately 16 acres.

Grid interconnection route option G3 does not require crossing any Article 97 protected open space, conservation, or recreational lands.

Due to the need for a new corridor for the access road and grid interconnection cables within the Route 6 State Highway Layout, coupled with feedback from MassDOT, the Proponent does not anticipate pursuing this alternative at this time.

4.7.4 Conclusion on Grid Interconnection Routes

The Proponent objectively and comprehensively assessed the three grid interconnection route options, and selected option G1 (Fire Tower Access Road to Oak Street) as the Preferred Grid Interconnection Route. It was selected as the preferred route for a number of reasons: it is the shortest of all of the routes; has the fewest abutting residences and least amount of vegetation clearing; and required limited work to improve the existing Fire Tower access road and install the underground buried grid interconnection cables on two Article 97 parcels.

The Proponent will avoid tree removal and/or trimming to the maximum extent practicable. However, depending on final duct bank design, selective tree removal and/or trimming may be required along in-road sections of the onshore export cable routes. Any vegetation removal will be completed in accordance with all applicable state and local laws and regulations. At the current level of design, the Proponent determined that grid interconnection route option G1 is preferred as it would require the least amount of vegetation removal as there is an existing access road and tree removal would be associated with access road improvements.

Grid Interconnection Route Option G2 (Eversource ROW #342) was selected as the Noticed Alternative as clearing a new corridor for the access road and grid interconnection cables within the Route 6 State Highway Layout along with the estimated timeline anticipated to obtain the necessary rights and approvals from MassDOT for grid interconnection route option G3 would not meet the Project schedule.

Section 5.0

Wetland Resources

5.0 WETLAND RESOURCES

This section provides a detailed description of inland and coastal wetland resource areas proximate to the proposed Project components, presents a summary of the potential impacts to these federal, state and locally jurisdictional areas, and presents proposed mitigation measures to be implemented during construction and operation of the NE Wind 2 Connector to ensure there are no long-term adverse effects on these areas. Section 5.1 describes wetland resource areas pertinent to offshore export cables and the OECC, Section 5.2 focuses on the offshore-to-onshore transition at the proposed landfall site, Section 5.3 describes onshore components of the proposed transmission with respect to proximity to inland wetland resource areas, Section 5.4 demonstrates compliance of the Preferred Project approach with performance standards of the Massachusetts Wetlands Protection Act (WPA), Section 5.5 discusses interests protected under the local wetland protection ordinances of Barnstable, Edgartown, and Nantucket, and Section 5.6 describes potential cumulative impacts to wetland resource areas.

5.1 Offshore Transmission

This section addresses coastal resource areas affected by the Project that are below mean low water (MLW). Wetland resource areas affected above MLW are discussed in Section 5.3.

Table 2-3 defines the maximum cable and corridor length for each respective OECC option associated with the Project.

Direct impacts associated with installation of the offshore export cables are shown in Table 5-1 and are discussed in subsequent sections.

Marine surveys described in Section 2.1.3 have enabled the Proponent to assess installation methods and challenges. The OECC is suitable for cable installation, but large sand waves are present in certain areas, and pre-cable-laying dredging may be needed to ensure sufficient cable burial beneath the stable seabed (see Section 5.1.4). Sand wave dredging is most likely to be necessary in the areas of bedforms shown in Attachment H1, although some sand waves outside these areas are possible since they are mobile features. Dredged material release (from a trailing suction hopper dredge [TSHD]) may occur within surveyed areas identified as sand waves within the OECC. Dredged material releases will not occur within areas mapped as hard bottom.

Although the priority will be to achieve sufficient cable burial depth along the entire cable alignment, if burial is unsuccessful it may be necessary to use cable protection (described in Section 5.1.3) to protect the cable; the Proponent will seek to avoid and/or minimize the use of such cable protection, thus minimizing potential impacts.

As described in Section 12.1, the same family of installation equipment proposed for the NE Wind 1 Connector will be utilized for the NE Wind 2 Connector. Those pieces of equipment are highly specialized and, in some cases, only one or two may be available globally, adding uncertainty about the specific piece(s) of equipment that will be available for Project installation. The range of installation tools described in Section 12.1, coupled with the conservative impact assumptions in the following sections, ensures that a suite of installation equipment remains available to the Project, providing the greatest chance of achieving target burial depth.

For all portions of the OECC, recolonization and recovery to pre-construction species assemblages is expected given the similarity of nearby habitat and species. Nearby, unimpacted seafloor will likely act as refuge area and supply a brood stock of species, which will begin recolonizing disturbed areas post-construction. Recovery timeframes and rates in a specific area depend on disturbance, sediment type, local hydrodynamics, and nearby species colonization abilities.[1] Previous research conducted on benthic community recovery after disturbance found that recovery to pre-construction biomass and diversity values took two to four years.[2] Other studies have observed differences in recovery rates based on sediment type, with sandy areas recovering more quickly (within 100 days of disturbance) than muddy/sand areas (Dernie et al. 2003). The presence of sand waves suggests that surficial sediments are frequently mobilized and that the benthic community along the cable route may be able to readily adapt to construction-related sediment disturbances.

Table 5-1 Summary of Estimated OECC Impacts within State Waters (acres)

Activity	Duration of Impact (Temporary / Permanent)	Scenario 1	Scenario 2	Scenario 3
		3 Cables in OECC	2 Cables in the OECC and 1 Cable in Western Muskeget Variant	1 Cable the OECC and 2 Cables in Western Muskeget Variant
Dredging Prior to Cable Installation (area of impact)[1]	Temporary	27	30	33
Offshore Export Cable Installation (within OECC)[2,3]	Temporary	110	107	104
Use of Jack-up and/or Anchored Vessels and Vessel Grounding[4,5,6]	Temporary	27	27	26
Cable Protection (within OECC)[7]	Permanent	9.8 - 29.4	10.9 - 32.5	12.0 - 35.6
Nearshore Grounding[8]	Temporary	7.2	7.2	7.2

Notes:

1. To avoid double-counting impacts, the total area of dredging disturbance does not include the 3.3-foot-wide cable installation trench and approximately 10-foot skid/track width counted above. Dredge volumes are presented in Table 5-3.
2. Cable installation impacts assume a 13.1-foot-wide disturbance zone (3.3 ft for the cable trench and 9.8 ft for skids/tracks).
3. 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.
4. Anchoring estimates conservatively assume 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.

1 Dernie KM, Kaiser MJ, Warwick RM. 2003. Recovery rates of benthic communities following physical disturbance. J Anim Ecol. 72(6):1043-1056.

2 Van Dalfsen JA, Essink K. 2001. Benthic community response to sand dredging and shoreface nourishment in Dutch coastal waters. *Senckenbergiana marit*. 31(2):329-332.

5. 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.
6. Grounding estimates are based on the footprint of a 492 x 164-foot vessel, with extra contingency to account for multiple groundings at the same location. A total of three groundings are assumed.
7. The estimated length of cable protection for each of the three offshore export cables is approximately 2.7 miles (4.4 km), for a total of 8.2 miles (13.2 km) for all three cables. The estimated area of cable protection in state waters is shown as a range because if rock protection is used, the width will be approximately 30 feet (9 m), but if concrete mattresses or rock gabion bags are employed, the estimated area of impact would be reduced by approximately two-thirds, reflecting a narrower width of approximately 10 feet (3 m). 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.
8. To install the cable close to shore using tools that are best optimized to achieve sufficient cable burial, the cable laying vessel may temporarily ground nearshore, impacting an area of up to 2.4 acres (9,750 m^2) per cable for a total of 7.2 acres for all three cables. See Section 5.1.2.

Consistency with the Massachusetts Ocean Management Plan (OMP) is described in Section 3.4. As described therein, all practicable measures to avoid damage to SSU resources and minimize impacts to those resources will be taken, and installation methodologies have been selected to minimize impacts where avoidance is not possible. The proposed OECC and Western Muskeget Variant avoid, to the maximum extent practicable, areas of hard bottom and complex bottom, only passing through these areas where there is no less damaging practicable alternative. Based on the preliminary cable alignments, the total estimated lengths and direct 3.3-foot-wide temporary trenching impacts from cables passing through hard bottom or complex bottom are presented in Table 5-2 for all three scenarios involving the primary OECC and the Western Muskeget Variant.

Table 5-2 Estimated Impacts of Preliminary Cable Alignments through Hard Bottom or Complex Bottom within State Waters (total, 3 cables)

Impact Area	SCENARIO 1 3 cables in Primary OECC		SCENARIO 2 2 cables in Primary OECC, 1 in Western Muskeget Variant		SCENARIO 3 1 cable in Primary OECC, 2 cables in Western Muskeget Variant	
	Length (miles)	Direct Trenching Impact (acres)	Length (miles)	Direct Trenching Impact (acres)	Length (miles)	Direct Trenching Impact (acres)
Hard Bottom	4.7	1.9	5.0	2.0	5.0	2.0
Complex Bottom	13.3	5.3	13.9	5.5	14.8	5.9

Potential impacts to hard bottom and complex bottom are very similar for all three scenarios, with slightly lower impacts for scenario 1 with all three cables within the primary OECC.

5.1.1 Cable Installation Tool Impact Summary

A variety of tools may be used for portions of the OECC, many of which are specialized and would be used only in limited areas where specific conditions are encountered. Typical techniques include jetting techniques (e.g., jet-plow or jet trenching) or a mechanical plow, either of which would have a temporary trench disturbance up to approximately 3.3 feet (1 m) wide. In addition to the trench impact on the seafloor, the cable installation tool may move along the seafloor on skids or tracks. These skids or tracks, each up to approximately 5 feet (1.5 m) wide, will slide over the surface of the seafloor, and as such have the potential to disturb benthic habitat; however, they are not expected to dig into the seabed, and therefore the impact is expected to be minor. Since the cable installation will affect a corridor that will pass similar habitats on adjacent sides, the area affected by cable burial or skids/tracks on the installation tool is expected to recolonize relatively quickly.

As described in Section 6.2.1, cable installation activities will result in some temporary elevated turbidity and localized sediment dispersion in the water column. The sediment, which is briefly fluidized by the cable installation tool, will quickly settle out of the water column.

A BOEM study published in March 2017 assessed impacts from cable-laying activities associated with construction of the Block Island Wind Farm.[3] That study identified formation of a temporary 2.7-inch-high "overspill levee" on either side of the cable placement. The overspill levee consisted of material deposited outside of the trench during jet-plow activities. The BOEM study indicated that overspill levees were observed an average distance of 12.5 feet (3.8 m) from the centerline of the trench (for an average total impact width of 25 feet) at an average thickness of 2.7 inches (7 centimeters [cm]). Importantly, the study described the overspill levees as very temporary features that were only apparent for a few days following cable installation, and that they were gone within one to two weeks. The study authors noted:

> *We attribute the ability to discern the overspill levees to surveying during jet-trenching and within a few days after the jet-trenching occurred from the mainland cable lay… We have noted that on post-lay surveys conducted 1 to 2 weeks after trenching, that overspill levees are rarely distinguishable.*[4]

In addition, a post-construction marine survey conducted in 2015 within six weeks of installation of a submarine cable from Falmouth to Tisbury on Martha's Vineyard found that benthic disturbance only remained visible along some parts of the cable route, and that other parts had already recovered.[5]

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3 James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. *Observing Cable Laying and Particle Settlement during the Construction of the Block Island Wind Farm*. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

4 James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement during the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. p.46.

5 Epsilon Associates, Inc. and CR Environmental, Inc. 2015. Martha's Vineyard Hybrid Submarine Cable Post-Construction Marine Survey Report. Prepared for Comcast and NSTAR Electric Company.

Given the dynamic marine environment, the Proponent anticipates that the trench area, regardless of which cable installation method is used, will be quickly reworked by currents, refilling possible low portions of the trench as quickly as they would remove any potential "overspill levees". The Proponent is coordinating with state and federal agencies regarding benthic habitat monitoring.

The Proponent will prioritize the least environmentally impactful cable installation alternative(s) that is/are practicable for each segment of cable installation. In addition to selecting an appropriate tool for the site conditions, the Proponent will work to minimize the likelihood of insufficient cable burial. For example, if the target burial depth is not being achieved, operational modifications may be required. Subsequent attempts with a different tool (such as controlled flow excavation) may be required where engineering analysis indicates subsequent attempts may help achieve sufficient burial.

5.1.2 Anchoring

Anchored cable-laying vessels may be used along the entire length of the OECC, and particularly in areas of shallow water and/or strong currents, because many portions of the OECC are too shallow for Dynamic Positioning (DP) vessels. Anchored vessels will avoid sensitive seafloor habitats to the greatest extent practicable. Contractors will be provided with a map of sensitive habitats prior to construction with areas to avoid and shall plan their mooring positions accordingly. Vessel anchors will be required to avoid known eelgrass beds and will avoid other sensitive seafloor habitats and SSU areas (e.g., hard or complex bottom) as long as it does not compromise the vessel's safety or the cable installation. Where it is considered impossible or impracticable to avoid a sensitive seafloor habitat when anchoring, use of mid-line anchor buoys will be considered, where feasible and considered safe, as a potential measure to reduce and minimize potential impacts from anchor line sweep. Mid-line buoys are placed somewhere along the length of an anchor line to support the weight of the line and hold a portion of the line off the seabed. By suspending the anchor lines, mid-line buoys prevent the line from dragging and scouring the seafloor, which minimizes anchor sweep and associated impacts. Vessel operators will determine when the use of mid-line anchor buoys is considered infeasible and/or unsafe.

The Proponent is committed to avoiding anchoring except where necessary. The discussion below presents a conservative estimate of potential anchoring impacts.

Project engineers estimate approximately 323 square feet (ft^2) (30 m^2) of disturbance from each anchor (assuming an approximately 10-ton anchor), such that a vessel equipped with nine anchors would disturb approximately 2,900 ft^2 (270 m^2) per each anchoring set. A nine-point anchor spread provides greater force on the cable burial tool than a spread with fewer anchors, enabling greater burial depth. The assumptions herein include 10-ton anchors to accommodate larger installation vessels. In addition, anchored vessels may deploy up to two spud legs at each anchoring location to secure the cable-laying vessel while its anchors are being repositioned. Each deployment of two spuds would affect approximately 110 square feet (10 m^2) of seafloor, making the total disturbance per anchoring set approximately 3,010 square feet (280 m^2). Potential impacts from anchoring are summarized in Table 5-1. Anchoring will not be performed in eelgrass. To install the cable close to shore using tools that are best optimized to achieve sufficient cable burial, the cable laying vessel may temporarily ground nearshore, impacting an area of up to 2.4 acres (9,750 m^2) per cable. Any anchoring, spud leg deployment, or grounding will occur within surveyed area of the OECC.

5.1.3 Cable Protection

The Proponent's priority will be to achieve adequate burial depth of the three offshore export cables and to avoid the need for any cable protection. However, achieving adequate burial depth may be unsuccessful in areas where the seafloor is composed of consolidated materials, making complete avoidance of cable protection measures infeasible. If sufficient burial depth cannot be achieved, cable protection methods may be necessary. The Proponent will seek to avoid and/or minimize the use of such cable protections, and cable protection will only be used where necessary, thus minimizing potential impacts. If needed, the methods for cable protection will be:

- **Concrete mattresses:** These "mattresses" are prefabricated flexible concrete coverings consisting of high-strength concrete profiled blocks cast around a mesh material (e.g., ultra-violet stabilized polypropylene rope) that holds the blocks together. This mattress construction provides flexibility, enabling the mattress to settle over the contours of the cable and seafloor. If needed, the mesh in this application would be designed to have a decades-long lifespan. Project engineers have determined that cable protection of approximately 10 feet (3 m) wide would be sufficient to protect the cable. These mattresses can be manufactured from ECOncrete, a bio-enhanced concrete admixture that has been determined to promote settlement of marine fauna and flora, a benefit over traditional concrete mattresses. ECOncrete mattresses allow for efficient installation and can be designed with tapered edges to minimize snagging from fishing gear and anchors (see below for additional information regarding habitat value).

- **Gabion rock bags:** This method involves rocks encased in a net material (e.g., a polyester net) that can be accurately deployed on top of the cable and subsequently recovered, if necessary, for temporary or permanent cable protection. Each bag would be equipped with a single lifting point to enable its accurate and efficient deployment and recovery. These rock bags have been deployed in other high-energy marine environments such as the North Sea, and the net material used for the rock bags would be designed to have an approximately 50-year lifespan. Project engineers have determined that cable protection of approximately 10 feet (3 m) wide would be sufficient to protect the cable.

- **Rock placement:** Rock placement would involve the laying of rocks on top of the cable to provide protection. Rock would be installed in a controlled and accurate manner on the seafloor using a dynamic positioning fallpipe vessel. Rocks used for cable protection would be sized for site-specific conditions; where feasible, this protection would consist of rocks 2.5 inches (6.4 cm) in diameter or larger. If rock placement was the required methodology of cable protection, a greater cable protection width of approximately 30 feet (9 m) would be needed to account for sideslopes.

- **Half-shell pipes or similar (only for cable crossings or where the cable is laid on the seafloor):** These products are made from composite materials and/or cast iron with suitable corrosion protection and would be fixed around the cable to provide mechanical protection. Half-shell pipes or similar solutions are not used for remedial cable protection but could be used at cable crossings or where cable must be laid on the surface of the seabed. The half-shell pipes do not ensure protection from damage due to fishing trawls or anchor drags (although they would offer some protection, they would not prevent damage).

The Proponent intends to avoid or minimize the need for cable protection to the greatest extent practicable through careful site assessment and thoughtful selection of the most appropriate cable installation tool to achieve sufficient burial. Areas requiring cable protection, if any, will be the only locations where post-installation conditions at the seafloor may permanently differ from existing conditions; however, such cable protection would only be expected within hard bottom areas, and the cable protection itself would function as hard bottom. Estimated cable protection impact calculations are presented in Table 5-1.

Once placed, cable protection essentially functions as artificial reef, providing additional hard-bottom habitat for colonization of the seafloor. Artificial reefs provide spaces for food, spawning, and shelter on otherwise soft-bottom substrates that can increase fish abundance and biodiversity and alter species distributions. Cable protection can be modified and designed specifically to support a range of habitats and increase abundance of target species. Characteristics of a design should be based on ecological principles to enhance the value of the artificial reef effect of cable protection. Rough surface texture of artificial reef materials has been shown to enhance benthic settlement, high relief supports fish recruitment, and the vertical orientation of surfaces is important for some colonizers like bivalves, hydroids, and barnacles.[6]

Based on the ecological principles of providing a variety of sizes of substrate, holes, and surface orientations/complexity for settlement, rock protection is a form of cable protection that can exhibit high ecological value. Using placement of gravel, cobbles, and boulders is a straightforward way to mimic the material, hole sizes, and surface orientation of surrounding hard-bottom habitats. Including a variety of material sizes and types (such as shells) may further enhance the artificial reef benefits of the cable protection.**Error! Bookmark not defined.** Gabion rock bags can also provide good ecological value by providing smaller-scale structures and some habitat

[6] Glarou, M.; Zrust, M.; Svendsen, J.C. Using Artificial-Reef Knowledge to Enhance the Ecological Function of Offshore Wind Turbine Foundations: Implications for Fish Abundance and Diversity. J. Mar. Sci. Eng. 2020, 8, 332. https://doi.org/10.3390/jmse8050332

complexity. Since hard bottom

within the OECC is dominated by gravel rather than boulders, this cover type would likely sufficiently mimic surrounding hard-bottom habitats, particularly if shells are incorporated, since shell aggregate habitat is present in the area.

Concrete mattresses are widely used for cable protection and they provide hard surfaces for epifaunal attachment.[7] However, they do not provide vertical relief/structure, holes of any particular size (such as for adult cod use), or a variety of surface orientations necessary for serving as useful habitat to many demersal fish and invertebrate species. While traditional concrete mattresses have smooth, flat plane designs, as noted above, ECOncrete mattresses mimic natural marine rock with complex surface textures. This surface roughness provides marine larvae with the micro-turbulences they need to attach and grow into marine organisms such as tubeworms, oysters, or corals. ECOncrete technology includes features such as crevices and holes that serve as shelter and breeding spaces for fish and other species. ECOncrete provides the structural integrity and protection required for underlying cables, is made of environmentally friendly materials, and also mimics, to a certain extent, hard bottom habitats in proximity to the export cables in this location. Therefore, ECOncrete mattresses present a more protective and environmentally sensitive alternative compared to traditional concrete mattresses while minimizing additional impacts and disturbances to the marine environment.

Given the narrower extent of seabed impact, efficient installation, and decommissioning and habitat value added with gabion rock bags and ECOncrete mattresses, these methods represent the preferred cable protection methodologies for the Project at this time. However, given that other offshore wind projects in the U.S. will have been installed prior to the NE Wind 2 Connector, the Proponent continues to emphasize the need for flexibility when selecting appropriate cable protection methodologies so lessons learned from other projects' cable protection methods can be considered in future cable protection selection.

5.1.4 Sand Wave Dredging

As described in Section 2.1.3, some portions of Nantucket Sound have areas of complex bottom composed of active sand waves, which the Proponent has assessed over multiple seasons of marine surveys (see Figure 2-1). Sand waves are dynamic features with changing morphology that move across the seafloor. 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.

7 BERR (Department for Business Enterprise & Regulatory Reform). 2008. Review of cabling techniques and environmental effects applicable to the offshore wind farm industry. Technical Report in Association with Defra. January 2008. 164 pp.

The stretch of the OECC where sand wave dredging may be needed is largely coincident with areas mapped as complex bottom as shown on Figure 2-1 and in Attachment H1. 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 and only to the extent needed at the time of construction to ensure sufficient burial within the stable seabed. Dredging will be performed as close in time to cable installation as possible to avoid mobile sand waves becoming re-established in the dredged area.

Where dredging is necessary, it is conservatively assumed that the dredged area will typically be approximately 50 feet (15 m) wide at the bottom (to allow for equipment maneuverability) with approximately 1:3 sideslopes for each of the three cables. The depth of dredging will vary with the height of sand waves, and hence the dimensions of the sideslopes will likewise vary with the depth of dredging and sediment conditions. This dredge corridor includes the up to 3.3-foot-wide (1-m-wide) cable installation trench and the up to 10-foot-wide (3-m-wide) temporary disturbance zone from the tracks or skids of the cable installation equipment.

As previously presented in Table 5-1, for all three offshore export cables combined, the Proponent's engineers anticipate that the area impacted by dredging in state waters would be up to approximately 33 acres (Scenario 3) (inclusive of sideslopes but excluding the overlapping impacts from trenching and tool skids). As presented in Table 5-3 below, the estimated volume of dredged material in state waters is up to approximately 131,100 cubic yards (Scenario 3). Actual dredge volumes will depend on the final cable alignments and cable installation method; a cable installation method that can achieve a deeper burial depth will require less dredging.

Table 5-3 Summary of Dredge Volumes in State Waters

Dredge Volume	Cubic Yards
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

With respect to potential habitat impacts, because sand wave areas are intrinsically dynamic and unstable, those areas are typically populated by benthic organisms that are highly adaptive to dynamic sediment conditions.

Dredging could be accomplished using the following techniques:

- **Trailing Suction Hopper Dredge:** European offshore wind projects have typically used a TSHD. A TSHD vessel contains one or more drag arms that extend from the vessel, rest on the seafloor, and suction up sediments. Dredges of this type are also commonly used in the U.S. for channel maintenance, beach nourishment, and other uses. For the NE Wind 2 Connector, a TSHD would be used to remove enough of the top of a sand wave to allow subsequent cable installation within the stable seabed. 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 surveyed corridor that also contains sand waves.

- **Controlled Flow Excavation:** Controlled flow excavation uses a pressurized stream of water to push sediments to the side. The controlled flow excavation tool draws in seawater from the sides and then propels the water out from a vertical downpipe at a specified pressure and volume. The downpipe is positioned over the cable alignment, enabling the stream of water to fluidize the sediments around the cable, which allows the cable to settle into the trench. This process causes the top layer of sediments to be sidecast to either side of the trench; therefore, controlled flow excavation would both remove the top of the sand wave and bury the cable. Typically, a number of passes are required to lower the cable to the minimum sufficient burial depth.

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 (2 m) 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 adequate 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.

5.2 Transition from Offshore to Onshore

This section describes coastal resource areas identified at the landfall site and addresses the anticipated construction impacts to these resource areas, including those related to HDD operations as well as the installation joint bay vaults. It also describes mitigation measures to avoid and minimize impacts to coastal resource areas located at the landfall site.

5.2.1 Coastal Resource Areas Present at the Landfall Site

As stated in the Project's ENF, the proposed landfall site at is located in a paved parking lot on a Barrier Beach that lies between East Bay to the west and Centerville Harbor (Nantucket Sound) to the east. The Barrier Beach is made up of Coastal Beach and Coastal Dune, with a significant portion of the dune having been developed into a paved parking lot. The entire barrier beach is also within Land Subject to Coastal Storm Flowage. Other nearby coastal resource areas include Land Under the Ocean, Salt Marsh, and Coastal Bank.

These resource areas, which were identified and field delineated by Epsilon Associates in June and August 2022, are described in greater detail below and are shown on Figure 5-1, Sheet 1 of 9.

5.2.1.1 Land Under the Ocean

Land Under the Ocean includes areas of submerged land located seaward of mean low water. The use of HDD to accomplish the offshore to onshore transition will avoid impacts to nearshore areas of Land Under the Ocean but will temporarily alter a small area at the seaward end of each HDD conduit, where the seabed is characterized as flat sand with mud/shell aggregates (see Attachment H1, page 8 of 8). HDD methodology is described in Section 12.2.

5.2.1.2 Barrier Beach

The proposed landfall site is on a Barrier Beach located between Nantucket Sound to the east and East Bay to the west. The Barrier Beach is composed of areas of Coastal Beach and Coastal Dune which are described below. The portion of the Barrier Beach that will be affected by the Project is limited to a paved and essentially level parking lot.

5.2.1.3 Coastal Beach

Coastal Beach at the landfall site is gently sloping and extends landward to a Coastal Dune except for a 100-foot-wide segment that extends landward to the paved parking lot. The beach appears to be stable and accreting with accumulation of sand evident against the jetty at the East Bay entry channel (see Section 10.1). The distribution of sediments on the Coastal Beach are typical, with coarser sand and gravel occurring within the intertidal zone and along the lower portions of the beach and a greater percentage of finer-textured sands present along the upper portion.

5.2.1.4 Coastal Dune

Coastal Dune is the largest resource area present at the landfall site, consisting of both the paved parking lot and adjacent vegetated dunes (see Figure 5-1). The largest area of vegetated Coastal Dune occurs east of the parking lot and occupies over three acres of the Barrier Beach. This portion of the dune crests near its northern end at an elevation of approximately ten feet (NAVD88). Other smaller and lower areas of dune occur along the west side and near the south end of the parking lot. Except where traversed by walking paths, the dune is vegetated throughout, primarily with American beach grass *(Amophila breviligulata)*, which provides a good substrate for additional sand deposition.

The existing paved parking lot at the landfall site occupies an area that likely functioned as a coastal dune prior to its development. However, in its existing condition (i.e., paved and essentially level) it does not provide storm damage prevention or flood control and does not promote conditions favorable for sand deposition. It also does not provide habitat for nesting shorebirds. Regardless, the parking lot is on the Barrier Beach, and the land beneath the paved surface is regarded as historic Coastal Dune that is altered such that it no longer provides the critical functions of that resource area.

5.2.1.5 Coastal Bank

A stable and non-eroding Coastal Bank occurs at the south end of the parking lot where a lifeguard station is situated upon a small knoll. Delineation of the Coastal Bank was performed by probing soils in the area to a depth of approximately 18 inches. Using this approach, a transition from the loose unconsolidated sands of the dune backslope to more developed and cohesive soils was noted, and this transition point was established as the toe of the Coastal Bank. MassDEP Wetlands Policy 92-1 was applied to determine the lateral extent and upper boundary of the Coastal Bank shown on Figure 5-1.

5.2.1.6 Salt Marsh

A continuous band of Salt Marsh occurs along the shores of East Bay with a few additional isolated patches present near the fishing pier at the north end of the parking lot (see Figure 5-1). The salt marsh extends landward to the spring tide elevation of approximately 2.5 feet (NAVD88). Observed salt marsh vegetation included salt meadow cordgrass *(Spartina patens)*, sea lavender *(Limonium carolinianum)*, and salt marsh cord grass *(Spartina alterniflora)*.

5.2.1.7 Land Subject to Coastal Storm Flowage

The entire landfall site is located within a coastal flood hazard zone as established by FEMA and is therefore considered within Land Subject to Coastal Storm Flowage (LSCSF). Thus, all activities required for the offshore to onshore transition are located within this resource area.

5.2.2 Anticipated Wetland Impacts at the Landfall Site

The transition from offshore to onshore will be accomplished by HDD staged from the paved parking lot located at Dowses Beach, which will avoid impacts to adjacent vegetated areas of Coastal Dune and Coastal Beach and will minimize impacts to the nearshore area of Land Under the Ocean. The three planned HDD alignments range in length 2,150 to 2,250 feet (655 to 686 meters), and although the HDD trajectory is still undergoing engineering refinement, it is estimated that each would achieve a depth of approximately 30 to 50 feet below the grade of the beach at the mean high water line (see Attachment C3). Construction methods for HDD are described in greater detail in Section 12.2.

The entire construction effort for the offshore to onshore transition can be broken down into three main phases of work: (1) HDD operations; (2) installation of transition joint bays and connecting duct bank; and (3) offshore export cable pull-in and splicing activities. Temporary impacts to affected wetland resource areas from these three phases of construction are described below and quantified in Table 5-4. A detailed description of construction activities is provided in Section 12.

5.2.3 Land Under the Ocean

Land Under the Ocean will be temporarily impacted during HDD operations at the seaward end of each HDD trajectory. During the initial drilling and borehole development, a small area of the seafloor will be disturbed so the HDD conduit can be inserted and pulled back to shore. Given the coarse-grained nature of sediments at the HDD exit hole location and the small diameter of the pilot hole, little to no turbidity is expected as the drill head reaches the seafloor (see Section 12.2). Although not anticipated, a small amount of bentonite clay (a natural material used to lubricate the drill head) could be released at the exit point of the HDD drilling and reaming operations, and the contractor may install silt curtains at the location where the pilot hole exits the seafloor. Alternatively, the contractor may lower a gravity cell that would capture any incidental bentonite released from the end of the HDD drill.

Bentonite clay is an inert, naturally occurring substance and is appropriate for use in sensitive environments because it poses minimal environmental risks; for this reason, bentonite is commonly used for the HDD process. Nevertheless, the contractor will minimize the amount of bentonite near the exit hole and will have controls near the exit hole to minimize and contain any bentonite (see Section 12.2.1).

After each HDD conduit has been pulled back through the borehole, proper conduit burial depths will be established at both ends. Limited dredging of approximately 100 square feet will be performed at the seaward end of each HDD conduit to enable divers to install an end flange and perform other activities necessary to complete the installation. Another round of dredging at the seaward end of each HDD conduit will be required immediately prior to the cable pull-in to re-expose the conduit, remove the end flange, and perform other tasks necessary to safely insert the offshore export cable. It is estimated that approximately 500 square feet of the seabed will be temporarily disturbed at each HDD conduit by this second round of dredging.

Table 5-4 Summary of Impacts to Wetland Resource Areas at the Landfall Site (total square feet, 3 cables)

Resource Area	HDD Operations	Transition Joint Bay/Connecting Duct Bank	Cable Pull-in
Land Under the Ocean	300[1]	0	1,500[2]
Salt Marsh	0	0	0
Coastal Beach	0	0	0
Coastal Dune[3]	0	0	0
Barrier Beach and LSCSF[6]	1,200[4]	8,720[5]	4,800[7]
Coastal Bank	0	0	0

Notes:
1 Assumes a 100-sf dredge area is needed at each HDD conduit end to complete installation.
2 Assumes a 500-sf area of disturbance to the seabed is needed at each HDD conduit end to facilitate cable insertion.
3 To avoid double counting impacts, the amount of Coastal Dune to be disturbed within the paved parking lot is quantified under the category of Barrier Beach.

4 The estimated impact to Barrier Beach/LSCSF from HDD operations is based on three 400-sf areas of the paved parking lot being disturbed for drill rig anchoring and bentonite pumping system.

5 The estimated impact to Barrier Beach/LSCSF from Transition Joint Bay/Connecting Duct Bank is based on three 1,500-sf excavations for transition joint bay installations and an assumed 6-foot trench width for the connecting duct banks.

6 Area to be disturbed on Barrier Beach/LSCSF is located entirely within a paved parking lot.

7 The estimated impact to Barrier Beach/LSCSF from cable pull-in assumes a 100-sf excavation will be required at each transition joint bay prior to the cable pull.

5.2.4 Barrier Beach and Land Subject to Coastal Storm Flowage

During each HDD operation, approximately 400 square feet of the paved parking lot will be disturbed to set anchor points for the drill rig and prepare a basin for the drilling mud circulation system. In addition, a portion of the parking lot will be occupied by construction staging as shown in Attachment P. Although the entire area used for staging will be enclosed within a perimeter fence, most of that area will not actually be disturbed.

Following completion of HDD operations, three transition joint bays (one opposite each HDD conduit/offshore export cable), will be installed approximately three feet below the grade of the parking lot. Each transition joint bay will be approximately 62 feet long by 11 feet wide, and each will require an approximately 1,500-square-foot excavation to approximately twelve feet below the grade of the parking lot. These excavations will be temporary, and pre-existing parking lot grades will be re-established prior to the end of each construction season. It is anticipated that these excavations will extend below the water table and dewatering will be required during both the transition joint bay installations and subsequent cable pulling and splicing activities. To minimize disturbance to the parking lot, sheet piles will be installed around the perimeter of each transition joint bay prior to excavation, and well points will be installed for the dewatering system. Pumps will be used to draw water from the well points and into a series of frac tanks to provide settlement of any suspended sediments prior to water being discharged through a filter bag.

Prior to the cable pull-in and splicing, it will be necessary to perform additional excavations within the parking lot to uncover the previously installed HDD conduits and remove the lids of the three joint bays. As a result, approximately 4,800 square feet of disturbance to the parking lot will be required during this phase of the work, with 1,500 square feet above each of three joint bays and approximately 100 square feet at each HDD conduit end.

5.2.5 Construction Mitigation Proposed at the Landfall Site

As described above, the use of HDD to accomplish the offshore to onshore transition at the landfall site will avoid impacts to the vegetated Coastal Dune and Coastal Beach while enabling minimal disturbance to the nearshore area of Land Under the Ocean.

Although use of HDD will avoid any direct disturbance to the Coastal Dune or Coastal Beach, the proposed workspace is proximate to these resource areas and appropriate measures are proposed to minimize potential for any indirect impact from construction. To prevent the introduction of sediments or other materials from the construction zone, biodegradable perimeter controls such as straw haybales or straw wattles will be installed and will be inspected on a weekly basis to ensure they are maintained in good functional condition.

Nearly all construction staging at the landfall site will be confined within the existing paved parking lot. A small previously disturbed area near the lifeguard station at the south end of the parking lot is the only non-paved area that may be affected. Both the paved and, if necessary, non-paved areas to be disturbed by HDD and associated operations will be restored to pre-construction conditions prior to the end of each construction season.

Given the anticipated excavation depths required for the transition joint bay installations, some 24-hour dewatering will be required, and effective water management will minimize impacts to resource areas downgradient of the dewatering discharge. All water generated from dewatering will be directed into a series of frac tanks before being discharged onto a crushed stone infiltration bed through an appropriately sized filter bag. All materials required for dewatering (i.e., pumps, water pipes, frac tanks, infiltration bed, and filter bags) will be contained within the defined workspace to prevent any direct discharge of any unfiltered water to adjacent resources. Despite these controls, there is potential for some overland flow of filtered water from the dewatering system. Any such flow would be monitored and, if necessary, appropriate measures would be taken to address any scour or other degradation of the areas along the edge of the pavement where this overland flow is directed.

5.3 Onshore Export Cable Routes

This section describes wetland resource areas that occur along each of the two identified onshore transmission routes (i.e., routes from the preferred landfall site to the proposed onshore substation). There are no wetland resource areas located along the Main Street Variant or any of the grid interconnection routes (i.e., routes from the proposed onshore substation to the interconnection location), nor are there any wetland resource areas at the proposed substation site or in the area anticipated to be used for modifications to the existing West Barnstable Substation.

5.3.1 Preferred Route

The Preferred Route from the landfall site to the proposed substation site begins within the Barrier Beach at the south end of the paved parking lot and proceeds west along an existing paved causeway where it crosses a tidal culvert that accommodates flow between East Bay and Phinney's Bay and continues to East Bay Road (see Figure 5-1). In addition to the portion of the route within Barrier Beach, this entire section of the route is also located within LSCSF and within the buffer zones of Salt Marsh, Land Under the Ocean, Land Containing Shellfish, Coastal Dune, and Coastal Bank.

Turning south on East Bay Road, the Preferred Route traverses approximately 600 linear feet of additional LSCSF between the paved causeway and Wianno Avenue. It also crosses approximately 2,040 linear feet of buffer zone associated with several freshwater wetlands and culverts located alongside Main Street, Osterville-West Barnstable Road, Old Stage Road, and Oak Street. These wetland resource areas and associated drainage ditches/culverts are depicted in Figure 5-1. Wetland and buffer zone impacts associated with the Preferred Route are quantified in Table 5-5 (see Section 5.3.3).

5.3.2 Noticed Alternative Route

The Noticed Alternative Route is contiguous with the Preferred Route until the intersection of the paved causeway with East Bay Road. As such, it begins within the Barrier Beach at the south end of the paved parking lot at the landfall site and proceeds west along the paved causeway where it crosses a tidal culvert that accommodates flow between East Bay and Phinney's Bay, and then continues to East Bay Road. In addition to the portion within Barrier Beach, this entire section of the route is also located within LSCSF and within the buffer zones of Salt Marsh, Land Under the Ocean, Land Containing Shellfish, Coastal Dune, and Coastal Bank.

After turning north on East Bay Road, the Noticed Alternative passes through approximately 1,800 linear feet of buffer zone to Salt Marsh and Bordering Vegetated Wetland associated with East Bay. Along this same segment, it will also traverse 2,400 linear feet of LSCSF. A smaller culvert is also crossed along this segment.

Further inland, the Noticed Alternative crosses the Bump's River twice: once near the intersection of Old Mill Road and Bump's River Road, and a second time at the outlet of Lumbert Pond (see Figure 5-1). In addition to Riverfront Areas at these two locations, the Noticed Alternative will also pass through 900 linear feet of Bordering Land Subject to Flooding at the lower Bump's River crossing. The Noticed Alternative will also cross approximately 4,870 linear feet of buffer zone associated with several other freshwater wetlands and culverts located along Old Falmouth Road, Old Stage Road, and Oak Street. These wetland resource areas and associated drainage ditches/culverts are depicted in Figure 5-1. Wetland resource, riverfront area, and buffer zone impacts associated with the Noticed Alternative are quantified in Table 5-5 (see Section 5.3.3).

5.3.3 Comparison of Wetlands Impacts/Mitigation Measures Along Onshore Routes

The Preferred and Noticed Alternative routes have been selected to avoid and minimize wetland impacts, but both routes will require some work within wetland resource areas. All impacts will be temporary and limited to the construction period. Table 5-5 summarizes temporary wetlands impacts associated with installation of the proposed three-circuit duct bank from the landfall site to the proposed substation.[8]

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8 All route alternatives will require some temporary alteration to Land Under the Ocean that will result from cable installation activities along the OECC. These impacts are described in Section 5.1.

As shown in Table 5-5, both the Preferred Route and Noticed Alternative will cross Barrier Beach, LSCSF, and wetland buffer zones. However, these crossings will be accomplished within paved road and parking lot surfaces without any direct impacts to these wetland resource areas. No above-ground structures or changes to topography are proposed within LSCSF, and the Project will have no effect on flood velocities or floodplain storage capacity, and therefore no permanent impact to LSCSF is anticipated.

Table 5-5 Comparison of Temporary Wetland Resource Area Impacts for Onshore Export Cable Transmission Routes (linear feet)

Resource Area	Preferred Route	Noticed Alternative
Barrier Beach[1]	58	58
Land Subject to Coastal Storm Flowage	2,440	4,240
Perennial Stream Crossings[2]	0	2
Riverfront Area	0	1,315
Bordering Land Subject to Flooding[3]	0	900
Buffer Zone	2,040	4,870

Notes:
1 Areas to be disturbed within Barrier Beach are limited to paved surfaces.
2 The Noticed Alternative crosses the Bump's River twice: once at the outlet of Lumbert Pond, and a second time near the intersection of Old Mill Road and Bump's River Road. There will be no impacts to the river since the Proponent anticipates installing the duct bank above the existing culverts.
3 Bordering Land Subject to Flooding, Riverfront Area, and Buffer Zone coincide at the lower Bump's River crossing.

Duct bank installation along the paved causeway leading to Dowses Beach will involve construction within LSCSF and within the buffer zones of Land Under the Ocean, Land Containing Shellfish, and Salt Marsh. Along the causeway and wherever duct bank installation is proposed within 100 feet of wetland resource areas, effective perimeter controls such as entrenched silt fence or staked straw bales will be installed along the road shoulders to prevent any disturbed sediments from reaching wetland habitats.

Excavations required for the buried duct bank will not be as deep as those required for the transition joint bay installations, but the need for some dewatering is anticipated, and this water will be managed in the same manner described above to ensure that it is appropriately filtered prior to discharge (see Section 12.3.2).

5.3.4 Alternative to Causeway: East Bay Microtunnel

An alternative construction method for the onshore transmission system between the paved parking lot at the landfall site and East Bay Road has been evaluated to avoid impacts to the causeway and adjacent resource areas. The alternative method involves microtunnel, so named for the relatively small diameter of the tunnel being developed, uses a remotely controlled tunnelling machine to bore between points. For this application, a temporary jacking shaft would be excavated near the south end of the paved parking lot and a smaller receiving shaft would be placed on town-owned land near the intersection of the paved causeway and East Bay Road. The tunnel alignment would avoid impacts to the causeway bypassing beneath a portion of East Bay and the resource areas located along its shoreline.

Microtunnel is a pipe jacking operation that utilizes a boring machine pushed into the earth by hydraulic jacks in preparation for insertion of a concrete casing (as opposed to HDD, which drills a curved trajectory through which a conduit is subsequently installed). The excavations for the jacking and receiving shafts of the microtunnel operation would temporarily affect approximately 4,000 square feet of LSCSF and additional areas outside of wetland resource areas would be cleared for equipment access, set up, and staging. The work would also be located within the regulatory buffer zone of salt marsh, coastal dune, and coastal bank, though no impacts to those resource areas are anticipated. An engineering plan depicting the microtunnel alternative across East Bay is provided as Attachment C4.

Microtunnel would avoid temporary impacts to the paved causeway but would create more disturbance at both ends due to the need to provide adequate workspace for the staging of specialized construction equipment and materials. Estimated impact areas for both standard duct bank installation and microtunnel for the segment of the onshore export cable installation from the paved parking lot to East Bay Road are quantified in Table 5-6.

Table 5-6 Comparison of Impacts from Duct Bank Construction vs. Microtunnel (square feet)

Activity Requiring Temporary Alteration to Land Subject to Coastal Storm Flowage and Buffer Zone	Standard Construction	Microtunnel
Excavations	6,600[1]	4,000[2]
Vegetation Clearing	0	2,800[3]
Equipment Staging	0	14,000[4]

1 The excavation area for standard construction within LSCSF is based on 600 linear feet of 11-foot-wide trench excavation along the paved causeway.

2 The excavation area for microtunnel within LSCSF is based on dimensional requirements for jacking and receiving pits, both of which would be located within the resource area.

3 The vegetation clearing estimate is derived from a conceptual engineering plan of the microtunnel, which depicts areas of clearing required at the west end of the operation only (see Attachment C4).

4 The staging area estimate includes approximately 4,000 sf at the west end and 10,000 sf of staging area at the east end of the microtunnel operation.

5.4 Compliance with Performance Standards under the Massachusetts Wetlands Protection Act (WPA)

The Massachusetts WPA Regulations describe various coastal and inland wetland resource areas and their performance standards, which are minimum standards required for an activity proposed to alter land within or near a specific resource area. This section describes Project compliance with performance standards for onshore and offshore wetland resource areas.

The OECC is located entirely within Land Under the Ocean (310 CMR 10.25), and certain segments pass through Land Containing Shellfish as defined in the Regulations (310 CMR 10.34). Proposed activities associated with installation of the offshore export cables in state waters for this Project will be similar to those presented to, reviewed by, and approved by the relevant local and state permitting authorities for the Vineyard Wind Connector and NE Wind 1 Connector projects, and will comply with all applicable WPA-related performance standards.

The Preferred and Noticed Alternative routes for the proposed onshore duct bank from the landfall site to the proposed substation site will have some temporary impacts to LSCSF, a paved portion of a Barrier Beach, and Riverfront Area. Both routes also traverse wetland buffer zones at various locations (see Figure 5-1). The grid interconnection routes will not affect any mapped wetland resource areas.

Under the Massachusetts WPA Regulations, installation of buried utilities in buffer zones and within paved roadways is a "minor project" (310 CMR 10.02(2)(b)(2)(i). Minor projects are exempt from the WPA Regulations and are therefore not subject to the performance standards that would otherwise apply to projects involving work within the buffer zone. As a minor project, the performance standards described in the Regulations apply only to those segments of the onshore duct bank that are within wetland resource areas, but not those segments that are within RFA or the 100-foot buffer zone of wetland resource areas.

There are no performance standards defined for projects located in LSCSF, or for minor projects located in RFA. The performance standards for the other relevant wetland resource areas are discussed below.

5.4.1 Limited Project Status

Although the Proponent believes the Project as proposed meets all relevant wetland performance standards, the Proponent may also apply for approval as a Limited Project. Under the Massachusetts WPA, certain activities are afforded Limited Project status, which allows permitting authorities to approve projects that are inherently unable to meet wetland performance standards specified for the various resource areas defined in the Act. The Limited Project provision for work affecting coastal resource areas is contained in the Regulations at 310 CMR 10.24(7):

> *10.24 (7) Notwithstanding the provisions of 310 CMR 10.25 through 10.35, the Issuing Authority may issue an Order of Conditions and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40, permitting the limited projects listed in 310 CMR 10.24(7)(a) through (c), although no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37. In determining whether to exercise its discretion to approve the limited projects listed in 310 CMR 10.24(7)(a) through (c), the Issuing Authority shall consider the following factors: the magnitude of the alteration and the significance of the project to the interests identified in M.G.L. c. 131, § 40, the availability of reasonable*

alternatives to the proposed activity, and the extent to which adverse impacts are minimized and the extent to which mitigation measures including replication or restoration are provided to contribute to the protection of the interests identified in M.G.L. c. 131, § 40. Adverse effects to be minimized include without limitation any adverse impacts on the relevant interests of M.G.L. c. 131, § 40, due to changes in wave action or sediment transport or adjacent coastal banks, coastal beaches, coastal dunes, salt marshes or barrier beaches. The provisions of 310 CMR 10.24(7)(a) through (c) are not intended to prohibit the Issuing Authority from imposing such additional conditions as are necessary to contribute to the interests of M.G.L. c. 131, § 40 where the indicated minimizing measures are not sufficient.

The Limited Project provisions specifically apply to the installation of an electric transmission system beneath Land Under the Ocean, Barrier Beach, and LSCSF:

10.24(7)(b): The construction, reconstruction, operation, and maintenance of underground and overhead public utilities, limited to electrical distribution or transmission lines, or communication, sewer, water, and natural gas lines, may be permitted as a limited project pursuant to 310 CMR 10.24(7) provided that the project complies with all applicable provisions of 310 CMR 10.24(1) through (6), (9) and (10), and (7)(b)1 through 9.

The Project will comply with all applicable provisions of 310 CMR 10.24(1) through (6), (9) and (10) as well as (7)(b) 1 through 9, and therefore qualifies for Limited Project status.

5.4.2 Land Under the Ocean

Land Under the Ocean is defined as the submerged land that extends seaward from MLW out to the boundary of a municipality's jurisdiction. Where the Project is in Nantucket Sound, this municipal offshore boundary is coincident with the three-nautical-mile (3.45-statute-mile) limit that extends seaward from the shoreline.[9] Submerged land in the central portion of Nantucket

[9] General Performance Standards (3) and (4) are relevant to dredging projects that are for navigational purposes, such as maintenance or improvement dredging of harbor entrance channels. *See* 310 CMR 10.25(3) and (4). As described above, installation of the offshore export cables will require dredging where large sand waves are present; however, because the Project is not intended to improve or maintain navigation, these performance standards do not apply.

[9] James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement During the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

[9] Epsilon Associates, Inc. and CR Environmental, Inc. 2015. Martha's Vineyard Hybrid Submarine Cable Post-Construction Marine Survey Report. Prepared for Comcast and NSTAR Electric Company.

[9] James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement During the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

[9] The Nantucket Wetland Protection Regulation defines adverse impact as a greater than negligible change in the resource area or one of its characteristics, functions or factors that diminishes the value of the resource area to

Sound, which is beyond these municipal boundaries, is under federal jurisdiction; Figure 2-1 distinguishes between state and federal jurisdictions.

The Massachusetts WPA Regulations require that projects located within Land Under the Ocean satisfy certain general performance standards when the resource is found to be significant to the protection of marine fisheries, protection of wildlife habitat, storm damage prevention, or flood control (310 CMR 10.25 (3) through (7)).[10] Of relevance to this Project, 310 CMR 10.25(5) states:

> *"Projects not included in 310 CMR 10.25(3) or (4)* [relating to dredging projects for navigational purposes] *which affect nearshore areas of land under the ocean shall not cause adverse effects by altering the bottom topography so as to increase storm damage or erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes."*

Use of HDD will avoid offshore cable installation activities within approximately 1,000 to 1,200 feet (300 to 365 m) of the shoreline while also avoiding impacts to Coastal Beach and Coastal Dune (see Figure 5-1, Sheet 2 for a depiction of wetland resource areas at the landfall site). Installation of the offshore export cables will require the temporary disturbance of two narrow strips of the seafloor to achieve sufficient burial depth (see Sections 5.1 and 12.1 for more detailed discussions of offshore export cable installation). Cable burial will temporarily displace some marine sediments that do not immediately resettle back into the fluidized trench, but these displaced sediments will return to the seafloor in the wake of the cable installation tool generally within a few meters of the furrow created during cable installation. Particle sediment monitoring studies completed for the Block Island Wind Farm's offshore cable installation found that displaced sediments were an average distance from the trench centerline of 12.5 feet (3.8 meters) at a thickness of 2.7 inches (7 cm).[11] Such a minor alteration to the bottom topography would not alter water circulation or sediment transport patterns, and would not increase erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes.

As described in Section 5.1.4, discontinuous sand wave dredging may be required in areas where currents have created large, mobile sand waves. These sand waves are located in high-energy marine environments in both Muskeget Channel and Nantucket Sound and more than 6,500 feet (2,000 meters) from the nearest coastal beach, coastal bank, coastal dune, or salt marsh. Where

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one or more of the specified interests of the Town of Nantucket Wetland Protection Bylaw (Chapter 136) as determined by the Commission. "Negligible" means small enough to be disregarded and shall be defined in relation to the resource areas impacted (NWPR 1.02).

10 General Performance Standards (3) and (4) are relevant to dredging projects that are for navigational purposes, such as maintenance or improvement dredging of harbor entrance channels. *See* 310 CMR 10.25(3) and (4). As described above, installation of the offshore export cables will require dredging where large sand waves are present; however, because the Project is not intended to improve or maintain navigation, these performance standards do not apply.

11 James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement During the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

the offshore cable installation must cross a sand wave, it may be necessary to provide additional burial depth to achieve sufficient coverage beneath the stable seabed surface and prevent the cable from being exposed as the sand wave advances across the seafloor. Where large sand waves are encountered, it may be necessary to carve a temporary notch into the sand wave of sufficient width and depth so the cable installation tool can proceed through it, installing the cables within the stable seabed.

A TSHD is the anticipated method for dredging given the heights of sand waves in the Project area, although controlled flow excavation could be used in smaller sand waves (see Section 5.1.4). A TSHD uses suction to remove material from the seafloor, depositing it in the "hopper" of the vessel. With this methodology, 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 surveyed OECC that also contains sand waves. Such depositing of dredged material would be prohibited within areas identified as hard bottom.

Dredging will be limited to only the extent required to achieve adequate cable burial depth during cable installation. 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. 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.

Any dredging required for offshore cable installation through sand waves will occur within narrow corridors in areas relatively far from shore (greater than one mile); therefore, regardless of the dredge method selected through sand waves, installation of the offshore export cables is not expected to increase the risk of erosion in coastal areas. The impacts will be modest and in compliance with performance standards.

Also, potentially relevant to this Project, 310 CMR 10.25(6) states:

> *(6) Projects not included in 310 CMR 10.25(3) which affect land under the ocean shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries habitat or wildlife habitat caused by:*
>
> > *(a) Alterations in water circulation;*
> >
> > *(b) Destruction of eelgrass (Zostera marina) or widgeon grass (Rupia maritina) beds;*
> >
> > *(c) Alterations in the distribution of sediment grain size;*
> >
> > *(d) Changes in water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants; or*

(e) Alterations of shallow submerged lands with high densities of polychaetes, mollusks or macrophytic algae.

The Project is water dependent as defined in the Massachusetts Waterways Regulations at 310 CMR 9.12(2)(b)10, which includes infrastructure facilities used to deliver electricity to the public from an offshore facility located outside the Commonwealth. As a water-dependent use, the Project must be designed and constructed using best available measures in order to minimize adverse effects.

The proposed cable installation methods are well documented as environmentally conscious operations with minimal temporary impacts to the seafloor and water quality. Installation of the export cables will require some displacement of marine sediments to achieve desired cable burial depths, but in most areas the method of installation will result in minimal alteration to the seafloor topography. More alteration will be required in high-energy areas where large sand waves are encountered, but these high-energy areas are characterized by constantly changing bathymetry, and any alteration due to the Project is expected to be temporary. None of the affected areas will be altered to the extent that any significant changes occur to water circulation or sediment grain size distribution.

The OECC has been sited to avoid areas of eelgrass or widgeon grass, and the installation methodologies will minimize impacts to benthic organisms. The Proponent's marine surveys have not identified any eelgrass within the OECC for the NE Wind 2 Connector. By minimizing the area disturbed during cable installation, the Proponent will minimize impacts to mollusks and other benthic organisms.

In addition, under 310 CMR 10.25(7), projects with certain adverse effects are presumed impermissible:

(7) Notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) has mapped all state waters within Nantucket Sound as priority habitat of state-listed rare species (Massachusetts Natural Heritage Atlas, 15th Edition, 2021). As a result, the OECC will necessarily cross priority habitat within state waters. The Proponent will consult with the NHESP in accordance with the Massachusetts Endangered Species Act (MESA, 321 CMR 10.14) to ensure that impacts within priority habitat are avoided or minimized to greatest extent practicable. These required consultations with NHESP are consistent with the procedures established under 310 CMR 10.37. Rare species are further discussed in Section 7.2.

5.4.3 Land Containing Shellfish

WPA Regulations define Land Containing Shellfish as land under the ocean, tidal flats, rocky intertidal shores, salt marshes, and land under salt ponds that is known to support the following species of shellfish: Bay Scallop *(Argopecten irradians)*; Blue Mussel *(Mytilus edulis)*; Ocean Quahog *(Arctica islandica)*; Oyster *(Crassostrea virginica)*; Quahog *(Mercenaria merceneria)*; Razor Clam *(Ensis leei)*; Sea Clam *(Spisula solidissima)*; Sea Scallop *(Placopecten magellanicus)*; and Soft Shell Clam *(Mya arenaria)*.

According to maps published by the DMF, the nearshore area offshore from the landfall site is suitable habitat for surf clam. Offshore export cable installation within this area may result in some localized mortality of shellfish and other organisms in the direct path of the installation tool, and within the water column from water withdrawals. Soon after disturbance, recolonization and recovery to pre-construction species assemblages is expected given the similarity of nearby habitats and species, the limited area of disturbance, and the mobility of the organisms in some or all life stages. Nearby, unaffected areas will likely act as refuge areas and supply a brood stock of species, which will begin recolonizing disturbed areas post-construction. A post-construction marine survey conducted in 2015 within six weeks of installation of a submarine cable from Falmouth to Tisbury on Martha's Vineyard found that benthic disturbance only remained visible along some parts of the cable route, and that other parts had already recovered.[12]

Anchoring may be required along the entire OECC, particularly in areas of shallow water and/or strong currents, to enable the option of using tools with deeper achievable burial depths. Anchors would disturb the substrate and leave a temporary irregularity in the seafloor resulting in some localized mortality of infauna. In addition, an anchor cable could sweep portions of the seafloor as the installation equipment moves along the cable. Anchoring and associated impacts are described in greater detail in Section 5.1.2.

The Massachusetts WPA Regulations require that projects located in resource areas that are determined to be significant to the protection of land containing shellfish, and therefore marine fisheries, shall satisfy certain general performance standards (310 CMR 10.34 (4) through (8)). These performance standards are excerpted below:

> *(4) Except as provided in 310 CMR 10.34(5), any project on land containing shellfish shall not adversely affect such land or marine fisheries by a change in the productivity of such land caused by:*
>
> > *(a) Alterations of water circulation;*
> >
> > *(b) Alterations in relief elevation;*
> >
> > *(c) The compacting of sediment by vehicular traffic;*

[12] Epsilon Associates, Inc. and CR Environmental, Inc. 2015. Martha's Vineyard Hybrid Submarine Cable Post-Construction Marine Survey Report. Prepared for Comcast and NSTAR Electric Company.

(d) Alterations in the distribution of sediment grain size;

(e) Alterations in natural drainage from adjacent land; or

(f) Changes in water quality, including, but not limited to, other than natural fluctuations in the levels of salinity, dissolved oxygen, nutrients, temperature or turbidity, or the addition of pollutants.

The Project is not anticipated to result in any permanent alterations to water circulation, relief elevation, or distribution of sediment grain size. There will be no change to natural drainage from adjacent land, and no compacting of sediments from vehicular traffic or installation gear. Offshore export cable installation may result in some temporary impacts to shellfish in the area immediately along the installation path.

(5) Notwithstanding the provisions of 310 CMR 10.34(4), projects which temporarily have an adverse effect on shellfish productivity, but which do not permanently destroy the habitat may be permitted if the land containing shellfish can and will be returned substantially to its former productivity in less than one year from the commencement of work, unless an extension of the Order of Conditions is granted, in which case such restoration shall be completed within one year of such extension.

The Proponent has assembled a Draft Benthic Habitat Monitoring Plan for all of New England Wind (of which NE Wind 2 Connector is a part). The draft plan, provided as Attachment L, is intended to document habitat and benthic community disturbance and recovery associated with construction and installation.

(6) In the case of land containing shellfish defined as significant in 310 CMR 10.34(3)(b) (i.e., those areas identified on the basis of maps and designations of the Shellfish Constable), except in Areas of Critical Environmental Concern, the issuing authority may, after consultation with the Shellfish Constable, permit the shellfish to be moved from such area under the guidelines of, and to a suitable location approved by, the Division of Marine Fisheries, in order to permit a proposed project on such land. Any such project shall not be commenced until after the moving and replanting of the shellfish have been commenced.

The Proponent will work with the DMF and the shellfish constables from any towns along the OECC to minimize impacts to shellfish habitat but is not proposing to relocate shellfish prior to cable installation.

(7) Notwithstanding 310 CMR 10.34(4) through (6), projects approved by the Division of Marine Fisheries that are specifically intended to increase the productivity of land containing shellfish may be permitted. Aquaculture projects approved by the appropriate local and state authority may also be permitted.

The Proponent is not proposing an aquaculture project, nor is it undertaking any efforts specifically intended to increase the productivity of Land Containing Shellfish.

(8) Notwithstanding the provisions of 310 CMR 10.34(4) through (7), no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

The Massachusetts NHESP has mapped all state waters within Nantucket Sound as priority habitat of state-listed rare species (Massachusetts Natural Heritage Atlas, 15th Edition, 2021) (see Section 7.2). As a result, the OECC will necessarily cross priority habitat within state waters. The Proponent will consult with the NHESP in accordance with the MESA (321 CMR 10.14) to ensure that impacts to within priority habitat are avoided or minimized to the greatest extent practicable. These required consultations with NHESP are consistent with the procedures established under 310 CMR 10.37.

5.4.4 Salt Marsh

Salt marshes are vegetated low lying areas found along estuaries, embayments and other such waterbodies. They are typically dominated by salt tolerant herbaceous plants such as salt meadow cordgrass *(Spartina patens)* and salt marsh cordgrass *(Spartina alternaflora)*, although certain woody plants can occur along the upper boundary. In estuaries, salt marshes will usually extend landward to the spring tide elevation, or highest predicted high tide of the year, at which point they sometimes transition to a bordering vegetated wetland.

Salt marshes produce large amounts of organic matter. A significant portion of this material is exported as detritus and dissolved organics to estuarine and coastal waters, where it provides the basis for a large food web that supports many marine organisms, including finfish and shellfish as well as many bird species. Salt marshes also provide a spawning and nursery habitat for several important estuarine forage finfish as well as important food, shelter, breeding areas, and migratory and overwintering areas for many wildlife species.

The Project does not require work within salt marsh, but staging for the proposed construction at the landfall site and along the paved causeway will require alteration to previously developed areas within 100 feet of this resource area. Performance standards for projects located within 100 feet of a salt marsh (310 CMR 10.32 (3) through (6)) are discussed below.

(3) A proposed project in a salt marsh, on lands within 100 feet of a salt marsh, or in a body of water adjacent to a salt marsh shall not destroy any portion of the salt marsh and shall not have an adverse effect on the productivity of the salt marsh. Alterations in growth, distribution and composition of salt marsh vegetation shall be considered in evaluating adverse effects on productivity. 310 CMR 10.32(3) shall not be construed to prohibit the harvesting of salt hay.

The Project will not destroy any portion of salt marsh and is not expected to have any effect on the salt marsh's productivity. The Proponent will establish effective controls at the proposed work limits both within the existing parking lot and along the causeway to prevent any disturbance to salt marsh, and will conduct pre- and post-installation inspections of the salt marsh vegetation to document conditions.

(4) Notwithstanding the provisions of 310 CMR 10.32(3), a small project within a salt marsh, such as an elevated walkway or other structure which has no adverse effects other than blocking sunlight from the underlying vegetation for a portion of each day, may be permitted if such a project complies with all other applicable requirements of 310 CMR 10.21 through 10.37.

No elevated walkway or other structure is proposed, and therefore this performance standard does not apply.

(5) Notwithstanding the provisions of 310 CMR 10.32(3), a project which will restore or rehabilitate a salt marsh, or create a salt marsh, may be permitted in accordance with 310 CMR 10.11 through 10.14, 10.24(8), and/or 10.53(4).

The Project is not intended to "restore or rehabilitate a salt marsh or create a salt marsh." Therefore, this performance standard does not apply.

(6) Notwithstanding the provisions of 310 CMR 10.32(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.

Salt marsh areas along the shore East Bay are located within specified habitat of state-listed rare species. The Project will undergo review by the NHESP to address potential impacts to specified rare species habitat at the landfall site and elsewhere (see Section 7.2).

5.4.5 Coastal Bank

Coastal banks are elevated landforms located in areas prone to coastal flooding, and because of their position in the landscape they serve to protect properties storm damage prevention and provide flood control. At the landfall site, the coastal bank is stable and non-eroding, occupying the north- and east-facing slopes of a small knoll at the south end of the parking lot (see Figure 5-1). A second smaller coastal bank occurs along the East Bay waterfront north of the causeway. Excavations required for proposed activities at the landfall site and along the paved causeway will be within 100 feet of these coastal banks but will not disturb any portion of them.

Performance standards for non-eroding Coastal Banks are discussed at 310 CMR 10.30(6) through (8), which are excerpted below:

(6) Any project on such a coastal bank or within 100 feet landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank.

The proposed subsurface installation of buried duct bank beneath a paved parking lot and roadway and will not directly impact areas of coastal bank. Therefore, it will have no adverse impact on the stability on the costal banks located within 100 feet of the duct bank alignment.

> *(7) Bulkheads, revetments, seawalls, groins, or other coastal engineering structures may be permitted on such a coastal bank except when such bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches.*

The Project does not involve the installation of a coastal engineering structure, and therefore this performance standard is not applicable.

> *(8) Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

Coastal Bank along the East Bay waterfront is located within specified habitat of state-listed rare species. The Project will undergo review by the NHESP to address potential impacts to specified rare species habitat at this location and elsewhere (see Section 7.2).

5.4.6 Barrier Beach

Barrier Beaches are relatively narrow, low-lying strips of land that are generally aligned to the trend of the coast and are separated from the mainland by a fresh, brackish, or saltwater body or estuary. Barrier beaches include developed and undeveloped areas of coastal beaches and dunes. Barrier Beaches are important because, in their exposed position, they buffer waves and storm energy and provide a measure of protection to inland resources.

The Barrier Beach at the landfall site extends northward from the paved causeway approximately 0.2 miles to the East Bay inlet. The vegetated Coastal Dunes present on the Barrier Beach provide a vertical buffer and a degree of protection to inland resources, including the East Bay estuary and private residences that have been built in low-lying areas adjacent to the estuary.

Performance standards for projects located on a barrier beach, 310 CMR 10.29 (3) and (4), are discussed below.

> *(3) When a Barrier Beach Is Determined to Be Significant to Storm Damage Prevention, Flood Control, Marine Fisheries or Protection of Wildlife Habitat, 310 CMR 10.27(3) through (6) (coastal beaches) and 10.28(3) through (5) (coastal dunes) shall apply to the coastal beaches and to all coastal dunes which make up a barrier beach.*

Activities proposed within the barrier beach will be contained within the paved parking lot and paved roadways, and will not impact vegetated areas of the Coastal Dune. Proposed construction will be confined to existing paved surfaces and roadway layouts. In addition, the Project will preserve functions of the barrier beach for storm damage prevention and flood control by restoring all grades to pre-construction conditions. Thus, the Project will have no permanent impacts to the resource area or its ability to provide critical functions.

> *(4) Notwithstanding the provisions of 310 CMR 10.29(3), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

The Massachusetts NHESP has mapped all state waters within Nantucket Sound as priority habitat of state-listed rare species due to shorebirds (e.g., piping plover, terns) (Massachusetts Natural Heritage Atlas, 15th Edition, 2021). As a result, the OECC will necessarily cross priority habitat within state waters. However, at the landfall site the offshore-to-onshore transition will be completed using HDD, which will avoid any direct impacts to the beach and nearshore areas. The Project is collaborating with NHESP to develop a Piping Plover & Least Tern Protection Plan (PP&LTPP) which will establish restrictions and monitoring requirements, to avoid and minimize impacts to these species during their breeding seasons. A draft PP&LTPP is included as Attachment I. It will be finalized in consultation with NHESP.

5.4.7 Coastal Dune

The Project will disturb an area of historic Coastal Dune beneath the paved parking lot at the landfall site (that is not actually functioning as a Coastal Dune, see Section 5.2.1.4) and will pass within the 100-foot buffer zone to Coastal Dune as it exits the paved parking lot and proceeds onto the paved causeway (see Figure 5-1). It is not expected, however, that activities proposed at the landfall site will result in any impacts to the areas of vegetated dunes adjacent to the paved parking lot or paved causeway. The following performance standards apply to any proposed alteration of a Coastal Dune or within 100 feet of a Coastal Dune (310 CMR 10.28):

> *(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:*
>
> > *a) affecting the ability of waves to remove sand from the dune;*
> >
> > *b) disturbing the vegetative cover so as to destabilize the dune;*
> >
> > *c) causing any modification of the dune form that would increase the potential for storm or flood damage;*
> >
> > *d) interfering with the landward or lateral movement of the dune;*
> >
> > *e) causing removal of sand from the dune artificially; or*
> >
> > *f) interfering with mapped or otherwise identified bird nesting habitat.*

All infrastructure proposed within the paved parking lot at the landfall site will be installed below-grade and will not alter existing grade, such that after construction the Project will not provide any barrier to wind, water, or sand transport. The same methods and infrastructure were proposed for the Vineyard Wind Connector at Covell's Beach and for the NE Wind 1 Connector at Craigville Public Beach.

> *(4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.*

The Project does not propose any accessory projects to existing buildings on a coastal dune.

> *(5) The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):*
>
> *(a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;*
>
> *(b) fencing and other devices designed to increase dune development; and*
>
> *(c) plantings compatible with the natural vegetative cover.*

Temporary impacts from Project construction are expected only within paved areas of the parking lot and causeway. As described in Section 12.2, early in the HDD process approximately 100 feet of surface steel casing will be installed in the ground underneath the parking lot and will follow along the trajectory of the HDD to ensure a stable, watertight corridor for downhole tooling and drilling fluid. This HDD process will ensure stability in the shallow section of the borehole immediately in front of the HDD rig and minimize the risk for any subsidence.

> *(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.*

The Project is located within specified Priority Habitat of rare wetlands wildlife. The Proponent is collaborating with NHESP to develop a Piping Plover & Least Tern Protection Plan (PP&LTPP) which establishes restrictions and monitoring requirements, to avoid and minimize impacts to these species during their breeding seasons (see Section 7.2). A draft PPLTPP is included as Attachment I. It will be finalized in consultation with NHESP.

The Project would not result in any permanent or temporary impacts that would be detrimental to a dune's stability, its ability to serve as a sediment source for the beach, or any of the recognized functions of coastal dunes. Therefore, the Project meets the performance standards established under the WPA Regulations for this resource area.

5.4.8 Coastal Beach

The use of HDD will avoid any direct impacts to Coastal Beach, and HDD staging area as well as the transition joint bays and duct bank will be located in the paved parking lot, landward of the Coastal Beach and will similarly not impact the resource area.

The following performance standards apply to any proposed alteration to a Coastal Beach (310 CMR 10.27(3)):

> *Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume, or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.*

Use of HDD for the offshore-to-onshore transition will avoid any impacts to Coastal Beach because the HDD trajectory will pass well beneath the beach. The same methods and infrastructure were proposed for the Vineyard Wind Connector at Covell's Beach and the NE Wind 1 Connector at Craigville Public Beach.

Proposed activities will not adversely affect the Coastal Beach by increasing erosion, decreasing the volume, or changing the form of the Coastal Beach, or altering an adjacent or downdrift Coastal Beach. Therefore, the proposed activities satisfy the performance standards for Coastal Beach.

5.4.9 Riverfront Area

The Noticed Alternative of the onshore export cable route crosses the 200-foot Riverfront Area (RFA) of the Bump's River twice: once near the intersection of Old Mill Road and Bump's River Road, and a second time at the outlet of Lumbert Pond. As described above, work within RFA will be limited to previously developed and degraded areas including the paved roadbeds and adjacent road shoulders. No banks, or any naturally vegetated areas of RFA will be altered either permanently or temporarily by the proposed duct bank installation.

Under Massachusetts WPA Regulations, electric utility installation beneath paved or unpaved public or private roadways within the buffer zone of a resource area other than RFA is considered a "Minor Activity" (310 CMR 10.02(2)(b)(2)(i) and is not subject to the performance standards for RFA.

> *(b) <u>Activities Within the Buffer Zone</u>. Any activity other than minor activities identified in 310 CMR 10.02(2)(b)2. proposed or undertaken within 100 feet of an area specified in 310 CMR 10.02(1)(a) (hereinafter called the Buffer Zone) which, in the judgment of the issuing authority, will alter an Area Subject to Protection under M.G.L. c. 131, § 40 is subject to regulation under M.G.L. c. 131, § 40 and requires the filing of a Notice of Intent.*
>
> *(2.) The following minor activities, provided that they comply with 310 CMR 10.02(2)(b)1., are not otherwise subject to regulation under M.G.L. c. 131, § 40:*

(i.) Installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the roadway or driveway and that all trenches are closed at the completion of each workday;

Despite this exemption, the proposed duct bank installation satisfies the performance standards for work within previously developed RFA, which are excerpted below from 310 CMR 10.58(5):

(5) Redevelopment within Previously Developed Riverfront Areas; Restoration and Mitigation.

Notwithstanding the provisions of 310 CMR 10.58(4)(c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds. Work to redevelop previously developed riverfront areas shall conform to the following criteria:

(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.

The Project will not degrade RFA. Rather, the proposed crossing techniques would have some temporary impacts within previously disturbed portions of the RFA. It will, however, have no permanent impacts or effect on the function or values of the RFA because the project will not alter the culvert crossings and the roadway grades will be restored upon completion of the installation.

(b) Stormwater management is provided according to standards established by the Department.

The proposed work within RFA would not create any new point source discharges, nor result in any increase in the amount of impervious areas. Therefore, this performance standard does not apply.

(c) Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

The Project will not require any work that is located closer to the river than the area that was previously disturbed for road and culvert construction. Therefore, this performance standard is satisfied.

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

Since the Project must cross the Bump's River, it cannot be located entirely outside of the RFA. However, the proposed activities will not expand the footprint of existing roadway within the RFA. Therefore, this performance standard is satisfied.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

The area of the proposed work does not exceed the amount of the degraded area. Therefore, this performance standard is satisfied.

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

1. removal of all debris, but retaining any trees or other mature vegetation;

2. grading to a topography which reduces runoff and increases infiltration;

3. coverage by topsoil at a depth consistent with natural conditions at the site; and

4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;

The proposed activities will have no permanent impacts to RFA, and the Project is not proposing to restore on-site any areas of previously degraded RFA. Therefore, this performance standard does not apply.

g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the *riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 through 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Energy and Environmental Affairs.*

The Project satisfies the performance standards established at 310 CMR 10.58 (5)(c),(d), and therefore is not proposing mitigation for impacts to RFA. Therefore, this performance standard does not apply.

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

The Proponent is not proposing restoration of degraded RFA. Furthermore, the Project satisfies the performance standards established at 310 CMR 10.58 (5)(c) and (d), and therefore the Proponent is not proposing mitigation for impacts to RFA. Therefore, this performance standard does not apply.

5.4.10 Bordering Land Subject to Flooding

Near the lower Bump's River crossing, the duct bank will cross an area that is located within a 100-year flood hazard zone as established by FEMA (see Figure 5-1). By regulation, all lands located below the 100-year flood elevation are considered Bordering Land Subject to Flooding, and therefore any activities proposed therein are subject to the performance standards for that resource area. Those performance standards are discussed below.

(1) Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows. Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory

volume shall have an unrestricted hydraulic connection to the same waterway or water body. Further, with respect to waterways, such compensatory volume shall be provided within the same reach of the river, stream or creek.

Installation of buried duct bank beneath the paved surfaces of Old Mill Road and Bump's River Road will not have any affect the horizontal extent and level of flood waters within the flood plain of the Bump's River. Compensatory flood storage is therefore not required.

(2) Work within Bordering Land Subject to Flooding, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.

The duct bank installation will be completed above an existing culvert that carries flow beneath Bump's River Road. There will be no alteration to the culvert or adjacent areas of the river channel and therefore no increase in flood stage or velocity is anticipated.

1) *(3) Work in those portions of bordering land subject to flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold, or altering vernal pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.*

All work will be performed within existing paved roadways and road shoulders with excavations limited to the road surface. Although none of the areas proposed to be disturbed by construction are within important wildlife habitat, this portion of the Bump's River is within an area mapped as Priority Habitat and the Project will undergo review by the NHESP to address potential impacts to specified rare species habitat.

5.5 Interests Protected under Local Wetlands Protection Bylaws

5.5.1 Town of Barnstable Wetlands Bylaw

The Project and associated activities contribute to the protection of wetland functions and values identified in the Town of Barnstable Wetlands Bylaw, Chapter 237. The bylaw specifically addresses fourteen values, as discussed below.

<u>Protection of public and private water supply</u>: Construction activities proposed in or within 100 feet of wetland resource areas will not affect public or private water supplies. Most vehicle fueling and all major equipment maintenance will be performed off-site at commercial service stations or at a contractor's yard. Some pieces of large, less mobile equipment (e.g., excavators, paving equipment) will be refueled as necessary on-site. Any such field refueling will not be performed

within 100 feet of wetlands waterways, within 100 feet of known private or community potable wells, or within any Town water supply Zone I area. The only exception may be at the landfall site, where it will be necessary to stage large immobile equipment within paved portions of the Barrier Beach. Further, the cables and duct bank will not contain any fluids or hazardous materials.

Protection of groundwater supply: The Project will protect groundwater supply through the implementation of a Stormwater Pollution Prevention Plan during construction to properly manage construction activities.

Flood control: The Project will not permanently change existing grades within the floodplain, and therefore will not affect existing flood storage capacity.

Storm damage prevention: The Project will not result in any changes to the topography of the barrier beach and therefore will not affect the ability of this resource area to protect properties from storm damage.

Prevention of pollution: A Stormwater Pollution Prevention Plan will be prepared in accordance with the U.S. EPA's general permit for construction activities and will be implemented during construction to properly manage construction activities. The Proponent's objective is to minimize the potential for erosion and sedimentation impact during Project construction by managing stormwater and effectively restoring any disturbed areas. The Proponent will meet these objectives by implementing various erosion and sediment control measures that will:

- Minimize the quantity and duration of soil exposure;
- Protect areas of critical concern during construction by redirecting and reducing the velocity of runoff; and
- Establish vegetation where required as soon as possible following final grading.

Temporary erosion control barriers will be installed prior to initial disturbance of soil and will be inspected daily in areas of active construction or equipment operation, weekly in areas with no construction or equipment operation, and within 24 hours of a rainstorm event that is 0.5 inches or greater. These temporary erosion control barriers will be maintained as necessary to contain soil and sediment within the permitted work limits.

Any silt fence used as a construction-period control will be installed as directed by the manufacturer and applicable permit conditions. Accumulated sediment will be removed, and the fence inspected to ensure it remains embedded in the soil as directed. Sufficient silt fence will be stockpiled on site for emergency use and maintenance. Hay/straw bales used for stormwater management will be anchored in place with at least two wooden stakes and will be replaced if damaged or allowing water to flow underneath; properly placed and staked straw wattles or fiber rolls may be used in lieu of hay bales in certain circumstances.

Protection of land containing shellfish: The OECC will cross an area within the Town of Barnstable that is mapped by DMF as a shellfish suitability area but will not affect any areas that are managed by the Town of Barnstable for the recreational harvest of shellfish.

Protection of shellfish and fisheries: Direct trenching impacts for the two offshore export cables will be limited to two narrow, approximately 3.3-foot (1-meter) wide, strips of seabed. Given the narrow width of disturbance, and since immediately adjacent habitats will remain unaffected, it is anticipated that the affected area will recover quickly, as observed for other cable projects in Nantucket Sound (e.g., the Martha's Vineyard Hybrid Cable Project between Falmouth and Tisbury in 2015). The Proponent will continue to consult with the relevant federal and state agencies to refine the Project construction schedule to avoid and minimize impacts to marine species.

Protection of wildlife habitat: The Project will avoid disturbance of the priority habitat associated with Dowses Beach by avoiding any direct impacts to the beach itself and by installing the cables using HDD and by initiating HDD activities prior to April 1 or after August 31. Furthermore, since the onshore route utilizes existing corridors (e.g., roadway layouts), it will not adversely affect wildlife habitat.

Erosion and sedimentation control: The Project will control erosion through the implementation of a Stormwater Pollution Prevention Plan.

Recreation: The Project will have minimal impacts on recreational activities, and all construction activities in the paved parking lot at the landfall site will be completed outside of the busy summer season. In addition, the Proponent will maintain public access to the parking lot, beach, and pier at the landfall site during the construction period. Finally, the Proponent will repave the parking lot upon completion of construction.

Aesthetics: Within the jurisdiction of the Barnstable Conservation Commission, the Project will have no visual impacts outside of the construction period since the offshore export cables and the onshore duct bank will be entirely underground except for at-grade manhole covers.

Effects on agriculture: The Project will not affect any areas of existing agriculture.

Effects on aquaculture: The Project will not affect any areas of existing aquaculture.

Effects on historic interests: No direct impacts to terrestrial historic resources are anticipated. Avoidance, minimization, and mitigation measures for submarine historical and archaeological resources within the Project area will be determined in consultation with the MHC and MBUAR through the Section 106 process.

5.5.2 *Town of Edgartown Wetlands Protection Bylaw*

The Project and associated activities contribute to the protection of wetland functions and values identified in the Town of Edgartown Wetlands Protection Bylaw. The bylaw's intent is to protect the wetlands of the town of Edgartown by controlling activities deemed to have a significant effect upon wetlands and water quality values, including but not limited to the following: public or private water supply, groundwater, flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife and their habitats, recreation and preservation of natural and historic views and vistas. The local bylaw establishes areas subject to jurisdiction that in some cases extend beyond those identified in the Massachusetts WPA but does not prescribe any additional performance standards associated with these areas. Similarly, the local bylaw does not prescribe additional performance standards for areas subject to jurisdiction under the Massachusetts WPA. All of the proposed activities from the Project, located within Edgartown, are associated with installation of offshore cables within the OECC. These activities would occur within areas identified as Land Under the Ocean in the WPA and Land Under the Ocean under Section 1.6 of the Edgartown Wetlands Protection Bylaw. Section 5.4.2 provides a detailed discussion of how the Project will comply with all performance standards for this resource area.

5.5.3 *Nantucket Wetland Protection Bylaw and Regulations*

The Nantucket Wetland Protection Bylaw (Town of Nantucket Bylaw, Chapter 136) and the associated Nantucket Wetland Protection Regulations controls activities deemed to have a significant or cumulative effect on specific wetland values including the protection of fisheries, shellfish, wildlife, and rare plant and animal species. This section demonstrates how the Project meets performance standards codified under the local bylaw in the Nantucket Wetland Protection Regulations for affected resource areas of Land Under the Ocean and Land Containing Shellfish.

In a November 23, 2022 comment letter on the Project's ENF filing, MassDEP classified the Project as a water-dependent industrial activity. The local performance standards for water-dependent projects that will alter Land Under the Ocean require that the proposed activities cause no adverse effects on wildlife, erosion control, marine fisheries, shellfish beds, storm damage prevention, flood control, recreation, and aquatic vegetation (NWPR 2.01(B)(8).

The Nantucket regulations also have performance standards for dredging (NWPR 2.01(B)(1)-(2)). Sand wave dredging may occur in Nantucket waters, and if so, the NOI will demonstrate that any dredging would meet the performance standards of 'best available measures' to have the least possible adverse effects. In addition, the local performance standards for projects within Land Containing Shellfish require that no project should adversely affect water quality (including but not limited to changes in turbidity, temperature, salinity, dissolved oxygen, and additional nutrients and pollutants), water circulation, aquatic vegetation, or natural drainage from adjacent land (NWPR2.08(B)(1)).

The Project is not anticipated to result in any permanent alterations to the seafloor or water quality and will not affect any areas of eelgrass. It will not interfere with the public's ability to gather shellfish recreationally, nor will permanently restrict commercial shellfish areas. There will be no change to natural drainage from adjacent land, and there will be no compacting of sediments from vehicular traffic or installation gear. Offshore export cable installation will result in some temporary impacts to shellfish in the area immediately along the installation path, but these impacts are regarded as negligible given that the area of potential affect is incrementally small in comparison to the wide area of habitat present in the Project vicinity.

The Project is designed to avoid and minimize impacts, including impacts to fish and fisheries resources. The alignment of the OECC is intended to minimize impacts to fish and fishing while enabling the delivery of clean renewable energy to the electrical grid. Measures that have been taken to site the Project while minimizing impacts include, but are not limited to:

- Routing of offshore export cables to avoid sensitive habitats used by fish to the greatest degree possible, including routing of the cable to avoid all eelgrass;
- Consultation with commercial and recreational fisherman on the location of the cables;
- Prioritization of cable burial to reduce impacts to fishing during Project operations; and
- Implementation of a Fisheries Communications Plan, including the use of Fisheries Liaisons and multiple Fisheries Representatives, before, during, and after cable installation.

As discussed in detail in Section 5.1, installation of three offshore export cables within Nantucket's offshore waters will result in temporary, short-term impacts to three narrow strips of seafloor within the OECC. Based on prior studies of similar cable installation projects in Nantucket Sound, the affected areas are expected to rebound to pre-installation conditions within a relatively short period. The impact from the cable installation activities will be temporary, with the sole exception being any areas of cable protection. However, the Proponent is striving to achieve adequate burial depth in all areas to avoid and minimize the need for cable protection. If, however, cable protection is needed in Nantucket waters, then the affected area would be a tiny fraction of the resource area as a whole.

Cable burial will temporarily displace some marine sediments that do not immediately resettle back into the fluidized trench, but these displaced sediments will return to the seafloor in the wake of the cable installation tool generally within a few meters of the furrow created during cable installation. Particle sediment monitoring studies completed for the Block Island Wind Farm's offshore cable installation found that displaced sediments were an average distance from the trench centerline of 12.5 feet (3.8 m) at a thickness of 2.8 inches (7 centimeters [cm]).[13] Such

[13] James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement During the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

a minor alteration to the bottom topography would not alter water circulation or sediment transport patterns, and would not increase erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes. Furthermore, the Project will have no effect on flood conditions.

Given the relatively small area of impact as compared to the size of the resource area, the anticipated Project impacts are regarded as negligible.[14] Regardless, the Proponent will implement a Benthic Habitat Monitoring Plan, formulated through consultations with state and federal agencies, to document disturbance and recovery of marine habitat along the cable alignments. The monitoring program will focus on benthic habitat and communities and will measure potential impacts and recovery of these resources comparable to controls outside the area of disturbance.

5.6 Cumulative Impacts

For some types of projects, cumulative impacts analyses are helpful in identifying ways to coordinate the projects and thus minimize construction and longer-term impacts. For the Vineyard Wind Connector 1 , NE Wind 1 Connector, and NE Wind 2 Connector projects, however, each project installation must be performed independently in separate locations and at different points in time. As explained in more detail in the following paragraphs, because the construction-related impacts of cable installation are expected to be mostly temporary and limited to areas in the immediate vicinity of the cables, construction of the three projects at different points in time is not expected to create many cumulative impacts.

Each offshore export cable must be installed within its own alignment, without co-locating cables within the same trench. There are multiple reasons for this:

1. To ensure that one cable cannot damage another;
2. Installation tools are designed to install one cable at a time;
3. If multiple cables were to be installed in the same trench and then a single cable required repair, those repair activities could threaten the integrity of both cables;
4. Locating multiple cables in the same trench would interfere with heat dissipation requirements of each discrete cable; and
5. Cable alignments must be spaced appropriately both to prevent damaging previously laid cables during installation of subsequent cables and also to ensure cable repairs are possible in the future (see Section 2.1.2).

[14] The Nantucket Wetland Protection Regulation defines adverse impact as a greater than negligible change in the resource area or one of its characteristics, functions or factors that diminishes the value of the resource area to one or more of the specified interests of the Town of Nantucket Wetland Protection Bylaw (Chapter 136) as determined by the Commission. "Negligible" means small enough to be disregarded and shall be defined in relation to the resource areas impacted (NWPR 1.02).

The impacts associated with operation of buried cables will also be minimal. As a result, the Proponent does not anticipate any significant cumulative adverse impacts from operations, nor can it identify ways in which changes in construction or location of the offshore cables could reduce the temporary impacts that will occur.

Table 5-7 summarizes impacts in state waters from installation of the offshore export cables for the Vineyard Wind Connector 1, NE Wind 1 Connector, and NE Wind 2 Connector projects. With the exception of those from cable protection, these impacts will be temporary.

Table 5-7 Summary of Impacts in State Waters from Offshore Export Cable Installation for Vineyard Wind Connector 1, NE Wind 1 Connector, and NE Wind 2 Connector(1)

Impact Type	Vineyard Wind Connector	NE Wind 1 Connector	NE Wind 2 Connector, Scenario 1(2)	NE Wind 2 Connector, Scenario 2 (3)	NE Wind 2 Connector, Scenario 3 (4)
Approx. Total Cable Length (miles)	45.2 (2 cables)	46 (2 cables)	69 (3 cables)	66.7 (3 cables)	64.4 (3 cables)
Volume of Sand Wave Dredging (cubic yards)	85,000	110,000	91,500	124,900	131,100
Offshore Export Cable Installation (trench impact zone + disturbance from skids/tracks) (acres)	54	74	110	107	104
Anchoring (acres)	2.3	12.7	27	27	26
Cable Protection (acres)	9	7.2-21.5	9.8 - 29.4	10.9 - 32.5	12.0 - 35.6

(1) The difference in impact calculations between the projects reflects differences in mapped bottom conditions, technical engineering assumptions, and number of cables.

(2) Scenario 1 involves installation of all three offshore export cables in the primary OECC.

(3) Scenario 2 involves installation of two offshore export cables in the primary OECC and one in the Western Muskeget Variant.

(4) Scenario 3 involves installation of one offshore export cable in the primary OECC and two in the Western Muskeget Variant.

With narrow, linear disturbance zones from cable installation that will be bordered on either side by unaffected habitat, recovery of temporarily disturbed areas is expected to occur relatively rapidly. Therefore, the impacts presented in Table 5-7 above must be considered in conjunction with the anticipated construction schedules for each project.

Vineyard Wind's installation of the offshore export cables is currently underway, and the two offshore export cables for NE Wind 1 Connector are anticipated to begin installation in 2026. Installation of the offshore export cables for NE Wind 2 Connector is planned to begin in 2027. Given the narrow zones of disturbance from cable installation activities, and the fact that almost all impacts will be temporary rather than permanent, significant habitat recovery is expected within the time span between construction of each project. The only impacts that could be qualified as cumulative from the two projects would be associated with cable protection.

Even if cumulative impacts could be lessened by coordinating the three projects in space and time, such coordination would have significant adverse effects on greenhouse gas reduction efforts. Massachusetts policy supports the expeditious delivery of offshore wind energy to the New England electric grid, and the Vineyard Wind project is positioned to be the first large-scale project to realize that goal. That project has attained necessary permits and is in construction. In addition, NE Wind 1 Connector is significantly advanced in its permitting. It would not be possible to gain the necessary permissions to install the additional offshore export cables for the NE Wind 2 Connector until the Project is fully permitted, and even if it was possible to construct the projects simultaneously, delaying already-approved projects would result in millions of tons of GHG emissions that would otherwise be avoided by the operation of those projects. In this situation, cumulative impacts are minimized by independently minimizing the impacts of each Project.

Onshore, the cable routes for Vineyard Wind Connector 1, NE Wind 1 Connector, and NE Wind 2 Connector are located along geographically distinct routes because they have separate interconnection points and/or engineering constraints that would prevent the projects from co-locating cables within the same roadway layouts. In addition, it would not be possible to gain the necessary permissions to install the onshore export cables for the NE Wind 2 Connector until the Project is fully permitted, thus negating the possibility of installing them at the same time as the cables for either the Vineyard Wind Connector 1 or NE Wind 1 Connector. It is unlikely such a coordinated installation would reduce impacts in any event, given the necessary separate onshore routes.

The Proponent is working with the Town of Barnstable to investigate whether onshore installation of the proposed duct bank for NE Wind 2 Connector could be coordinated with the Town's expansion of sewer service in the same areas. This coordination would be beneficial to the Town as it would reduce the potential need to disrupt local roads and neighborhoods with repeat construction activities, coordinate utility corridors, and would provide significant cost savings. The cost savings would arise because the Proponent would pay for pre-design investigative work and the final coating and repaving.

Section 6.0

Water Quality and Navigation

6.0 WATER QUALITY AND NAVIGATION

This section describes water quality and water supply protection as well as marine navigation and vessel traffic.

6.1 Onshore Water Quality and Water Supply Protection

This section assesses mapped water resource areas along the onshore Preferred and Noticed Alternative routes (transmission routes and grid interconnection routes). Resources identified and evaluated include MassDEP Zone I and II areas and wellhead protection areas determined by hydro-geologic modeling and approved under MassDEP's Drinking Water Program. Freshwater recharge areas identified by the Cape Cod Commission's (CCC's) Regional Policy Plan are also considered, as are the Potential Public Water Supply Areas, mapped by the CCC's Priority Land Acquisition Assessment Project. This CCC project focused on the Upper and Mid-Cape Towns with public water supplies.

As described throughout this DEIR, the onshore portion of the Project is essentially a civil construction project predominantly located along existing roadways and existing utility ROWs that involves standard inert materials such as concrete, PVC conduit, and solid dielectric cable. The proposed cables will not contain any liquids. The Project will employ proper erosion and sedimentation controls and implement construction best management practices (BMPs) as described in Section 12.5.

Furthermore, the proposed onshore substation will be equipped with an integrated fluid containment system capable of fully capturing dielectric fluids from the major components (with a safety buffer), including main transformers, and shunt reactors (see Section 2.4.2 for a more detailed discussion of containment at the substation site). Procedures for refueling construction equipment will ensure safety and spill prevention and will be further established during consultations with the CCC (see also Section 12.10.1).

During the Project's operations phase, vegetation control will be minimal along the duct bank route, primarily due to the route following existing paved roadways and existing utility ROWs. It is expected that any duct bank within the Eversource ROW will be maintained consistent with the ROW maintenance program. Any vegetated screening maintained on the substation site will remain natural and will not necessitate application of herbicides.

In addition, the Proponent is working with the Town of Barnstable to determine whether Project construction can be coordinated with the Town's plans to install sewer infrastructure, which would have wide benefits for water quality in the area. Coordinating construction schedules could reduce inconvenience for the community as well as reduce costs for the Town (see Section 1.9).

As a result, the Project is not expected to result in any significant impacts to water resources during construction and operation. Water resources along the onshore routes are further discussed below.

6.1.1 Transmission Routes (Landfall Site to Substation Site)

Water resource areas along the Preferred and Noticed Alternative onshore transmission routes connecting the landfall site to the proposed onshore substation site are described below. Figure 6-1 illustrates the mapped public water supply protection areas along the Preferred Route and Noticed Alternative.

6.1.1.1 Preferred Route

The Preferred Route passes through approximately 3.7 miles of mapped Zone I and II wellhead protection areas. The Preferred Route is not located within any Interim Wellhead Protection Area.

The Preferred Route also passes through a Freshwater recharge area identified by the CCC's Regional Policy Plan and directly adjacent to three Potential Public Water Supply Areas, mapped by the CCC's Priority Land Acquisition Assessment Project. Coincident with the Zone II area, the Preferred Route also passes through a Barnstable Groundwater Protection Overlay District.

6.1.1.2 Noticed Alternative Route

The Noticed Alternative passes through approximately 1.9 miles of mapped Zone I and II wellhead protection areas. Similar to the Preferred Route, the Noticed Alternative is not located within any Interim Wellhead Protection Areas.

The Noticed Alternative passes through the same Freshwater recharge area as the Preferred Route as the routes share a common 2.5-mile segment from the intersection of Lumbert Mill Road and Old Falmouth Road to the proposed onshore substation site. The Noticed Alternative passes through one area mapped as a CCC Potential Public Water Supply Area and adjacent to two Potential Public Water Supply Areas. Coincident with the Zone II area, the Noticed Alternative also passes through a Barnstable Groundwater Protection Overlay District.

6.1.1.3 Main Street Variation

The Main Street Variation that provides a link between the Preferred Route and Noticed Alternative is not located within wellhead protection areas. The intersection between Main Street Variation and Wianno Avenue is located within Wellhead Protection Area Zone II and the Barnstable Groundwater Protection Overlay District.

6.1.1.4 Landfall Site

There are no existing or potential public water supply protection areas mapped at the landfall site (see Figure 6-1).

The landfall site is not within the Wellhead Protection Area Zone I, Zone II, or the Barnstable Groundwater Protection Overlay District. Any freshwater underlying the landfall site is not supplying the public wells or the aquifer surrounding and contributing water to the wells. The proposed HDD construction activities will not negatively impact the nearby public wells or the aquifer contributing water to those wells. A technical memo providing greater detail on this subject is provided as Attachment M.

6.1.2 Grid Interconnection Routes (Substation Site to Interconnection Location)

Water resource areas along the Preferred and Noticed Alternative grid interconnection routes connecting the proposed onshore substation site to the West Barnstable Substation are described below.

6.1.2.1 Preferred Route

Figure 6-1 illustrates water resources along the Preferred Route extending from the site of the proposed onshore substation to the West Barnstable Substation. The Preferred Route is not located within any Interim Wellhead Protection Areas, Freshwater Recharge Area mapped by the CCC's Regional Policy Plan, the Barnstable Groundwater Protection Overlay District, or Zone I and II Wellhead Protection Areas.

While on the existing Fire Tower access road off Oak Street and a section of Oak Street, the Preferred Route passes through Potential Public Water Supply Areas mapped by the CCC for approximately 0.2 miles. Variant 1 of the Preferred grid interconnection route passes through the same Potential Public Water Supply Area for approximately 0.1 miles.

As described above in the context of transmission routes, the Preferred grid interconnection route (as well as Variant 1) is primarily located along existing roadways and access roads and involves standard inert materials such as concrete, PVC conduit, and solid dielectric cable. The Project will employ appropriate erosion and sedimentation controls. No impacts to water resources are anticipated.

6.1.2.2 Noticed Alternative Route

Figure 6-1 illustrates water resources along the Noticed Alternative grid interconnection route extending from the proposed onshore substation site to the West Barnstable Substation. The route is not located within any Interim Wellhead Protection Areas, Zone I and II Wellhead Protection Areas, Freshwater Recharge Areas, or the Barnstable Groundwater Protection Overlay District.

While on the proposed access road within the 40-foot “panhandle" north of the proposed onshore substation, the Noticed Alternative passes through approximately 0.4 miles of Potential Public Water Supply Areas mapped by the CCC.

As described above, the route is located along proposed and existing gravel roadways and involves standard inert materials such as concrete, PVC conduit, and solid dielectric cable. The Project will employ appropriate erosion and sedimentation controls. No impacts to water resources are anticipated.

6.1.3 Proposed Substation Site

As described in Sections 2.4 and 4.6.1, the proposed onshore substation site is located within a Potential Public Water Supply Area mapped by the Cape Cod Commission (CCC); however, the site is located outside of any Freshwater Recharge Area, Zone I and II Wellhead Protection Areas, and Barnstable Groundwater Protection Overlay District (see Figure 4-13). None of the substation equipment will contain polychlorinated biphenyls (PCBs). The Proponent will provide full-volume (110% dielectric fluid volume) plus probable maximum precipitation rainwater event containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable).

6.1.4 Comparison of Impacts/Mitigation Measures

The proposed onshore substation site is common to the Preferred and Noticed Alternative onshore routes, and hence is not a distinguishing characteristic. With regard to the onshore transmission routes connecting the landfall site to the proposed substation, the Preferred Route passes through approximately 3.7 miles of Zone I and II Wellhead Protection Areas, while the Noticed Alternative passes through approximately 1.9 miles of Zone I and II Wellhead Protection Areas (see Figure 6-1).

Neither route passes within Interim Wellhead Protection Areas. Both routes pass through sections of the Barnstable Groundwater Protection Overlay District as well as a Freshwater Recharge Area mapped by the CCC, and the Noticed Alternative passes through a Potential Public Water Supply Area mapped by the CCC.

As described above, the onshore export cable routes are primarily located along existing roadway layouts and involve standard inert materials such as concrete, PVC conduit, and solid dielectric cables. The solid dielectric cables do not contain any fluids. The Project will employ proper erosion and sedimentation controls and implement construction best management practices as described in Section 12.5.

With regard to the grid interconnection routes connecting the proposed onshore substation to the West Barnstable Substation, the Preferred Route passes through approximately 0.2 miles of Potential Public Water Supply Area, while the Noticed Alterative passes through approximately 0.4 miles of Potential Public Water Supply Area. Neither route passes within Interim Wellhead Protection Areas, Zone I or II Wellhead Protection Areas, the Barnstable Groundwater Protection Overlay District, or a Freshwater Recharge Area.

The operational phase of the Project will have no impact on water quality or water supplies, regardless of which route is constructed. Once the proposed duct bank is installed, backfilled, and repaved, there will be no Project-related sources of erosion or sedimentation, and the export cables will have no capability to generate hazardous waste. No sources of total suspended solids

(TSS) will be created by the Project's onshore duct bank and onshore export cables. As a result, since the Project will have no impact on water quality or water supplies, the onshore export cable routes are equivalent to one another.

Temporary construction-period considerations related to water quality, drainage, and water supply protection, including refueling considerations, are discussed below in Section 12.10. Procedures for refueling construction equipment will be finalized during consultations with the CCC to ensure proper safety and spill prevention. Temporary construction-period considerations related to erosion and sediment control are discussed in Section 12.5.2. High groundwater levels are not expected along the route, although depending on the relative elevation of proposed duct bank, dewatering may be necessary in the trench during construction and if affected by stormwater. Construction-period dewatering procedures are described in greater detail in Section 12.3.2.

Offshore impacts to water quality, including from sediment dispersion during cable installation, are described in Section 6.2.

6.2 Offshore Water Quality and Sediment Dispersion Modeling

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 TSS along the OECC. Jet-plowing and minimizing the amount of sand wave dredging will minimize sediment disturbance.

Furthermore, the buried offshore export cables will have no thermal effect on the water column. As documented in the Rhode Island Ocean Special Area Management Plan, the effect of heat from cables on sediments or water table is negligible:

> *Studies on the effects of radiated heat from buried cables have found a rise in temperature directly above the cables of 0.19°C (0.342° F) and an increase in the temperature of seawater of 0.000006°C (0.0000108°F). This is not believed to be significant enough to be detectable against natural fluctuations.*

6.2.1 Sediment Dispersion Modeling

To assess the potential impacts of cable installation activities, a sediment dispersion modeling assessment was carried out through two interconnected modeling tasks:

1. Development of a three-dimensional hydrodynamic model application of a domain encompassing Project activities using the HYDROMAP modeling system; and

2. Simulations of the suspended sediment fate and transport (including evaluation of seabed deposition and suspended sediment plumes) using the SSFATE modeling system to simulate installation activities. Velocity fields developed using the HYDROMAP model are used as the primary forcing for SSFATE.

The modeling was performed to characterize the effects associated with offshore cable installation activities. Effects were quantified in terms of above-ambient TSS concentrations as well as seabed deposition of sediments suspended in the water column during cable installation activities.

Details regarding the models, their applications, and the results of the calculations are summarized here and are described in greater detail in the technical report provided as Attachment I to the ENF. As described in Sections 5.1 and 12.1, several possible techniques may be used for cable installation, though the majority of the offshore export cables are expected to be installed using jetting techniques (e.g., jet plow or jet trenching) or mechanical plow. In addition, within the OECC, dredging may be required prior to cable installation to remove the upper portions of sand waves (see Section 5.1.4). Installation methodologies that were modeled in the sediment dispersion study include:

- **Trailing Suction Hopper Dredge (TSHD):** Suction dredging through a drag arm near the seabed, overflow of sediment-laden waters from a hopper and disposal of sediments from the hopper. Use of a TSHD was modeled for removal of all sand wave sizes where dredging is needed.
- **Limited TSHD:** This method is the same as THSD; the TSHD, however, is “Limited” in that it is only applied to larger (greater than 6.6-foot-tall [2-m-tall]) sand waves where dredging is needed.
- **Cable Installation:** Cable installation is accomplished by jetting techniques (e.g., jet plow, jet trenching, or similar) in areas where sand waves do not exist or have been cleared.
- **Cable Installation Aided by Jetting:** Cable installation is accomplished as described above; however, this method includes additional jetting by controlled flow excavation in areas of small sand waves.
- **Cable Installation using Vertical Injector:** Cable installation is accomplished in areas with or without sand waves through the use of the vertical injector tool (essentially a type of jet plow), which is a high-volume low-pressure water jetting tool that uses directed water jets to fluidize the seabed and lower the cable via the integral depressor to the bottom of the fluidized trench.

The modeled scenarios include a representative offshore export cable route for the full length of the OECC and representative sections of cable routes within the OECC. To aid federal permitting, the model scenarios presented in the technical report provided as Attachment I to the ENF also include a representative inter-array cable route within the Southern Wind Development Area

(SWDA) – this installation will occur entirely outside of Massachusetts waters and will not significantly impact state waters; it is therefore outside the scope of MEPA review, although the results of the analysis are included in the technical report.

Simulations of sand wave dredging using a TSHD and associated disposal activities along the OECC show that above-ambient TSS originating from the source is intermittent along the route, matching the intermittent need for dredging. Above-ambient TSS concentrations may be present throughout the entire water column since sediments are released at or near the water surface. Above-ambient TSS concentrations of greater than 10 mg/L extend up to 10 miles (16 km) and 5.3 miles (8.5 km) from the area of activity for the TSHD and limited TSHD model scenarios, respectively; however, these concentrations persist for less than six hours for TSHD activities and for less than four hours for limited TSHD activities. Figures 25 through 30 in the technical report (see ENF Attachment I) provide the modeled TSS concentrations for simulations of sand wave dredging using a TSHD.

Simulations of several possible cable installation methods using typical installation parameters within the OECC predict a plume that is localized to the seabed. The methodologies considered include cable installation by jetting techniques (e.g., jet plow, jet trenching, or similar), cable installation aided by jetting, and cable installation using the vertical injector tool. The plume may be located in the lower approximately 20 feet (6 m) of the water column, which is typically a fraction of the water column given water depths in the area; however, in shallow waters, the plume may occupy the entire water column. Simulations of cable installation found that above-ambient TSS greater than 10 mg/L and sediment deposition over 1 millimeter (mm) (0.04 inches) stayed closer to the cable alignment as compared to the dredging footprints; this is due to the fact that sediments are introduced to the water column closer to the seabed. Above-ambient TSS concentrations greater than 10 mg/L typically stay within approximately 650 feet (200 m) of the alignment and extend up to a maximum distance of approximately 1.3 miles (2.1 km). The spatial extent of above-ambient TSS concentrations decreases at higher concentration thresholds, meaning pockets of higher above-ambient TSS concentrations remain closer to the sediment-disturbing activity. Sediment deposition over 1 mm thick is predicted to remain within 330 feet (100 m) of the route alignment.

Above-ambient TSS concentrations stemming from cable installation for the various model scenarios remain relatively close to the cable alignment, are constrained to the bottom of the water column, and are short-lived. Above-ambient TSS concentrations substantially dissipate within one to two hours and fully dissipate in less than four hours for most of the model scenarios. Similarly, for the vertical injector model scenario, above-ambient TSS concentrations substantially dissipate within one to two hours and fully dissipate within six hours, likely due to the relatively slower installation rate and deeper trench (greater volume disturbed per unit length). Figures 32 through 46 in the technical report (see ENF Attachment I) provide the modeled TSS concentrations for simulations of cable installation.

Ancillary cable installation activities such as boulder relocation and the pre-lay grapnel run could also generate some TSS, but impacts are expected to be less than typical cable installation.

Given the coarseness of sediment along the OECC, bioassay testing is not necessary. This kind of testing, which is used to assess the potential for biological impacts from suspension of contaminated sediments, is more appropriate for finer-grained sediments where historical contamination may be evident.

In summary:

- For sand wave dredging:
  - TSS originating from the source is intermittent along the route, matching the intermittent need for dredging and dredged material release.
    - Above-ambient TSS concentrations may be present throughout the entire water column since sediments are released at or near the water surface.
  - Above-ambient TSS concentrations of greater than 10 mg/L extend up to 10 miles (16 km) and 5.3 miles (8.5 km) from the area of activity for the TSHD and limited TSHD model scenarios, respectively; however, these concentrations persist for less than six hours for TSHD activities and for less than four hours for limited TSHD.
- For cable installation activities:
  - Above-ambient TSS concentrations substantially dissipate within one to two hours and fully dissipate in less than four hours for most model scenarios (six hours for the vertical injector scenario).
    - Above-ambient TSS concentrations greater than 10 mg/L typically stay within approximately 650 feet (200 m) of the alignment, extending up to a maximum distance of approximately 1.3 miles (2.1 km).
  - The suspended sediment plume is localized to the seabed and may be located in the lower approximately 20 feet (6 m) of the water column.
    - Sediment deposition over 1 mm thick is predicted to remain within 330 feet (100 m) of the route alignment.

Simulations of typical cable installation parameters (without sand wave removal) in the OECC indicated that deposition of 1 mm (0.04 in) or greater (i.e., the threshold of concern for demersal eggs) was constrained to within approximately 330 feet (100 m) from the route centerline and maximum deposition was typically less than 5 mm (0.20 in), though there was a small isolated area associated with the vertical injector model scenario with deposition between 5 to 10 mm (0.2 to 0.4 in). At this deposition thickness, there are limited areas with potential temporary negative impacts to demersal eggs and species of similar sensitivity.

The Proponent anticipates that turbidity monitoring of offshore construction activities (e.g., dredging, cable installation) may be included as a condition of the 401 Water Quality Certification (WQC) to be issued by MassDEP.

6.2.2 Offshore Vessel Refueling and Spill Prevention

A variety of offshore vessels will be used for Project construction and will require refueling. The environmental risks associated with such refueling are small and will be minimized using appropriate best practices, compliance with all applicable requirements, and effective advanced planning. Smaller vessels will likely refuel in port. Offshore refueling of large installation vessels may occur. The method of refueling will be dependent on the final selection of contractors, their vessel spread, the type of fuel used by those vessels, and fuel availability. In the case of offshore refueling, a Jones Act-compliant bunker barge or vessel would likely be used. The offshore refueling process would consist of the following three steps: (1) mooring the bunker barge/vessel to the installation vessel; (2) pumping the fuel from the bunker barge/vessel to the installation vessel; and (3) de-mooring the bunker barge/vessel. Vessels may need to travel to a more sheltered location (i.e., an area with more quiescent seas) before refueling can take place.

Vessel fuel spills are not expected. Nonetheless, in the event of a spill or incident, the vessels' and construction firms' plans will be used to contain and/or stop an incident. As such, these plans will be checked and reviewed by the Proponent to make sure they are in accordance with regulatory and Project requirements and that a spill plan is in place along with water management, waste management, and hazardous materials management plans.

In addition, the Proponent is drafting an Oil Spill Response Plan (OSRP) in accordance with the requirements of 30 Code of Federal Regulations (CFR) Part 254, Subpart B, Oil Spill Response Plans for Outer Continental Shelf Facilities that will pertain to facility construction activities in federal waters. In accordance with 30 CFR 254, the OSRP will demonstrate that the Proponent can respond effectively in the unlikely event that oil is discharged from the Commonwealth Wind facilities (i.e., WTGs, ESPs) in federal waters. The OSRP will provide for rapid spill response, clean up, and other measures that would minimize any potential impact to affected resources from facility spills or accidental releases, including spills resulting from catastrophic events. Routine training and exercises regarding the content of the OSRP will be carried out regularly to prepare personnel to respond to emergencies should they occur. Secondary containment systems will be provided at operating areas more prone to spillage.

6.3 Navigation and Vessel Traffic

This section describes the maritime navigation and vessel traffic characteristics for activities related to the NE Wind 2 Connector as they may impact navigation and vessels operating to and from ports along the south coast of Massachusetts, Cape Cod, and the Islands. The Proponent is not proposing any restrictions on navigation, fishing, or the placement of fixed or mobile fishing gear; however, construction and installation activities may temporarily affect navigation and/or fishing activities in the vicinity of construction and installation vessels. These impacts will be temporary (typically on the order of a few days or less in any given location) and largely limited to the NE Wind 2 Connector's construction and installation period. Safety zones will be determined by the U.S. Coast Guard (USCG) and are anticipated to be activity-specific; however, it is expected that the USCG may define a safety buffer of an approximately 500 m (0.3 mile) radius around installation vessels. It is currently expected that installation of the three cables for NE Wind 2 Connector will take place over approximately 13.5 months. During cable installation, safety zones will surround the cable installation as it proceeds along the OECC, and will not preclude activities along the rest of the OECC at any given point in time. The Proponent, through its Fisheries Liaisons, will coordinate with fishermen regarding the status of discussions with the USCG.

The target burial depth of the cables is sufficient to allow continued use of mobile fishing gear, and anchors from vessels operating at the water depths in the cable area would not penetrate to the planned burial depth even in storm situations.

The Project does not include construction activities within East Bay, and construction activities are not anticipated to restrict access to the channel leading into East Bay. The use of HDD will not generate a significant amount of suspended sediment and will avoid impacts to the nearshore environment, including impacts to the channel leading into East Bay.

The Proponent has developed a detailed Navigation Safety Risk Assessment as part of the overall offshore wind energy development under BOEM review that conforms to the USCG guidance for Offshore Renewable Energy Installations.

The Proponent employs a Marine Operations Liaison Officer who serves as the strategic maritime liaison between the Proponent's internal parties and all external maritime partners and stakeholders (e.g., USCG, US Navy, port authorities, state and local law enforcement, marine patrol, commercial operators). The Marine Operations Liaison Officer is also responsible for coordinating and issuing Offshore Wind Mariner Update Bulletins to notify maritime stakeholders of the Proponent's offshore activities.

During construction, the Proponent will employ a Marine Coordinator to manage all construction vessel logistics and implement communication protocols with external vessels at the harbor and offshore. The Marine Coordinator will be the primary point of contact for day-to-day operations with the USCG, port authorities, state and local law enforcement, marine patrol, and commercial operators. The Marine Coordinator will operate from a marine coordination center established to control vessel movements throughout the Offshore Development Area, and will stay informed of all planned vessel deployments while managing the NE Wind 2 Connector's marine logistics and vessel traffic coordination between the staging ports and the lease area in federal waters. As such, the Marine Coordinator will be responsible for coordination with USCG regarding any required Notices to Mariners (NTMs). Daily meetings will be held by the Proponent to coordinate between contractors and avoid unnecessary simultaneous operations at port facilities and routes to the Offshore Development Area. The Proponent also plans to engage with the Northeast Marine Pilots

Association to coordinate construction and installation vessel approaches to the NE Wind 2 Connector region, as required by state and federal law, and to minimize impacts to commercial vessel traffic and navigation.

The Proponent has been actively engaged with fisheries stakeholders for the past several years and has developed a Fisheries Communication Plan, which will continue to be refined. As described in the Fisheries Communication Plan, Fisheries Liaisons, Fisheries Representatives, and Onboard Fisheries Liaisons employed by the Proponent will ensure effective communication and coordination between NE Wind 2 Connector and fishermen. The Fisheries Communications Plan is provided in Attachment J.

The number of vessels used during installation of the offshore export cables will vary on any given day, and construction will proceed in a single phase. At the time of the DEIR development, specific to offshore export cable installation, an approximate average of seven vessels are expected to be used for cable-laying activities along the OECC (including the Western Muskeget Variant) in any given month, although up to approximately 15 vessels may be used for cable laying activities in any one month. Since many of the cable installation activities are sequential, these vessels would not all operate along the OECC simultaneously. During shallow water cable-laying, anchor-handling vessels may be needed. During cable installation, vessels will be used for route clearance (e.g., dredging sand waves, removing boulders, pre-construction surveys, and grapnel runs), cable-laying and burial, splicing, and installation of cable protection (if necessary). In addition, at any given time during cable construction, a guard vessel (also referred to as a safety vessel) may be used to monitor vessel activity around the construction area and a crew transfer vessel may be used to transport crew and supplies between shore and the installation vessels. The Proponent is still in the process of vetting and selecting its marine construction and installation contractors, so the vessel count information may change somewhat after contractor selection.

The Proponent has been and will continue to distribute Notices to Mariners to notify recreational and commercial vessels of their intended operations related to both the offshore lease area in federal waters as well as the OECC. Local port communities and media will be notified and kept informed as the construction and installation process progresses. The Proponent will provide portable digital media with electronic charts depicting locations of Project-related work to provide all maritime users with accurate and precise information on work within the offshore area. In addition, information will be provided via the WATERFRONT Application[1], a regional cross-developer adopted mobile application. The WATERFRONT Application provides real-time streamlined marine updates and capabilities straight to mobile users and includes the following: offshore wind project information and newsletters; marine charts; marine hazards logs; and the capability to provide real-time feedback and/or gear interaction reports. Furthermore, the Proponent's website will be updated regularly to provide information on the construction zone, scheduled activities, and other information specific to NE Wind 2 Connector.

1 Waterfront – ITHACA Website (ithacacleanenergy.com)

Section 7.0

Fisheries, Rare Species, Avian, and Marine Resources

7.0 FISHERIES, RARE SPECIES, AVIAN, AND MARINE RESOURCES

This section describes fisheries, rare species, offshore avian, and marine resources.

7.1 Fish and Fisheries Resources

The NE Wind 2 Connector is designed to avoid and minimize impacts, including impacts to fish and fisheries resources. The alignment of the OECC is intended to minimize impacts to fish and fishing while enabling the delivery of clean renewable energy to the electrical grid. Measures that have been taken to site the Project while minimizing impacts include, but are not limited to:

- Routing of offshore export cables to avoid sensitive habitats used by fish to the greatest degree possible, including routing of the cable to avoid any eelgrass (see Section 3.4 for a discussion of consistency with the Massachusetts OMP);
- Consultation with commercial and recreational fishermen on the location of proposed cables;
- Prioritization of cable burial to avoid and minimize impacts to fishing during operations; and
- Implementation of a Fisheries Communications Plan, including the use of Fisheries Liaisons, Fisheries Representatives, and Onboard Fisheries Liaisons, before, during, and after cable installation (see Section 7.1.3).

The Proponent has been cultivating relationships and consulting with fishermen and the broader fishing community since 2010. The Proponent has had direct outreach with scores of individual fishermen in the region to understand, as fully as possible, historic, current, and potential fisheries within the affected area. The Proponent has been actively consulting with the Massachusetts Fishery Working Group, New England Fishery Management Council Habitat Committee, various local Massachusetts fishing alliances and partnerships, various regional fisheries working groups, and has hired several fishery representatives, including a representative on Martha's Vineyard who serves the fisheries interests and provide communication into the Project from the local fishing community.

The Proponent currently maintains a robust fisheries science program to monitor fisheries and living marine resources within the Lease Area. As part of this program, the Proponent has worked with the University of Massachusetts Dartmouth School for Marine Science and Technology (SMAST) since 2017 to design and carry out fisheries monitoring surveys that would capture potential fisheries impacts from offshore wind construction and the Proponent also provides financial and technical support for other fisheries science efforts (e.g., highly migratory fish tagging and radio telemetry study, and channeled whelk age at maturity study). The Proponent is an active member of the Responsible Offshore Science Alliance (ROSA) and financially supports ROSA-led efforts to advance regional fisheries research and monitoring efforts. The Proponent is also collaborating with several Regional Regulatory and Science Organizations or Entities for long-term fisheries monitoring and research (e.g., New England Aquarium, SMAST, and University of Connecticut).

Coordination with fixed-gear fisheries will be necessary prior to construction so fishermen are not placing gear along the cable alignments at the time construction activities begin on a particular section of the route. During cable installation, fishing vessels will not be precluded from operating within the OECC except where temporary safety buffer zones are established around where construction and installation vessels are operating. It is expected that the U.S. Coast Guard (USCG) may define a safety buffer as a 500-m (0.3-mile) radius around installation vessels. It is currently expected that installation of the three cables for NE Wind 2 Connector will take place over approximately 13.5 months. Although bottom trawl gear typically interacts with the seafloor, target burial depths for the cables will allow safe deployment of such gear immediately after cable installation. Should the Project be unable to achieve target burial depth in certain areas, cable protection may be required (see Section 5.1.3). In such cases, cable protection will be designed to minimize impacts to fishing gear, when possible, and fishermen will be informed of where such protection is used.

To further avoid and minimize impacts to commercial fishing activities, the Proponent will implement a comprehensive communications plan with the various port authorities, federal, state, and local authorities, and other key stakeholders, including recreational fishermen and boaters, commercial fishermen, harbormasters, the Northeast Marine Pilots Association, and other port operators. The Proponent's Fisheries Communication Plan (FCP) is a living document first drafted in 2011 to develop strategies to improve communication with fishermen potentially affected by the development of offshore wind projects (the most recent version is included as Attachment J). Section 7.1.3 provides details regarding the Proponent's FCP. The Proponent will also implement a process for collecting stakeholder concerns and resolving in a timely manner.

7.1.1 Existing Conditions and Potential Impacts from Cable Installation Activities

The Proponent has obtained a comprehensive dataset to identify and, where feasible, avoid sensitive habitats. In addition, surveys of epifauna and infauna have been performed along the OECC using a combination of geophysical and environmental surveys such as multi-beam echosounder, side scan sonar, underwater video transects, and sediment grab samples. From 2017 to 2020, 174 benthic grab samples with still photos and 125 underwater video transects were collected to define sensitive habitats such as hard bottom, complex bottom, and eelgrass. Section 2.1.3 provides more detail regarding studies completed and existing conditions along the OECC. Using these survey data, the Proponent has defined sensitive habitat areas within the OECC (see Attachment H1). OECC characterization, together with the technical route engineering process, has demonstrated that this well-studied OECC provides the most optimal corridor for the NE Wind 2 Connector.

A 2020 video survey in the OECC recorded 63 transects about 150-300 m (492-984 ft) long to further characterize benthic resources (see Table 7-1; RPS 2021).[1] During survey along the 63 transects, 3,329 individuals including 20 fish taxa, 21 invertebrate taxa, and three kinds of egg cases were identified to the Lowest Practical Taxonomic Level. Specific to squid mops and scallops, neither species has been observed in great densities during the project-specific surveys conducted. In 2017, bay scallops were observed in low numbers in only three of 37 video transects within the OECC and no squid egg mops were observed in the video transects along the OECC. In 2020, a total of 34 bay scallops were observed across seven of the 63 transects within the OECC and a total of three squid egg mops were observed across two of 63 transects along the OECC.

Table 7-1 2020 Video Transect Summary for Epibenthic and Demersal Fauna within the OECC (63 video transects)[1]

Common Name	Lowest Taxonomic Grouping	Total Counted
Sea Urchin	Echinoidea	1593
Cerianthid, Northern	Cerianthus borealis	969
Crab, Cancer	Cancer	114
Sea Star	Asterias	98
Roundfish, Unidentified	Teleostei	91
Large Whelk (Knobbed, Channeled)	Melongenidae	54
Hake, Unidentified	Gadidae	37
Scallop, Bay	Argopecten irradians	34
Scup	Stenotomus chrysops	29
Crab, Spider (Portly)	Libinia emarginata	28
Skate, Little or Winter	Leucoraja	27
Skate, Egg Case	Rajidae	25
Skate	Rajidae	24
Crab, Hermit	Pagurus	19
Black Sea Bass	Centropristis striata	17
Whelk, Unidentified	Melongenidae	16
Tautog	Tautoga onitis	15
Moon Snail	Naticidae	14
Whelk, Channeled	Busycotypus canaliculatus	12
Crab, Unidentified	Decapoda	11
Flounder	Pleuronectiformes	11
Other		91
Total	-	3,329

Notes:

1. Data from RPS. 2021. EGS Vineyard Wind, Lease Area SWDA and OECC Benthic Report. RPS. 194 p.

MA DMF has been sampling longfin squid and squid egg mops in Massachusetts state waters as part of their spring and fall bottom trawls since 1978. Figures 7-1 and 7-2 show the distributions of longfin squid (2007-2021, as number per tow) and squid egg mops (2007-2017, as kilogram per tow) in the OECC in spring and fall, respectively (MA DMF, personal communication, August 2021). Longfin squid are widely distributed throughout the Offshore Development Area and were

1 RPS. 2021. EGS Vineyard Wind, Lease Area SWDA and OECC Benthic Report. RPS. 194 p.

observed in spring and fall surveys throughout Nantucket Sound, Vineyard Sound, and Buzzards Bay. The highest concentrations of longfin squid occurred just south of Nantucket Island in the fall and south of Martha's Vineyard in the spring based on state survey data. Adult longfin squid were present along the OECC (including the Western Muskeget Variant) in both the spring and the fall with much higher catches east of the OECC in north-central Nantucket Sound. Although longfin squid spawn year-round and egg mops can be found throughout the year, spawning typically peaks in the spring and eggs hatch in the summer.[2]

It is understood that the longfin squid fishery is an important source of income for many boats that land their catch in Massachusetts as well as the supporting onshore services. Available data indicate that much of the longfin squid landed in Massachusetts are harvested offshore in federal waters. Based on commercial landing and VTR data requested from and provided by NMFS, the percentage of longfin squid harvested from within the OECC represents a very small percentage of the overall landings of longfin squid in Massachusetts and in the United States overall (NMFS, personal communication 2023). More detailed fisheries analyses are provided in Section 7.2.

The MA DMF has also been recording other valuable slow-moving invertebrate species as part of their spring and fall trawl surveys. Figure 7-3 provides the distribution of blue mussel, knobbed whelk, and channeled whelk (as kilogram per tow) in the region surrounding the OECC (including the Western Muskeget Variant) between the years 2007 and 2021 (MA DMF, personal communication, August 2021). Blue mussel presence was rare in the trawl survey whereas knobbed and channeled whelk were caught occasionally throughout Nantucket Sound in both the spring and fall.

Most of the OECC is considered low-complexity bottom habitat; coarser substrates including pebble-cobble and boulders,[3] which are important as habitat for juveniles of some fish species, are found mainly in Muskeget Channel. Section 2.1.3.2 describes the marine surveys performed to identify and characterize the OECC, while Section 2.1.3.3 describes the proposed OECC itself; environmental considerations along the OECC are described in various sections throughout this DEIR, with potential wetlands impacts, for example, quantified in Section 5.1.

As described in Section 5.1, activities within the OECC are expected to include cable installation, anchoring, dredging of the tops of sand waves in certain locations, the potential use of cable protection (if required), boulder relocation, the potential for limited vessel grounding in the nearshore, and the limited use of jack-up vessels for cable splicing (see Section 12.1.1). As described in Section 2.1.3, the OECC will pass through a variety of sediment types, including sand/mud, pebble-cobble, and dispersed boulders.

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2 Jacobson LD. 2005. Essential fish habitat source document: longfin inshore squid *Loligo pealeii* life history and habitat characteristics (2nd edition). National Oceanic and Atmospheric Administration (NOAA). NOAA Tech Memo NMFS NE 193:42.

3 Refers to Auster (1998) substrate classifications.

The resettling of disturbed finer-grained sediment will temporarily alter benthic habitat following cable installation. However, because sedimentation thicknesses are typically expected to be less than 5 mm (0.20 inches), normal dynamic processes are expected to re-consolidate these settled sediments. For a small portion of the OECC, permanent alteration may also occur where desired burial depth cannot be achieved and where cable protection may be placed over the cables. The Proponent's goal, however, is to minimize the use of cable protection to the greatest extent possible through careful route assessment and selection of the most appropriate cable burial tool for each segment of the route. Possible cable protection and related impacts are described in Section 5.1, and the habitat value of cable protection is described in Section 5.1.3.

Mobile demersal/benthic and pelagic fish and invertebrates may be temporarily displaced by increased suspended sediments and underwater construction but would likely swim away to avoid construction and cable installation areas. The slower avoidance response of juvenile and adult demersal fish and benthic invertebrate species may subject them to increased risk during dredging and cable installation.

The Proponent is committed to developing an appropriate benthic habitat monitoring plan (BHMP) that would encompass the Project in consultation with BOEM and other state and federal agencies, as appropriate. The New England Wind Draft Benthic Habitat Monitoring Plan was sent to state and federal agencies for review in December 2022 (see Attachment L). The Proponent has developed a single draft BHMP for both phases of New England Wind. The New England Wind Draft BHMP is based upon the approved Vineyard Wind 1 BHMP and will replicate the Vineyard Wind 1 BHMP to the greatest extent practicable, including sharing the same six habitat zones, sampling effort, sampling equipment types, sample station design, control sites, and timing. As an overview, the New England Wind Draft BHMP focuses on seafloor habitat and benthic communities to measure potential impacts and the recovery of resources compared to control sites located outside of the areas potentially impacted by construction activities. The survey design includes collection of bathymetry, video data, and benthic grab sample data. It will be conducted using a combination Before-After-Gradient/Before-After-Control-Impact (BAG/BACI) sampling design, which allows for a rigorous assessment of impacts and recovery.

7.1.2 Economic Analysis of Potential Impacts on Fisheries

Commercial fishing vessels that use fixed and mobile gear operate in and around the OECC and transit through the area as they travel between fishing ports and fishing grounds. During construction and installation, fishing vessels will not be precluded from operating in or transiting through the OECC other than where temporary safety buffer zones are established around construction and installation vessels. Similarly, during O&M of the offshore wind energy generation facility and NE Wind 2 Connector, fishing vessels will not be restricted in the OECC except where temporary safety buffer zones may be established around limited in-water maintenance activities. The NE Wind 2 Connector's potential to affect commercial fishing in ways that reduce fishing revenues or increase fishing costs or risks is detailed in the economic analysis presented in the New England Wind Construction and Operations Plan (COP) Appendix III-N titled Economic Exposure of Commercial Fisheries to the New England Wind Offshore Wind Energy Development. The analysis in the report is based off the entire New England Wind project, including the Lease Area and OECC. However, the report also describes the maximum impact area for NE Wind 2 Connector and based on commercial fisheries revenue data provided by NOAA fisheries for 2008-2021, the estimated maximum potential loss of fishing revenues in the OECC (i.e., "economic exposure") is $8,849 (2021 dollars).[4] The report also addresses the likelihood that economic impacts on commercial fishing will be lower than the estimated economic exposure.

As used in COP Appendix III-N, "fishing values" refers to the ex-vessel dollar value of commercial fish landings and "economic exposure" refers to the maximum potential loss of fishing values that would result if the NE Wind 2 Connector caused all fishing effort in the OECC within the temporary safety buffer zone to stop during export cable installation, rather than be diverted to other fishing areas. "Expected economic impacts" refers to losses in fishing values based on the assumption that historical fishing effort in the OECC will continue in those areas or in nearby areas throughout the construction and operation of the offshore wind energy facility and the NE Wind 2 Connector. This results in estimates of expected economic impacts being significantly less than estimates of economic exposure.

It is currently expected that cable installation activities for three proposed cables, inclusive of pre-lay and post-lay activities, will occur over a period of approximately 13.5 months. Analysis of anticipated cable installation activities also provides estimates of the size of the temporary safety buffer zones that may be established by the USCG around the cable installation vessel. These temporary safety buffer zones are the only areas within the OECC where commercial fishing may be temporarily precluded. Although a 500-m temporary safety buffer is expected, the analysis of the economic exposure of commercial fisheries assumes a larger temporary safety buffer zone around vessels involved in cable installation activities (radius of 0.6 miles [1 km]), which results in an area of approximately 1.2 square miles (3.14 sq km) where fishing may be temporarily precluded around cable installation activities. Temporary safety buffer zones will be adjusted as construction shifts along the OECC, allowing fishermen to use portions of the OECC where cable installation is either completed or planned, but not actively underway.

Based on fishing revenue data provided by NOAA Fisheries for years 2008-2021, the average annual fishing revenue in the OECC is $209,331, or $2,505 per sq km (2021 dollars). Estimates of economic exposure in the OECC during cable installation are generated by multiplying three factors: (1) expected annual fishing revenues per sq km of the OECC ($2,505); (2) area precluded to fishing during an ongoing cable installation activity (3.14 sq km); and (3) the duration of cable installation activities (1.125 years). Based on the analysis described above, the economic exposure in the OECC is approximately $8,849 during the 13.5 months (112.5% of a year) when three cables are being installed in the OECC.

The analysis described above was also conducted for the Western Muskeget Variant. Based on fishing revenue data provided by NOAA Fisheries for years 2008-2021,[4] average annual fishing revenues in the Western Muskeget Variant is $2,524 per sq km (2021 dollars), which is only slightly more than the OECC value of $2,505 per sq km. Based on the analysis shown above, in the very

[4] NOAA Fisheries. 2023. Landings and revenue data (2008-2021) processed by Greater Atlantic Regional Office, provided to Epsilon Associates, February 2023.

unlikely event the Western Muskeget Variant were to be used for two of the offshore export cables proposed for NE Wind 2 Connector with the third installed in the primary OECC, economic exposure is estimated to be $8,893 during the 13.5 months of cable installation activities.

In order to conservatively account for seasonal variability in landings and revenue in the OECC, the Proponent also estimated the economic exposure in the OECC using the monthly average fishing revenue per sq km from 2008 through 2021, which ranges from $20 per sq km (in January) to $523 per sq km (in May).[4] The analysis used the monthly average fishing revenue per sq km from the nine highest months ($234 per sq km for April through December). The estimated economic exposure for the NE Wind 2 Connector using the conservative monthly average fishing revenue per sq km from the nine highest months is $9,919 (2021 dollars).

Within the OECC, the target burial depth for offshore export cables will be 5 to 8 feet (1.5 to 2.5 m) below the seafloor, which the cable burial risk assessment determined is more than twice the burial depth that is required to protect the cables from fishing activities and prevent them from interfering with fishing activity. While every effort will be made to achieve this target burial depth and avoid the need for cable protection, the Proponent has included conservative estimates of cable protection in the Project design (see Section 5.1.3). This results in the possibility that mobile bottom fishing gear, such as bottom trawl nets, could snag on cable protection resulting in gear damage, lost fishing time, and associated economic losses. Since little bottom trawling or dredging occurs along the OECC, it is expected that the potential for these types of economic losses is low.

Fishing congestion impacts occur when a high concentration of vessels operating in a fishing area causes fishing vessels and gear to interfere with one another, resulting in increases in fleet-wide or vessel-specific fishing costs or reductions in fishing revenues, or both. The OECC represents a very limited portion of the available fishing grounds in the areas it passes through in Nantucket Sound and areas south of Nantucket Sound and Martha's Vineyard. Offshore export cable installation will occur over a period of 13.5 months, with commercial fishing impacted in less than 1.2 square miles (3.14 sq km) of the OECC at any one time. Therefore, there is no reason to expect that construction and installation activities along the OECC will result in a meaningful shift in fishing effort from the OECC to other areas. During O&M of the offshore wind energy generation facility and the NE Wind 2 Connector, cable protection may have some impacts on the limited amount of bottom fishing that takes place along the OECC. However, there is no reason to expect that will result in enough fishing effort shifting away from the OECC to cause fishing congestion in other areas. Impacts from the decommissioning activities would be similar to those associated with construction.

Offshore export cable installation activities are expected to have little to no impact on fishing vessel transit times. As noted above, temporary safety buffer zones established around cable installation vessels are expected to be less than 1.2 square miles (3.14 sq km) and are the only areas where cable installation activities will impact commercial fishing vessels that are either fishing or transiting in the OECC. There is no reason to expect that the temporary closure of such small segments of the OECC to fishing vessel transits will have any meaningful impact on fishing vessel transit times or costs.

7.1.3 Fisheries Communication Plan

The Proponent's FCP is a living document first drafted in 2011 to develop strategies to improve communication with fishermen potentially affected by the development of offshore wind projects (the most recent version is included as Attachment J). The document continues to evolve with continuous feedback and guidance from fishermen, fishing organizations, and regulatory agencies. The increased participation from the fishing industry will help the offshore wind sector to reduce user conflict, improve project design, and build a better understanding between the two industries.

The Proponent employs a variety of outreach and engagement approaches to communicate and maintain relationships with fisheries stakeholders. These include informal conversations with existing contacts, expanding the Proponent's network of Fisheries Representatives (FRs), hosting monthly port hours across the Northeast, attending fishing industry trade events and recreational fishing shows, presenting at commercial and recreational fishing group meetings, and working with the various associations and organizations that represent fishing interests. The Proponent understands that some fishermen do not feel adequately represented by fishing organizations, or FRs, and therefore prefer to share information and concerns individually and through different channels of communication. The Proponent is committed to recognizing that individual concerns are just as important as group concerns and will continue efforts to respect anonymity.

A summary of the outreach approaches and tactics is included in Table 7-2.

Table 7-2 Summary of Fisheries-Related Outreach

Target Audience	Principal Channels	Supporting Tactics
Fishing sectors, fishing region, seasonal fisheries, specific fishery gear types, fishermen at sea, charter fishermen, fishing ports	• Fisheries Representatives (FRs), Fisheries Liaisons (FLs), Onboard Fisheries Liaisons (OFL) • Other fishermen • Port Agents • Fish houses • Sector Managers • Media – newspapers, internet, e-mail subscriptions, flyers, and thumb-drives • Fishing organizations, alliances, partnerships, commissions, coalitions, councils, state agencies, federal agencies, and advocacy groups • Local elected officials • Friends and family • Employers	• Access to information via internet, e-mail lists (state and Proponent), and social media • Industry specific publications or e-mails • Trade magazines • 24-hour phone service for up-to-date project info and emergencies • Project specific radio alerts to fishermen at sea • FLs contact info on website • Attending and speaking at fishermen working group meetings • Holding "port hours" with FLs from other offshore wind developers to provide information to fishing vessel crews who fish in or transit through the MA WEA • FL/FR communication channels • Clear daily two-way communication channels between fishery/fishermen and project during construction

Table 7-2 Summary of Fisheries-Related Outreach (Continued)

Target Audience	Principal Channels	Supporting Tactics
Recreational fisherman, recreational boaters	• Same as above • Bait shops	• Access to information via Proponent's website, social media, and newsletters • Advertisements through recreational fishing magazines and websites • FL contact info on website • Attending and speaking at recreational fishing group meetings • Fishermen open house information meetings • Sponsorship of fishing tournaments • Attending fishing tournament events

7.1.4 Fisheries Mitigation

Federal review of the offshore wind energy facility is underway with the NEPA review process, led by BOEM. Compensatory fisheries mitigation will be evaluated and addressed during the federal review process, as well as through state Coastal Zone Management Act reviews. The Proponent expects that fisheries effects and mitigation will be a key focus of the NEPA process and anticipates working with federal and state agencies as well as environmental, fisheries, and local community stakeholders to develop appropriate fisheries mitigation for the offshore wind energy generation facility. While fisheries mitigation is focused on elements of New England Wind in federal waters, related information is being provided for background and context.

The Proponent is committed to fisheries science and research as it relates to offshore wind energy development. Working with SMAST, the Proponent has collected fisheries data (via trawl and drop camera surveys) within the lease area. The Proponent has also developed a draft comprehensive fisheries monitoring plan for pre-construction, construction, and post-construction fisheries studies within the lease area, which was distributed to federal and state agencies in December 2022 for feedback. The proposed fisheries monitoring plan incorporates multiple gear types utilizing a range of survey methods to study different facets of the regional ecology and fisheries. The implementation of the monitoring plan will provide a holistic assessment of the key fisheries resources in the Lease Area and assess the potential impact of offshore wind energy development with the use of one or more control areas. In recognition of the regional nature of fisheries science, the Proponent is also participating in other regional fisheries studies including a highly migratory species acoustic study with other offshore wind energy developers and a channeled whelk maturity study with SMAST, the Commercial Fisheries Research Foundation's whelk study fleet, the quahog fishery, the Massachusetts Conch Association, and the Massachusetts Lobstermen's Association. The Proponent is also already engaging in collaboration with other developers, fishing industry representatives, and state and federal agencies through its participation in ROSA and the Regional Wildlife Science Collaborative.

Other mitigation efforts for fisheries include the following:

- The Proponent and the other leaseholders for the MA/RI WEA adopted uniform spacing of wind turbine generators across their seven lease areas on a one-nautical-mile by one-nautical-mile east-west/north-south grid. This uniform grid proposal was developed in response to concerns raised by the fishing industry and was subsequently studied and endorsed by the USCG. The leaseholders have also been cooperating with respect to fisheries studies across the area. The spacing of turbines for the offshore wind energy facility conforms to the one-nautical-mile by one-nautical-mile east-west/north-south grid.

- The Proponent employs a variety of outreach and engagement approaches to communicate and maintain relationships with fisheries stakeholders, as detailed in Section 7.1.3. These include informal conversations with existing contacts, expanding the Proponent's network of FRs, attending fishing industry trade events and recreational fishing shows, presenting at commercial and recreational fishing group meetings, and working with the various associations and organizations that represent fishing interests as identified in Section 1.8. The Proponent understands that some fishermen do not feel adequately represented by fishing organizations, or Fisheries Representatives, and therefore prefer to share information and concerns individually and through different channels of communication. The Proponent recognizes that individual concerns are just as important as group concerns and will continue efforts to respect anonymity. The Proponent's fisheries communication plan is a living document which will evolve over time, but the framework remains consistent. The final elements of the outreach and engagement approaches will be determined in permitting.

- As described in Section 7.1.3, the Proponent has been and will continue to distribute Notices to Mariners to inform recreational and commercial vessels of their intended operations related to both the offshore lease area in federal waters as well as the OECC. These notices are distributed to an email list of fisheries contacts who have opted in to receive updates (including all Fisheries Representatives) as well as an Offshore Wind Mariner Updates list which is comprised of contacts who have opted in as well as key stakeholders who have been added, including the USCG Sector Southeastern New England. In addition, the Proponent sends the notices to various organizations along with a request for them to share widely within their networks; these include: New England Fisheries Management Council (NEFMC), Mid-Atlantic Fisheries Management Council (MAFMC), the New Bedford port Authority, Rhode Island Department of Environmental Management (RIDEM), DMF, New York State Energy and Research Development Authority (NYSERDA), Connecticut Department of Energy and Environmental Protection (CTDEEP), Town Dock, Montauk Fish Dock, the Massachusetts Fisheries Working Group via CZM, and a few other key individuals in the fishing community. When warranted, especially if vessels will be within sight of shore, the Proponent also performs advance outreach with Harbormasters so they are aware of vessel operations. Finally, the

Proponent publishes the notices on the Proponent's website and social media channels. At the request of several fishermen, the Proponent has also implemented a weekly email update to recirculate active Offshore Wind Mariner Updates. Local port communities and media will be notified and kept informed as the construction and installation process progresses. The Proponent is currently providing and will continue to provide portable digital media with electronic charts depicting locations of offshore wind energy facility-related work to provide fishermen with accurate and precise information on work within the offshore wind energy facility area. The Proponent's website will be updated regularly to provide information on the construction zone, scheduled activities, and specific offshore wind energy facility information.

7.2 Rare Species and Mapped Habitat

Areas mapped as Priority Habitat of Rare Species and/or Estimated Habitat of Rare Wildlife by the NHESP under the MESA and the WPA, respectively, are described below and shown on Figure 7-4. The Massachusetts NHESP has mapped all state waters within Nantucket Sound and Muskeget Channel as priority habitat of state-listed rare species, largely for birds that utilize coastal waters (e.g., piping plover, terns) (Massachusetts Natural Heritage Atlas, 15th Edition, 2021). As a result, the OECC will necessarily cross priority habitat.

In addition, NHESP has established Priority Habitat at the landfall site for Piping Plover and Least Tern that includes the beach and some of the dunes adjacent to the paved parking lot (see Figure 7-4). However, as described in Section 2.2, the Project would utilize HDD, staged from the paved parking lot, to avoid any disturbance to onshore mapped habitat. Nonetheless, due to the proximity of the coastal dune to the paved parking lot, the Proponent has developed a draft Piping Plover and Least Tern Protection Plan (PP&LTPP, see Attachment I) for construction activities at the landfall site very similar to the Piping Plover Protection Plans (PPPPs) that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector. NHESP issued no take determinations for both the Vineyard Wind Connector and NE Wind 1 Connector that relied in part on the PPPPs for those projects.

Construction at the landfall site will remain entirely outside of mapped habitat for any listed species, and the HDD staging, drilling, and cable pulling will be performed entirely from existing paved surfaces. The proposed cable installation by HDD will extend underneath the nearby dunes and beach, and will have no impacts to these resource areas. In discussions with NHESP in the planning stages of Vineyard Wind Connector and NE Wind 1 Connector, potential noise disruption to existing piping plover nests was raised as a possible concern, and NHESP suggested that if the HDD could begin prior to the arrival of nesting shorebirds, then a pair of plovers or terns would be aware of the noise prior to selecting a nesting location. The PPPPs developed for those projects and the draft PP&LTPP for NE Wind 2 Connector adopt schedules to avoid and minimize noise impacts to Piping Plover and Least Tern during the breeding season. Additionally, in consultation with NHESP for the NE Wind 2 Connector, no construction activities, unless otherwise authorized by NHESP, will be performed at the landfall site after May 1 and extending through the end of the nesting season (August 31). Further, it is anticipated that provisions of the HCA with the Town of Barnstable will also restrict work at the landfall site during the summer months.

Rare species habitat mapped in the general vicinity of the Preferred and Noticed Alternative onshore underground transmission routes are shown on Figure 7-4. There is no mapped rare species habitat along the Preferred Route with the exception of the landfall site, discussed above; however, the Preferred Route will pass adjacent to mapped habitat in East Bay while on the adjacent paved causeway. In addition, a short segment of the Noticed Alternative Route passes through or directly adjacent to mapped rare species habitat from the intersection of Old Mill Road and Bumps River Road, north of the crossing with Bumps River, where the Project will remain below or within 10 feet of pavement. The Main Street Variation does not pass through any areas of mapped rare species habitat. The implementing regulations of the MESA (321 CMR 10.00) contain an exemption from review for projects in Priority Habitat for *"installation, repair, replacement, and maintenance of utility lines (gas, water, sewer, phone, electrical) for which all associated work is within ten feet from the edge of existing paved roads"* (321 CMR 10.14(10)). Because the onshore duct bank will be installed beneath or within ten feet of road pavement where the duct bank route will pass directly adjacent to rare species habitat, construction in those areas is exempt from review under the MESA, and accordingly there is not expected to be any impact to rare species habitats by the duct bank installation along any of the routes.

The proposed substation site is not located within, nor in proximity to, any mapped habitat (see Figure 7-4).

There are no NHESP-mapped rare species habitats along the Preferred or Noticed Alternative grid interconnection routes (see Figure 7-4).

In addition to state-listed rare species, in November 2022 the U.S. Fish and Wildlife Service (USFWS) changed the federal status of the northern long-eared bat (*Myotis keenii*) from threatened (a status achieved under the Endangered Species Act [ESA] in 2015) to endangered due to continued severe population declines from white-nose syndrome. The northern long-eared bat is an insectivorous bat that hibernates in caves, mines, and other locations (e.g., possibly talus slopes) in winter and spends the remainder of the year in forested habitats. During the summer, northern long-eared bats roost under tree bark and in cavities and crevices of live and dead trees.[5]

[5] Sasse DB, Perkins PJ. 1996. Summer roosting ecology of northern long-eared bats (Myotis septentrionalis) in the White Mountain National Forest. In: Barclay RMR, Bingham RM, editors. Bats and Forests Symposium. Victoria, British Columbia, Canada: British Columbia Ministry of Forests. p. 91–101. (2) Foster RW, Kurta A. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). Journal of Mammalogy. 80(2):659–672. (3) Owen SF, Menzel MA, Ford MW, Edwards JW, Chapman BR, Miller K v., Wood PB. 2001. Roost tree selection by maternal colonies of northern long-eared myotis in an intensively managed forest. General Technical Report NE-292.:6 pp. (4) Perry RW, Thill RE. 2007. Roost selection by male and female northern long-eared bats in a pine-dominated landscape. Forest Ecology and Management. 247(1–3):220–226. doi:10.1016/j.foreco.2007.04.041.

Anthropogenic structures will also occasionally be used for roosting.[6] Most foraging activity takes place between the understory and forest canopy, typically up to 10 feet (3 m) off the ground.[7] Foraging occurs within a few kilometers of roost sites[8] and roosts are relocated every two to three days.[9] The species' range includes most of the eastern and mid-western U.S. and southern Canada. A review of known northern long-eared bat maternity roost trees and winter hibernacula near the proposed onshore substation site where tree removal will occur was performed (NHESP map of regulated sites, Northern Long-eared Bat Locations, last updated June 12, 2019 [current as of January 2021])[2]. There are no known, mapped winter hibernacula on Cape Cod and the nearest known maternity roost trees are approximately 7.5 miles northwest of the proposed onshore substation site. The Proponent will comply with federal protections for the northern long-eared bat and is consulting with the U.S. Fish and Wildlife Service so Project activities avoid any "take".

7.3 Offshore Avian Resources

Some marine birds may be temporarily disturbed by vessels engaged in construction activities, which may lead to temporary displacement during cable installation. However, the duration of cable installation activities is temporary and short-term in any particular location, and most birds are likely habituated to vessel traffic in the Project area. There is a small possibility of collision

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6 Amelon S, Burhans D. 2006. Conservation Assessment: Myotis septentrionalis (northern long-eared bat) in the Eastern United States. In Thompson, F.R. III, ed. 2006. Conservation assessments for five forest bat species in the Eastern United States. General Technical Report NC-260. U. (2) Timpone JC, Boyles JG, Murray KL, Aubrey DP, Robbins LW. 2010. Overlap in roosting habits of Indiana bats (*Myotis sodalis*) and northern bats (*Myotis septentrionalis*). The American Midland Naturalist. 163(1):115–123. doi:10.1674/0003-0031-163.1.115.

7 Brack V, Whitaker JO. 2001. Foods of the Northern Myotis, *Myotis septentrionalis*, from Missouri and Indiana, with notes on foraging. Acta Chiropterologica. 3(2):203–210.

8 Broders HG, Forbes GJ, Woodley S, Thompson ID. 2006. Range extent and stand selection for roosting and foraging in forest-dwelling northern long-eared bats and little brown bats in the Greater Fundy Ecosystem, New Brunswick. Journal of Wildlife Management. 70(5):1174–1184. doi:10.2193/0022-541x(2006)70[1174:reassf]2.0.co;2. (2) Henderson LE, Broders HG. 2008. Movements and resource selection of the northern long-eared Myotis (*Myotis septentrionalis*) in a forest—agriculture landscape. Journal of Mammalogy. 89(4):952–963. doi:10.1644/07-mamm-a-214.1. (3) Lacki MJ, Cox DR, Dodd LE, Dickinson MB. 2009. Response of northern bats (*Myotis septentrionalis*) to prescribed fires in Eastern Kentucky forests. Journal of Mammalogy. 90(5):1165–1175. doi:10.1644/08-mamm-a-349.1. (4) Timpone JC, Boyles JG, Murray KL, Aubrey DP, Robbins LW. 2010. Overlap in roosting habits of Indiana bats (*Myotis sodalis*) and northern bats (*Myotis septentrionalis*). The American Midland Naturalist. 163(1):115–123. doi:10.1674/0003-0031-163.1.115.

9 Foster RW, Kurta A. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). Journal of Mammalogy. 80(2):659–672. (2) Owen SF, Menzel MA, Ford MW, Edwards JW, Chapman BR, Miller K v., Wood PB. 2001. Roost tree selection by maternal colonies of northern long-eared myotis in an intensively managed forest. General Technical Report NE-292.:6 pp. (3) Carter TC, Feldhamer GA. 2005. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. Forest Ecology and Management. 219(2–3):259–268. doi:10.1016/j.foreco.2005.08.049. (4) Timpone JC, Boyles JG, Murray KL, Aubrey DP, Robbins LW. 2010. Overlap in roosting habits of Indiana bats (*Myotis sodalis*) and northern bats (*Myotis septentrionalis*). The American Midland Naturalist. 163(1):115–123. doi:10.1674/0003-0031-163.1.115.

with lighted vessels during construction in low-visibility conditions. Because of the limited exposure, short-term duration of the proposed activities, and low behavioral vulnerability (discussed below), population-level impacts are expected to be unlikely for coastal and marine birds.[10]

In addition to the slight potential for bird collisions with vessels, there may be temporary disruption to limited areas where such species forage. These potential impacts will be limited since the OECC avoids and minimizes impacts to sensitive or unique habitats and cable installation activities will be of short duration. The Proponent does not expect these impacts to be significant.

Roseate terns, particularly those nesting in southern New England and the Gulf of Maine, are highly reliant on sand lance as their primary food source. Roseate terns only dive about 20 inches below the surface to catch sand lance, and hunt in the shallows rather than in deeper waters where cables will be predominantly laid. The sediment dispersion modeling study of dredging and cable installation demonstrates that suspended sediments will be temporary and localized (see Section 6.2.1 and ENF Attachment I). Excess suspended sediments at any given point are only present for a short duration (typically less than 6 hours, and only 1 to 2 hours for cable installation) and will only occupy the bottom few meters of the water column during and after cable installation. These concentrations and durations of exposure from suspended sediments are below those causing sub-lethal or lethal effects to fish and benthic organisms, including sand lance. Accordingly, suspension of sediments from dredging and cable installation operations are expected to have little to no effect on mobile organisms and many burrowing invertebrates.

As roseate terns generally feed by shallow plunge-diving or surface-dipping, temporary increased turbidity in the bottom few meters of the water column caused by offshore export cable installation is unlikely to adversely affect foraging behavior or efficiency. Furthermore, of the two sand lance species most prevalent in the region (American sand lance [*Ammodytes americanus*] and Northern sand lance [*A. dubius*]), *americanus* is more likely to occupy nearshore, shallow habitats (less than 65 feet [20 m] but often less than 6.5 feet [2 m])[11], rather than deeper and more offshore areas where the majority of the cables will be installed. This predicted shallower distribution of *americanus* sand lance matches the observed distribution of breeding and staging terns in the area, which appear to spend most of their time foraging close to the shores of Tuckernut and Muskeget Island and surrounding shoals, not in the deeper waters of the Muskeget Channel itself.[12]

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[10] Poot, H., Ens, B. J., de Vries, H., Donners, M.A.H., Wernand, M.R., & Marquenie, J.M. 2008. Green Light for Nocturnally Migrating Birds. Ecology & Society 13.

[11] Staudinger MD, Goyert H, Suca JJ, Coleman K, Welch L, Llopiz JK, Wiley D, Altman I, Applegate A, Auster P, et al. 2020. The role of sand lances (Ammodytes sp.) in the Northwest Atlantic Ecosystem: A synthesis of current knowledge with implications for conservation and management. Fish Fish.:1–34. doi:10.1111/faf.12445.

[12] Veit RR, Perkins SA. 2014. Aerial surveys for roseate and common terns south of Tuckernuck and Muskeget Islands July-September 2013. OCS Study BOEM 2014-665.

In summary, roseate terns are expected to have only temporary and localized exposure to offshore export cable installation activities.

The Proponent is currently finalizing its Draft Bird and Bat Monitoring Framework for New England Wind, of which NE Wind 2 Connector is a part. In developing this framework, which is focused on the area of WTGs and ESPs in federal waters, the Proponent has met with federal and state agencies as well as other stakeholders. The draft framework was completed in Q1 of 2023, at which point it was submitted to BOEM, USFWS, and state agencies for review and comment.

The draft framework includes the following key components to answer primary research questions related to birds and bats:

- Acoustic monitoring of bats at nacelles and foundations at 6 WTGs;
- Acoustic monitoring of nocturnal songbirds at ESPs, pending success at other windfarms;
- Installation of radio receiver stations (MOTUS) on turbines (~11 stations) and deployment and/or maintenance of two receiver stations onshore to monitor use by birds and bats;
- Tagging program with ~100 tags per year for 20 years or ~2,000 tags over shorter duration; and
- Mortality documentation via incidental observations.

These measures are in draft format and subject to change based on continued consultation with agencies and stakeholders. The draft framework will also include adaptive management and data-sharing components including sharing of tracking data to appropriate public databases, annual reports of monitoring activities while active, and the submission of a synthesized monitoring report after three years and as needed to inform federal agencies on monitoring approaches.

The COP describing Commonwealth Wind development is publicly available at: https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction- and-operations-plan. Migratory birds are discussed in Section 6.2 of COP Volume III and Appendix III-C, including a comprehensive assessment of species' exposure and vulnerability to collision or displacement. Collision risk is outside of state jurisdiction, but the analysis in the COP demonstrates a lack of expected significant impacts. This assessment has been provided to BOEM and CZM. The BOEM DEIS for New England Wind similarly concludes that only negligible to minor impacts are expected to birds.

7.3.1 Coastal Bird Conservation Program

The Commonwealth Wind project includes a substantial commitment to an avian conservation program to fund research, habitat conservation, and/or restoration for coastal bird species, including state-listed bird species. The intended benefit is to implement a conservation program which will help to better understand and address direct and indirect effects of offshore wind development on coastal bird species in Massachusetts. The benefits from coastal habitat conservation or restoration activities and any research funded in the program would not be limited to the boundaries of any particular offshore wind development footprint. The Proponent remains committed to maintaining this coastal bird conservation effort as part of Commonwealth Wind in the upcoming 2023 Massachusetts solicitation for offshore wind. It is anticipated that additional details of the program will be available in the FEIR.

7.4 Marine Mammals

Marine mammal species that are likely to occur in the Northwest Atlantic Outer Continental Shelf (OCS) region, and are considered common or regular,[13] include the North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*), fin whale (*Balaenoptera physalus*), sei whale (*Balaenoptera borealis*), minke whale (*Balaenoptera acutorostrata*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), short-beaked common dolphin (*Delphinus delphis*), common bottlenose dolphin (*Tursiops truncatus;* Western North Atlantic Offshore and Coastal Stocks), harbor porpoise (*Phocoena phocoena*), harbor seal (*Phoca vitulina*), and gray seal (*Halichoerus grypus*). Other marine mammals may also occur near the OECC but are less common or rare.

The Project's potential impacts to marine mammals in the vicinity of the OECC are expected to result primarily from underwater sound and vessel collision. Marine mammals in the OCS and nearby waters are regularly subjected to commercial shipping noise and other vessel traffic and are likely habituated to vessel noise because of this exposure.[14] Vessel traffic associated with Project construction along the OECC is likely to emit underwater sound with acoustic characteristics and levels comparable to transiting vessels that are unrelated to the construction. Therefore, the potential risk to marine mammals from underwater sound generated by the installation of the NE Wind 2 Connector is considered very low to low. Construction vessels are large and travel at relatively low speeds, and few Project vessels will operate along the OECC during operations and maintenance. In addition, NOAA has issued guidance to avoid collisions, which will be followed during all stages of the Project to reduce risk.

Other potential temporary stressors during construction such as marine debris, reductions in prey availability, habitat disturbance and modification, and sediment mobilization are expected to pose low or little-to-no risk to populations of marine mammals, since they are not expected to occur broadly or for a significant duration.

During operations, offshore export cables will generate magnetic fields. However, as described in Section 8.1, the magnetic fields will be minimized by cable burial and cable protection, and results of existing studies have determined that cetaceans are unlikely to be affected by magnetic fields

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13 "Common" refers to marine mammals occurring consistently in moderate to large numbers. "Regular" refers to marine mammals occurring in low to moderate numbers on a regular basis or seasonally.

14 BOEM (Bureau of Ocean Energy Management. 2014. Atlantic OCS Proposed Geological and Geophysical Activities Mid-Atlantic and South Atlantic Planning Area Final Programmatic Environmental Impact Statement. http://www.boem.gov/BOEM-2014-001-v1/

from submarine cables, and the potential area of influence is too small to alter their behavior.[15] Thus, magnetic fields associated with the proposed offshore export cables are not expected to pose a risk to marine mammals.

The Proponent expects to implement mitigation measures to reduce noise risks to marine mammals in coordination with BOEM and NOAA and expects that they will effectively minimize and avoid risks to marine mammals from construction and installation, O&M, and decommissioning. All Commonwealth Wind/NE Wind 2 Connector personnel and its Contractors working offshore will receive environmental training, which will emphasize individual responsibility for marine mammal awareness and reporting as well as marine debris awareness. As safe and practicable, the Proponent will adhere to NOAA guidelines for vessel strike avoidance during all Project activities, including vessel speed restrictions and separation distances that are applicable at the time of construction. All NMFS speed restrictions with respect to North Atlantic Right Whales will be followed. Vessel separation distances determined by NOAA will be maintained. Additional monitoring and mitigation measures that may be employed include: (1) the use of protected species observers (PSOs) and Passive Acoustic Monitoring (PAM) technology (state and federal waters); (2) the establishment of clearance and shutdown zones (federal waters); (3) pile-driving seasonal restrictions, soft-start procedures, and shutdown procedures in the Lease Area in federal waters; and (4) the use of noise reduction technology (federal waters).

7.5 Sea Turtles

There are seven species of sea turtles worldwide, six of which can be found in U.S. waters. All six species are listed as threatened or endangered under the Endangered Species Act (ESA). Of these species, five may occur within, or in the vicinity of, the Lease Area in federal waters and/or the OECC. All five species that may be present are also listed under the Massachusetts Endangered Species Act (MESA). Only four are likely to occur in these areas: the loggerhead sea turtle *(Caretta caretta)*, Kemp's Ridley sea turtle (*Lepidochelys kempii*), green sea turtle (*Chelonia mydas*), and leatherback sea turtle (*Dermochelys coriacea).* The official range of the hawksbill sea turtle (*Eretmochelys imbricata*) extends into the offshore development region, but there are no recent recorded sightings of this species in the area.

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15 (a) Copping A, Sather N, Hanna L, Whiting J, Zydlewski G, Staines G, Gill AB, Hutchison I, O'Hagan A, Simas T et al. 2016. Annex IV 2016 state of the science report: Environmental effects of marine renewable energy development around the world. Report by Pacific Northwest National Laboratory for US Department of Energy (the Annex IV Operating Agent) and other partnering nations under the International Energy Agency (IEA) Ocean Energy Systems Initiative (OES). (b) Gill AB, Gloyne-Philips I, Kimber J, Sigray P. 2014. Marine renewable energy, electromagnetic (EM) fields and EM-sensitive animals. In: Shields M, Payne A, editors. Humanity and the Sea: Marine Renewable Energy Technology and Environmental Interactions. Springer. p. 61-79. (c) Normandeau Associates Inc, Tricas TC, Gill AB. 2011. Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species. Camarillo, CA: Final Report to US Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region. OCS Study BOEMRE 2011-09.

The Project's potential impacts to sea turtles in the vicinity of the OECC are expected to result primarily from underwater sound and vessel collision.

During offshore export cable installation, potential acoustic sources would consist of vessel noise produced during transit to and from ports as well as the vessel noise produced during cable installation. The primary source of noise during offshore export cable installation will come from ships' engines. Sea turtles and marine mammals in the Project area are regularly subjected to commercial shipping noise and would potentially be habituated to vessel noise as a result of this exposure.[16] As noise from vessel traffic associated with construction is likely to be similar to background vessel traffic noise, additional vessel noise risk to sea turtles would be low. Furthermore, construction activities will be temporary and short-term in nature, especially for cable-laying, which typically involves continuous movement as the cable is installed along the route. Construction vessels are large and travel at relatively low speeds, and few Project vessels will operate along the OECC during operations and maintenance. As safe and practicable, the Proponent will adhere to NOAA guidelines for vessel strike avoidance during all Project activities, including vessel speed restrictions and separation distances that are applicable at the time of construction.

Very little is known about sea turtle hearing and vocalization.[17,18] Most of what is understood about hearing in sea turtles is from studies of green and loggerhead sea turtles. However, limited studies have also been conducted for juvenile Kemp's Ridley and hatchling leatherback sea turtles.[19,20] The upper limit of sea turtle hearing is estimated to be approximately 1 kilohertz (kHz), with the greatest sensitivity at approximately 100-400 hertz (Hz). There is evidence that sea

16 BOEM. 2014. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts Revised Environmental Assessment. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS EIS/EIA BOEM 2014-603.

17 Cook SL, Forrest TG. 2005. Sounds produced by nesting leatherback sea turtles (*Dermochelys coriacea*). Herpetol Rev. 36(4):387-389.

18 McKenna LN. 2016. Vocalizations of sea turtle hatchlings and embryos [MSc]. [Fort Wayne, Indiana]: Purdue University.

19 Bartol SM, Ketten DR. 2006. Turtle and tuna hearing. NOAA Technical Memorandum NMFS-PIFSC-7.

20 Dow Piniak WE, Eckert SA, Harms CA, Stringer EM. 2012. Underwater hearing sensitivity of the leatherback sea turtle (*Dermochelys coriacea*): Assessing the potential effect of anthropogenic noise. US Dept. of the Interior, Bureau of Ocean Energy Management, Headquarters.

turtles may use sound to communicate. The few vocalizations described for sea turtles are restricted to the grunts of nesting females and the chirps, grunts, and complex hybrid tones of eggs and hatchlings.[21,22,23]

There is also a paucity of data regarding responses of sea turtles to acoustic exposure, and no studies of noise-induced hearing effects. Piniak et al. (2016)[24] found that green sea turtles detect underwater stimuli between 50 and 1,600 Hz, with maximum sensitivity between 200 and 400 Hz. Ridgway et al. (1969b)[25] suggest that the maximum sensitivity for green sea turtles was between 300 and 400 Hz, with an upper limit of 1,000 Hz. Bartol et al. (1999)[26] found that the loggerhead sea turtle's range of effective hearing was between 250 and 750 Hz, with the greatest sensitivity at the low end of that range; however, Lavender et al. (2014)[27] estimate the range to be 50 to 1,100 Hz for post-hatchling and juvenile loggerheads, with the greatest sensitivity between 100 and 400 Hz. In support of this, Martin et al. (2012)[28] also found the greatest sensitivity to sound occurs between 100 and 400 Hz in an adult loggerhead sea turtle.

Data are limited regarding sea turtle behavioral responses to sound levels below those expected to cause injury, and some research indicates that sea turtles have limited capacity to detect sound.[29] Any impact risks are limited to the seasons when sea turtles are present (i.e., primarily summer and fall). With the implementation of mitigation and best management practices (BMPs), the risk to sea turtles due to pile driving, an activity that will occur only in federal waters and not for the NE Wind 2 Connector, are low. Given the low model-predicted estimates of exposure to pile driving sound for sea turtles and the lower sound levels associated with vessel transit and

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21 Cook SL, Forrest TG. 2005. Sounds produced by nesting leatherback sea turtles (*Dermochelys coriacea*). Herpetol Rev. 36(4):387-389.

22 Ferrara CR, Mortimer JA, Vogt RC. 2014. First evidence that hatchlings of *Chelonia mydas* emit sounds. Copeia. 2014(2):245-247.

23 Mrosovsky N. 1972. Spectrographs of the sounds of leatherback turtles. Herpetologica. 28(3):256-258.

24 Piniak WED, Mann DA, Harms CA, Jones TT, Eckert SA. 2016. Hearing in the juvenile green sea turtle (*Chelonia mydas*): A comparison of underwater and aerial hearing using auditory evoked potentials. PLoS ONE. 11(10).

25 Ridgway SH, Wever EG, McCormick JG, Palin J, Anderson JH. 1969b. Hearing in the giant sea turtle, *Chelonia mydas*. Proceedings of the National Academy of Sciences. 64(3):884-890.

26 Bartol SM, Musick JA, Lenhardt ML. 1999. Auditory evoked potentials of the loggerhead sea turtle (*Caretta caretta*). Copeia. 3:836-840.

27 Lavender AL, Bartol SM, Bartol IK. 2014. Ontogenetic investigation of underwater hearing capabilities in loggerhead sea turtles (*Caretta caretta*) using a dual testing approach. Journal of Experimental Biology. 217(14):2580-2589.

28 Martin KJ, Alessi SC, Gaspard JC, Tucker AD, Bauer GB, Mann DA. 2012. Underwater hearing in the loggerhead turtle (*Caretta caretta*): A comparison of behavioral and auditory evoked potential audiograms. Journal of Experimental Biology. 215(17):3001-3009.

29 Moein SE, Musick JA, Keinath JA, Barnard DE, Lenhardt ML, George R. 1995. Evaluation of Seismic Sources for Repelling Sea Turtles from Hopper Dredges, in Sea Turtle Research Program: Summary Report. Report from US Army Engineer Division and US Naval Submarine Base. Technical Report CERC-95.

operation, such as during cable installation, the risk is assessed as very low to low that vessel sounds will impact sea turtle behavior. As with marine mammals, sea turtles are regularly exposed to commercial shipping traffic and other vessel noise and would potentially be habituated to vessel noise as a result of this exposure.[30]

The Proponent is required to implement BMPs to reduce noise risks to sea turtles in coordination with BOEM and NOAA and expects that they will effectively minimize and avoid risks to sea turtles from construction and installation, O&M, and decommissioning. As safe and practicable, the Proponent will adhere to NOAA guidelines for vessel strike avoidance during all Project activities, including vessel speed restrictions and separation distances, that are applicable at the time of construction. Additional monitoring and mitigation measures that may be employed include: (1) the use of protected species observers (PSOs) (state and federal waters); (2) the establishment of clearance and shutdown zones (federal waters); (3) pile-driving seasonal restrictions, soft-start procedures, and shutdown procedures in the Lease Area in federal waters; and (4) the use of noise reduction technology (federal waters).

The Proponent will follow reporting requirements included in final permits issued by state and federal agencies.

[30] BOEM. 2014. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts Revised Environmental Assessment. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS EIS/EIA BOEM 2014-603.

Section 8.0

Electric and Magnetic Field Analysis

8.0 ELECTRIC AND MAGNETIC FIELD ANALYSIS

The Proponent had an assessment of the electric and magnetic field (EMF) levels associated with the NE Wind 2 Connector completed by Gradient. This section provides some introductory information related to EMFs and also presents offshore and onshore analyses of magnetic fields from the proposed Project.

8.1 Background and Introduction to EMF

EMFs associated with alternating current (AC) power transmission are at an extremely low frequency (60-hertz [Hz]) and are a low energy form of non-ionizing electromagnetic radiation. Power frequency EMFs are a form of "non-ionizing radiation," meaning power frequency EMF does not carry enough energy to break molecular bonds and damage DNA, biological cells, or tissues, and is not capable of even heating cells and tissues. The modeling analysis focused on magnetic fields (MFs) because the electric fields produced by the voltage on the export cables will be contained by the metallic sheathing and/or steel armoring of the cables- i.e., the metallic sheathing and/or steel armoring will completely shield the electric fields arising from the voltage on the cables. Magnetic fields are not completely shielded by either metallic sheathing or steel armoring, although the usage of ferromagnetic steel (e.g., galvanized steel) armoring can serve to partially attenuate the MFs found outside 3-phase 60-Hz alternating current cables (CSA Ocean Sciences Inc. and Exponent, 2019)[1].

Magnetic field modeling for both the offshore and onshore cables was performed using the Project's approximately 1,200-MW output, including charging currents. This results in conservative calculations of magnetic field levels since the annual-average capacity factor of energy output for NE Wind 2 Connector is expected to be approximately 50%. The actual output and MF attributable to the Project cables will be correspondingly lower than predicted in this analysis, which assumes the offshore generation facility is operating at its maximum output.

Burying the offshore and onshore transmission cables underground is a form of mitigation for EMF because: (1) underground lines produce no aboveground electric fields due to shielding by the underground duct banks and earth; and (2) cable conductors can be placed closer together for underground cables than for overhead cables, increasing the degree of self-cancellation of magnetic fields.

8.1.1 Human Exposure to EMF

A number of national and world health organizations have developed EMF exposure guidelines designed to be protective against adverse health effects. The limit values should not be viewed as demarcation lines between "safe" and "dangerous" levels of EMFs, but rather, levels that assure safety with an adequate margin of conservatism to allow for methodological variability as well as

[1] CSA Ocean Sciences Inc.; Exponent. 2019. "Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England." Report to US Department of the Interior, Bureau of Ocean Energy Management (BOEM) OCS Study BOEM 2019-049. 62p., August.

inter-individual variability. For magnetic fields, these health-based guidelines range from 1,000 to 10,000 milligauss (mG). The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has also established a guideline for allowable public exposure to magnetic fields at 2,000 mG. As part of its International EMF Project, the World Health Organization (WHO) has conducted comprehensive reviews of EMF health-effects research and existing standards and guidelines. The WHO website for the International EMF Project (WHO, 2022)[2] notes, "[T]he main conclusion from the WHO reviews is that EMF exposures below the limits recommended in the ICNIRP international guidelines do not appear to have any known consequence on health."

For electrical appliances we use in our homes, typical EMFs nearby to the appliances can range from tens to >1,000 mG. For example, MF levels as high as 600 to 700 mG can be found 6 inches from hair dryers, vacuum cleaners, and electric shavers. Within 6 inches of a conventional electric range, MF levels can be as high as 200 mG, while MF levels higher in both intensity and frequency may be associated with induction cooktops.[3]

8.1.2 Marine Organism Exposure to EMF

No regulatory thresholds or guidelines for allowable EMF levels in marine environments have been established for either high voltage alternating current (HVAC) or high voltage direct current (HVDC) submarine power transmission.

For HVAC transmission, the weight of the scientific evidence indicates that 60-Hz AC EMF values are considerably above the typical frequency range of EMF values to which magnetosensitive and electrosensitive marine species are known to detect and respond. In particular, magnetosensitive marine species such as salmon, whales, and sea turtles are specifically tuned to the earth's steady (DC) geomagnetic field for navigation/migration purposes, while electrosensitive marine species such as sharks and rays primarily respond to electric field frequencies below 10 Hz for helping to locate prey and/or mates (CSA Ocean Sciences Inc. and Exponent, 2019).

A seven-year study, published in March 2022, reported the response of demersal fish (i.e., fish living close to the sea floor) and invertebrates to construction and operation of an offshore wind project (Wilber *et al*., 2022)[4]. The study analyzed catch data from monthly demersal trawl surveys conducted by local fisherman and scientists during construction and operation of the 30-MW Block Island Wind Farm. The study did not identify harmful impacts of EMF from the project's 60-Hz AC submarine export cables or other offshore electrical infrastructure on local demersal fish

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[2] World Health Organization (WHO). 2022. "Radiation and health: Protection norms and standards." Accessed at https://www.who.int/teams/environment-climate-change-and-health/radiation-and-health/protection-norms.

[3] National Institute of Environmental Health Sciences (NIEHS). 2002. "Questions and Answers about EMF Electric and Magnetic Fields Associated with the Use of Electric Power." 65p., June.

[4] Wilber, DH; Brown, L; Griffin, M; DeCelles, GR; Carey, DA. 2022. "Demersal fish and invertebrate catches relative to construction and operation of North America's first offshore wind farm." ICES J. Mar. Sci. doi: 10.1093/icesjms/fsac051.

and invertebrates, and instead reported evidence of increased populations of several fish species near the wind farm during the operation time period relative to the reference areas. Statistically significant interactions in catch per unit effort (CPUE) due to operation of the wind farm were not observed for any of the fish species that were frequently caught in the surveys in the project and reference areas, including black sea bass (*Centropristis striata*), little skate (*Leucoraja erinacea*), summer flounder (*Paralichthys dentatus*), windowpane (*Scophthalmus aquosus*), winter flounder (*Pseudopleuronectes americanus*), winter skate (*Leucoraja ocellata*), and longfin squid (*Loligo pealeii*). These findings are consistent with those for European offshore wind farm projects. In a report to BOEM, CSA Ocean Sciences Inc. and Exponent (2019) provided the following summary of findings from fish surveys conducted in Europe in areas with offshore wind development:

> *Offshore wind energy projects, along with associated undersea power cables, have operated in coastal environments of Europe for more than a decade. During this time, many surveys have been conducted to determine if fish populations have declined following offshore wind energy project installation. The surveys have overwhelmingly shown that offshore wind energy projects and undersea power cables have no effect on fish populations [72,80,81,82]. Fish assessed as part of these surveys include flounder and other flatfish, herring, cod, and mackerel. These are similar to species harvested along the U.S. Atlantic coast.*

In 2022, as part of the U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER) effort, researchers at the U.S. Department of Energy's Wind Energy Technologies Office, National Renewable Energy Laboratory, and Pacific Northwest National Laboratory published a Brief titled "Electromagnetic Field Effects on Marine Life" (SEER, 2022)[5]. This Brief was reviewed by external subject matter experts (Dr. Andrew Gill of the Centre for Environment, Fisheries, and Aquaculture Science; and Dr. Zoe Hutchison of the University of St. Andrews) and the SEER Science and Technical Advisory Committee. The Brief included the following summary of the overall state of the knowledge:

> *Overall, there is no conclusive evidence that EMFs from a subsea cable creates any negative environmental effect on individuals or populations. To date, no impacts interpreted as substantially negative have been observed on electrosensitive or magnetosensitive species after exposure to EMFs from a subsea cable. Behavioral responses to subsea cables have been observed in some species, but a reaction to EMFs does not necessarily translate into negative impacts. Continued research and monitoring are required to understand the ecological context within which short-term effects are observed and if species experience long-term or cumulative effects resulting from underwater exposure to EMFs. (SEER, 2022)*

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[5] US Offshore Wind Synthesis of Environmental Effects Research (SEER). 2022. "Electromagnetic Field Effects on Marine Life." 13p. Accessed on September 28, 2022 at https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Electromagnetic-Field-Effects-on-Marine-Life.pdf.

The Brief further concluded, “Overall, the effects of EMFs have been considered minor-to-negligible and a less significant issue than other environmental effects at [offshore wind] farms” (SEER, 2022). It discussed how factors such as cable burial depth, cable shielding, and the limited range of EMFs result in "a highly localized environmental condition that does not affect the entire habitat range for an animal" (SEER, 2022).

8.2 Offshore and Landfall Site Magnetic Field Analysis

MF modeling was performed for a representative submarine cable cross-section consisting of the three three-core 275-kV offshore export cables, each with a capacity of approximately 400 MW, buried to a depth of approximately 5 feet (1.5 meters) beneath the seabed, corresponding to the lower limit of the target burial depth of approximately 5 to 8 feet (1.5 to 2.5 meters). The offshore export cables will be installed within an Offshore Export Cable Corridor (OECC) and will typically be separated by approximately 165 to 328 feet (50 to 100 meters). The minimum cable spacing of approximately 165 feet (50 meters) was used in the MF modeling to capture any interaction of MF fields from adjacent cables at this minimum separation distance. The offshore cables will travel from the northwestern corner of the Lease Area to the Landfall site at the existing paved parking lot in Barnstable.

Modeling results showed the highest modeled MF levels of approximately 109 mG on the surface of the seafloor directly above the offshore export cables, with rapid reductions in MF levels with lateral distance away from the cable centerlines e.g., there is a >95% reduction in MF levels at a lateral distance of ±25 feet (±7.6 meters) from the cable centerlines. MF levels in the water column will be less than the modeled MF levels at the sea floor, with the rate of decrease in MF levels as a function of height above the cables being similar to the rate of fall-off as a function of distance laterally from the cables. Due to the rapid reductions in MF levels with lateral distance away from the cables, there is minimal interaction of MF from adjacent cables at the modeled minimum separation distance of approximately 165 feet (50 meters). Table 8-1 summarizes MFs at the seafloor for buried submarine offshore export cables. Based on the localized nature of the MF impacts of the offshore export cables as well as the weight of the scientific evidence that 60-Hz AC EMFs are above the typical frequency range of EMFs to which magnetosensitive and electrosensitive marine species are known to detect and respond, there is no expectation that the modeled MFs from the HVAC offshore export cables, which assume 100 percent capacity of the wind energy generation facility, will cause significant population-level harms to marine species in the OECC.

Table 8-1 Modeled Magnetic Fields at the Seafloor for 275-kV Buried Offshore Export Cables [a]

Cross-Section	Predicted Resultant Magnetic Field (mG)		
	Maximum Directly Above Cable Centerline(s)	±10 ft (±3 m) from Outer Cables [b]	±25 ft (±7.6 m) from Outer Cables [b]
Buried Submarine Cables	109.4	24.7	5.0

Notes: ft = Foot; kV = Kilovolt; m = Meter; mG = Milligauss.

a. The offshore export cable MF modeling assumes straight-laid phase-conductor cable cores rather than helical or "twisted" phase-conductor cores (the expected cable design). As discussed in Attachment D, Section 3.2, field measurements taken for the Block Island "sea2shore" cable show that a helical design achieves a considerable degree of magnetic field cancellation, hence the modeled MF levels are expected to be overestimates of actual MF levels at maximum wind farm output.

b. The values provided at lateral distances of 10 and 25 feet are for 10 and 25 feet from the outer cables. Only one value is presented for each lateral distance because the predicted results for the left and right of the cables are identical.

Modeling of the offshore export cables was also performed for cross-sections representative of two locations along the three Horizontal Directional Drilling (HDD) paths to be installed for transitioning the cables from offshore to onshore to the landfall site in a paved parking lot in Barnstable. The two modeled locations include: (1) a middle-of-the beach cross-section representative of where the cables will pass under the beach with burial depths to the tops of the cables that range from 24.7 to 57.4 feet (7.5 to 17.5 meters) for the three HDD paths; and (2) a parking lot cross-section representative of the cables beneath the paved parking lot where depths to the tops of the cables are 5 to 6 feet (1.5 to 1.8 meters) for the three HDD paths leading to the underground transition vaults/joint bays. Separate modeling cases were performed for the southernmost HDD path (HDD South), which will land in the southern portion of the parking lot with a minimum separation distance of approximately 330 feet (100 meters) from the other HDD paths; and for the other two HDD paths (referred to as HDD Center and HDD North), which will make landfall along the northern portion of the parking lot in closer proximity to each other (see Attachment C3).

Maximum modeled MFs of 5.0 and 1.0 mG were obtained at the ground surface directly above the offshore export cables for the two HDD modeling scenarios for the middle-of-the-beach location. For the parking lot location where the HDD paths are closer to the ground surface, maximum modeled MFs were 41.4 and 32.7 mG at one meter above the ground surface directly above the offshore export cables. For the parking lot cross-section, modeled MFs were found to drop off very rapidly with lateral distance from the cables, with reductions in MF levels of between 85 to 90% for a lateral distance of 25 feet on either side of the cable centerlines. Table 8-2 summaries modeled MFs for the HDD paths. All modeled MF levels for the landfall site cross-sections were far below the ICNIRP health-based guideline of 2,000 mG for allowable public exposure to 60-Hz AC MFs. This is the case despite modeled MF levels for the 275-kV offshore export cables being overestimates of the expected MF levels for actual Project operations due to several conservative assumptions in the modeling analysis, including not accounting for the expected twisting of the conductors within the cables that will contribute to substantially greater self-cancellation of MF than for straight conductors, and the use of cable currents based on maximum wind farm output (100 percent capacity).

The three cores within the cables are to be helically wound, where the phase conductors would have a "twisted" design rather than being straight and parallel over long distances. This twisting of the conductors is expected to contribute to substantially greater self-cancellation of MF than predicted from the modeling analysis that assumes continuously straight conductors, although less than the cancellation associated with the triangular geometry of the conductors (CSA Ocean Sciences Inc. and Exponent, 2019). This additional self-cancellation from the twisting of the phase conductors is not typically reflected in MF modeling analyses of submarine cables due to the complexity of modeling it. It has been estimated for the 30-MW 60-Hz AC "sea2shore" cable, which was commissioned in 2016 to connect the Block Island wind energy project with the Rhode Island mainland grid, that the helical twisting of the three-phase cable reduced MF levels by at least 10-fold as compared to an untwisted three-phase cable (CSA Ocean Sciences Inc. and Exponent, 2019; Hutchison et al., 2018).[6]

Table 8-2 Modeled Magnetic Fields for the 275-kV Offshore Export Cables Along the Horizontal Directional Drilling (HDD) Paths at the Landfall Site [a]

Cross-Section	Predicted Resultant Magnetic Field (mG)		
	Maximum Directly Above Cable Centerline(s)	±10 feet (±3 m) from Reference Point [c]	±25 feet (±7.6 m) from Reference Point [c]
Landfall, Middle of Dowses Beach [b]			
HDD1	5.0	4.3	2.5
HDD2/HDD3	1.0	1.0	0.9
Landfall, Paved Parking Lot [b]			
HDD1	41.4	17.9	4.5
HDD2/HDD3	32.7	16.1	4.7

Notes: ft = Foot; m = Meter; mG = Milligauss.

a. The offshore export cable MF modeling assumes straight-laid phase-conductor cable cores rather than helical or "twisted" phase-conductor cores (the expected cable design). As discussed in Attachment D, Section 3.2, field measurements taken for the Block Island "sea2shore" cable show that a helical design achieves a considerable degree of magnetic field cancellation, hence the modeled MF levels are expected to be overestimates of actual MF levels at maximum wind farm output.

b. Magnetic fields are modeled at the ground surface for the middle-of-beach cross-section, and at approximately 3.3 ft (1 m) above ground surface for the parking lot cross-section.

c. For HDD1, the values provided at lateral distances of 10 and 25 ft are with respect to the centerline of the cable. For HDD2 and HDD3, the values provided at lateral distances of 10 and 25 ft are for 10 and 25 ft from the outer cable. Only one value is presented for each lateral distance because the predicted results for the left and right of the cables are identical.

6 Hutchison, Z; Sigray, P; He, H; Gill, A; King, J; Gibson, C. 2018. "Electromagnetic Field (EMF) Impacts on Elasmobranch (shark, rays, and skates) and American Lobster Movement and Migration from Direct Current Cables." Report to US Department of the Interior, Bureau of Ocean Energy Management (BOEM) OCS Study BOEM 2018-003. 254p., March.

For a detailed discussion of magnetic fields and the offshore export cables, see Gradient Corporation's Magnetic Field Modeling Analysis Report (Attachment D) at Section 3.

8.3 Onshore Magnetic Field Analysis

In the paved parking lot at the landfall site, the three three-core 275-kV offshore export cables will transition to three sets of single-core 275-kV onshore export cables. The preferred onshore export cable route for the Project is located entirely underground within public roadway layouts and underneath the existing paved parking lot area at the landfall site, and has a total length of approximately 6.7 miles. All three circuits will be installed in a single, common underground concrete duct bank along the entire length of the preferred onshore export cable route which will include a separate conduit for each onshore export cable and fiber optic cable. Spare conduits and grounding will also be accommodated within the duct bank resulting in a 3-wide-by-4-deep (3W×4D) array. See Attachment C1, Sheet 26 for a typical cross-section of the conduit within the duct bank.

The following five representative onshore export cable installation scenarios and two representative grid interconnection cable installation scenarios are included in the MF analysis:

- Three 275-kV onshore export cable circuits arranged in a 3W×4D duct bank, buried 3.5 feet below ground surface (bgs) - referred to as the "typical" installation case for the 275-kV onshore export cables;
- Three 275-kV onshore export cable circuits arranged in a 3W×4D duct bank, buried seven feet bgs - referred to as the "deep" installation case for the 275-kV onshore export cables for crossing under utilities and other obstructions;
- Three 275-kV onshore export cable circuits installed in two 72-inch diameter microtunnels (two cables in one microtunnel and one cable in the other), spaced 80 feet apart from each other, for crossing under the Route 6 Highway;
- A single 275-kV onshore export cable circuit installed in a transition joint bay (TJB) to be located beneath the paved parking lot at the landfall site[7];
- A single 275-kV onshore export cable circuit installed in a splice vault and the other two 275-kV onshore export cable circuits installed in either a 2-wide-by-4-deep (2W×4D) bypass duct bank or in individual 1-wide-by-4-deep (1W×4D) bypass duct banks adjacent to the splice vault;
- Three 345-kV grid interconnection cable circuits arranged in a 3W×4D duct bank, buried 3.5 feet bgs - referred to as the "typical" installation case for the 345-kV grid interconnection cables; and

[7] There is a single transition joint bay for each of the three onshore transmission circuits.

- Three 345-kV grid interconnection cable circuits arranged in a 3W×4D duct bank, buried seven feet bgs – referred to as the "deep" installation case for the 345-kV grid interconnection cables for crossing under utilities and other obstructions.

As shown in Table 8-3, all modeled MF levels for the 275-kV onshore export cables and the 345-kV grid interconnection cables are far below the ICNIRP health-based guideline of 2,000 mG. The results in Table 8-3 for modeled MF levels at different distances (±10 ft and ±25 ft) from the centerlines of the underground duct banks, transition joint bays, and splice vaults, and from the outer microtunnel for the Route 6 crossing, illustrate the significant reductions in MF with increasing lateral distance from the cables.

Table 8-3 Modeled Magnetic Fields at approximately 3.3 feet (1 m) Above Ground Surface for Underground Onshore Export and Grid Interconnection Cable Installation Scenarios

Installation Scenario	Predicted Resultant Magnetic Field (mG)		
	Maximum Above Reference Point [a]	±10 feet (±3 m) from Reference Point [a]	±25 feet (±7.6 m) from Reference Point [a]
275-kV Onshore Export Cables			
3W×4D Duct Bank, Typical Installation	77.2	50.1 / 50.1	14.3 / 14.3
3W×4D Duct Bank, Deep Installation	83.4	59.8 / 59.8	21.8 / 21.8
Route 6 Crossing, 6-foot Microtunnel	38.8	30.2 / 18.8	13.9 / 5.2
Transition Joint Bay	96.9	50.2 / 49.1	14.1 / 13.8
Splice Vaults, Cross-Section A	232.8	110.8 / 105.5	29.9 / 31.8
Splice Vaults, Cross-Section B	121.3	68.7 / 28.2	11.6 / 4.2
Splice Vaults, Cross-Section C	253.6	121.9 / 116.1	29.1 / 31.0
345-kV Grid Interconnection Cables			
3W×4D Duct Bank, Typical Installation	58.7	38.1 / 38.1	10.9 / 10.9
3W×4D Duct Bank, Deep Installation	75.7	53.8 / 53.8	19.6 / 19.6

Notes: 3W×4D = 3-Wide-By-4-Deep; ft = Foot; kV = Kilovolt; m = Meter; mG = Milligauss.

a. The two values presented correspond to the model-predicted fields at the given lateral distances to the left and right of the reference point, respectively, where the reference point for the duct bank, transition joint bay, and splice vault installation scenarios is the duct bank, transition joint bay, or splice vault centerline. For the Route 6 crossing microtunnel installation scenario, the values presented at lateral distances of 10 and 25 ft are for 10 and 25 ft from the outer microtunnel.

MF modeling performed for one additional installation case for the 275-kV onshore export cables, an underground 12-wide-by-1-deep (12W×1D) duct bank with copper plate shielding proposed for use for the Phinney's Bay culvert crossing on the paved causeway leading to Dowses Beach, showed that the proposed use of copper plate shielding minimized aboveground MF levels from this shallow duct bank, with a maximum modeled MF level of 63.0 mG directly above the duct bank.

See Attachment D Section 4 for a detailed discussion of magnetic fields and the onshore export and grid interconnection cables.

Similar to the MF modeling for the offshore export cables, the MF modeling for both the underground onshore export and grid interconnection cable installation cases is expected to overpredict the magnitude of aboveground MF levels associated with the installed onshore export and grid interconnection cables. This is because minimum expected burial depths were assumed, and the currents used for the cables assume maximum wind farm output (100 percent capacity). In addition, the MF modeling analyses do not account for the phase conductors' main currents inducing currents on ground continuity conductors in the duct banks. Any induced currents on ground conductors would be expected to produce an MF that would tend to oppose (partially cancel) the MF arising from the phase conductor currents.

Section 9.0

Historic and Archaeological Resources

9.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

This section provides a review of the State and National Register of Historic Places listed properties and historic districts as well as properties and areas included in the Inventory of Historic and Archaeological Assets of the Commonwealth (the Inventory) along the Project route.

In addition to complying with M.G.L. Chapter 9, Sections 26-27C as amended by Chapter 254 of the Acts of 1988 (implemented by 950 CMR 71.00 and often referred to as "State Register Review") and other applicable local and state historic preservation regulations, the Project is also subject to federal review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the National Environmental Policy Act (NEPA). The Bureau of Ocean Energy Management (BOEM) is the lead agency for federal compliance with these laws and to-date has sought public comment and input through the Notice of Intent to Prepare an Environmental Impact Statement and publication of a Draft Environmental Impact Statement (DEIS) regarding the identification of historic properties or potential impacts on historic properties from activities associated with approval of the Construction and Operations Plan (COP) for New England Wind (of which Commonwealth Wind is a part). In addition, BOEM has hosted meetings with consulting parties, including local historical commissions, state and federally recognized tribes, the Cape Cod Commission, the Massachusetts Board of Underwater Archaeological Resources (MBUAR) and the Massachusetts Historical Commission (MHC) seeking input on the Project. BOEM is planning additional consulting party meetings in Q2-Q3 2023. The NHPA Section 106 consultation process is ongoing for the Project and will culminate in a Memorandum of Agreement (MOA) detailing avoidance, minimization, and mitigation measures to resolve adverse effects on historic properties to which the consulting parties agree. Project review by the MHC commenced through the filing of a Project Notification Form (PNF) and supporting information in August 2022.

The Project will largely be constructed in previously disturbed areas (i.e., within public roadways, other rights of way, or existing paved parking lot). All public roadway areas have been modified by construction of the road itself as well as above- and below-grade utilities, and it is unlikely that natural/undisturbed soils or potentially significant unrecorded intact archaeological deposits would be located below or immediately adjacent to them. As presented herein, reconnaissance-level and intensive surveys have been completed to determine the presence of historic and archaeological resources along all of the onshore components of the Project.

PAL also consulted with the MHC, the federally recognized Indian tribes (the Mashpee Wampanoag Tribe and the Wampanoag Tribe of Gay Head/Aquinnah), and other interested stakeholders. These meetings have focused on historic property identification and assessments including archaeological surveys, potential affects to historic properties, and any stakeholder concerns. Further consultation will be undertaken with the MHC pursuant to Chapter 254 (State Register Review) and with Tribal THPO staff to identify the need for additional field surveys and to identify any avoidance and mitigation measures to be incorporated into the Project related to cultural resources. Potential effects, if any, to cultural resources will be addressed with the MHC and the THPO(s) through the federal Section 106 and the State Register Review processes. Avoidance, minimization, and mitigation measures for terrestrial archaeological and historic resources will be determined in consultation with BOEM, MHC, and other relevant consulting parties as needed. Furthermore, the Proponent has prepared a plan for unanticipated discoveries that provides procedures to guide the discovery of unanticipated archaeological resources and human remains. Marine archaeological resources and considerations along the OECC are described in Section 9.2.

There are three principal types of cultural resources assessed as part of the Project: terrestrial, visual, and marine. Terrestrial cultural resources include terrestrial archaeological resources and above-ground historic buildings/structures that could be directly (i.e., physically) affected by onshore Project-related disturbance. Visual cultural resources include aboveground historic properties such as buildings, structures, historic districts, and traditional cultural properties/places (TCPs) that could be visually impacted by the introduction of Project structures, construction, and lighting. Marine cultural resources include marine archaeological resources, submerged ancient landforms (SALs), and known or potential shipwrecks.

9.1 Terrestrial and Visual Cultural Resources

The Proponent, through its consultants, undertook archaeological surveys and assessed potential physical and visual impacts to existing historic resources, including above-ground historic resources and recorded archaeological sites, within and near the landfall site, onshore routing alternatives, and proposed onshore substation site. Above-ground historic resources were evaluated using MassGIS data from the MHC's Massachusetts Cultural Resource Information System (MACRIS) to locate resources including buildings, local historic districts, and National Register-listed individual buildings and districts (see Figure 9-1).

Direct Physical Impacts

The Project's terrestrial archaeology consultant, Public Archaeology Laboratory (PAL), completed terrestrial archaeological reconnaissance surveys of the Project's onshore development area, which included identification of recorded archaeological sites (compiled from primary and secondary sources) in the vicinity of the onshore Project elements, a combined field walkover and windshield survey, and a detailed archaeological sensitivity assessment in September 2021 and November 2022. The reconnaissance surveys were completed under State Archaeologist Permit No. 4006, issued by the MHC on May 12, 2020 and amended on March 2, 2021, and State Archaeologist Permit No. 4227 issued on October 4, 2022.

Archival research and previous cultural resource management studies identified no archaeological sites listed on the National Register of Historic Places in the vicinity of proposed onshore Project elements. Sections 9.1.1 through 9.1.3 summarize survey findings associated with the proposed onshore Project elements. To date, no archaeological sites listed or eligible for listing in the State and/or National Registers of Historic Places have been identified within any of the areas proposed for onshore facilities. Archaeological sensitivity across the area proposed for onshore facilities varies from low to high sensitivity. No additional archaeological investigations or archaeological monitoring during construction is proposed within areas of low sensitivity; however, in accordance with consultation with MHC, archaeological monitoring during construction is planned for areas of moderate to high sensitivity. While additional archaeological work may occur to address potential impacts (e.g., construction monitoring), significant impacts are not anticipated given that the majority of work is proposed in existing roadways and previously disturbed areas.

Historic above-ground resources are located along the Preferred and Noticed Alternative transmission routes and grid interconnection routes as shown on Figure 9-1.[1] No direct physical impacts to above-ground historic resources are anticipated. Because the Project involves construction of an underground duct bank in existing roadways and/or ROWs, construction activities will temporarily affect existing roads near historic properties. However, the effect will be limited to excavation and resurfacing of existing roads. In addition, no physical impacts to historic resources is anticipated. Excavation for the proposed onshore duct bank will comply with all pertinent codes and regulations for such work to ensure no damage occurs to adjacent properties.

Visual Impacts

While there are above-ground historic resources listed in the State and/or National Registers of Historic Places along the proposed transmission routes and in the viewsheds of the proposed substation site, no adverse visual impacts are anticipated. The proposed substation will be constructed to allow for maintenance of existing mature vegetation to provide significant visual screening. In addition, since the duct bank will be located withing existing roadway layouts and will be entirely buried, there will be no post-construction visual impacts from the infrastructure. As discussed in Section 12.3, the exact alignment of the onshore duct bank has not yet been developed but it is likely that installation along the identified public ways will require the removal of some public shade trees where construction along road shoulders is required. Prior to construction, the Proponent will meet with the Town of Barnstable Tree Warden and/or MassDOT to confirm the location and condition of trees along the onshore duct bank route relative to construction work areas. As required, the Proponent will obtain permits from the Tree Warden and MassDOT and work with both to identify appropriate mitigation (see Section 12.3.7 for additional details).

9.1.1 Landfall Site

No pre-contact, contact, or post-contact cultural resources are known or were found during Project-specific surveys in the vicinity of the proposed landfall site. As described in Section 2.2, the offshore-to-onshore transition at the landfall site will be made using HDD staged from a paved parking lot. PAL recommends archaeological monitoring of Project construction activities within the staging areas required for the HDD and associated activities in the landfall area within the identified zones of high and moderate archaeological sensitivity. The Proponent will implement

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[1] As discussed above, locations of recorded archaeological sites have been assessed, but the locations of those sites are considered confidential by MHC and other applicable federal agencies to protect the resources' integrity and thus are not included on Figure 9-1.

PAL's recommendations. However, it is worth noting that the HDD staging, transition joint bays, and duct bank installation at the landfall site will occur in the paved parking lot where underlying soils have at least been partially disturbed by previous construction. In addition, there are no historic structures in the vicinity of the landfall site.

9.1.2 Onshore Transmission Routes

Historic buildings and structures along the Preferred and Noticed Alternative transmission routes connecting the landfall site to the proposed substation site are described below and are shown on Figure 9-1. The NE Wind 2 Connector onshore transmission routes will largely be constructed in previously disturbed areas (i.e., within public roadways or other ROWs). Therefore, it is unlikely that natural/undisturbed soils or potentially significant unrecorded, intact archaeological deposits would be located below or immediately adjacent to the onshore transmission routes. As noted above in Section 9.1, no archaeological sites listed or eligible for listing in the State and/or National Registers of Historic Places have been identified through Project surveys.

PAL completed an archaeological sensitivity assessment of transmission routes and identified zones of high and moderate archaeological sensitivity in two sections of the onshore route segments. No adverse impacts to archaeological resources are anticipated. However, PAL has recommended consultation with the MHC and local federally recognized Tribes regarding the potential for the Project to affect un-recorded cultural resources that may be present within the archaeologically sensitive sections of the onshore duct bank route. Further, PAL recommends archaeological monitoring of the Project's construction activities during installation of the duct bank and splice vaults within the identified zones of high and moderate archaeological sensitivity. The Proponent will implement PAL's recommendations.

Relative to historic properties, construction of the underground duct bank will temporarily affect the appearance of existing roads near historic properties. However, given the limited duration of construction activities, no adverse direct or visual impacts to above-ground historic properties are anticipated.

Findings relative to specific route variations are discussed in the following subsections.

9.1.2.1 Preferred Route (Main Street)

The Preferred Route is located entirely within public roadway layouts and within the existing paved parking lot area at the landfall site, and has a total length of approximately 6.7 miles. As depicted on Figure 9-1, Sheet 1, the route passes through a portion of the Wianno Avenue Historic District, which includes seven National Register Properties directly adjacent to the route. Additionally, there are a number of inventoried properties (buildings, burial grounds, structures, and/or objects such as statues, monuments, and walls) along the northern half of Wianno Avenue and along Main Street outside Wianno Avenue Historic District along the route up to the approximate intersection with Pond Street. The Preferred Route passes through or is adjacent to a total of 304 inventoried properties, National Register properties, and areas or districts, with each directly abutting parcel within an area or district included in this count. As shown on Figure 9-1, Sheet 1, the Inventory properties are largely clustered along the southern portion of Main Street near Wianno Avenue.

Since duct bank construction will be confined to the existing roadway layout, including through the Wianno Avenue Historic District, the Proponent does not anticipate any direct physical impacts to historic structures. Further, because the onshore export cables will be located underground, construction will be temporary in nature and the duct bank will have no visual impacts to historic buildings or structures listed in the State and/or National Registers of Historic Places are anticipated.

PAL completed an archaeological sensitivity assessment and identified zones of low, moderate, and high archaeological sensitivity. No adverse impacts to archaeological resources are anticipated. However, the Proponent will implement PAL's recommendation for archaeological monitoring of the Project's construction activities during installation of the duct bank and splice vaults within the identified zones of high and moderate archaeological sensitivity. Continued monitoring for the presence or absence of potential archaeological sites within the Project's construction footprint will be assessed as part of Project permitting to avoid and mitigate potential direct physical impacts.

9.1.2.2 Noticed Alternative (Old Mill Road)

The Noticed Alternative is located entirely within public roadway layouts and within the existing paved parking lot area at the landfall site and has a total length of approximately 6.6 miles. The Noticed Alternative passes through or is adjacent to a total of 126 inventoried properties, National Register properties, and areas or districts, with each directly abutting parcel within an area or district included in this count (see Figure 9-1). As shown on Figure 9-1, Sheet1, the Inventory properties are largely clustered along the southern portion of the Noticed Alternative Route along East Bay Road, Main Street, and Old Mill Road.

Since the proposed duct bank will be underground, it will have no visual impacts to historic buildings or structures. Furthermore, since duct bank construction will be confined to the existing roadway layout, the Proponent does not anticipate any direct physical impacts to historic structures.

PAL completed an archaeological sensitivity assessment and identified zones of low, moderate, and high archaeological sensitivity. No adverse impacts to archaeological resources are anticipated. However, the Proponent will implement PAL's recommendation for archaeological monitoring of the Project's construction activities during installation of the duct bank and splice vaults within the identified zones of high and moderate archaeological sensitivity. Continued monitoring for the presence or absence of potential archaeological sites within the Project's construction footprint will be assessed as part of Project permitting to avoid and mitigate potential direct physical impacts.

9.1.2.3 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 would be utilized in the event that Wianno Avenue is used in combination with the Noticed Alternative Route. The Main Street Variation would pass by three National Register properties and one inventoried area (see Figure 9-1, Sheet 1). Similar to those routes, no visual impacts to historic resources are anticipated given the underground and temporary nature of construction for the Project. Further, since duct bank construction will be confined to the existing roadway layout, the Proponent does not anticipate any direct physical impacts to historic structures.

PAL completed an archaeological sensitivity assessment and identified zones of moderate, and high archaeological sensitivity. No adverse impacts to archaeological resources are anticipated. However, the Proponent will implement PAL's recommendation for archaeological monitoring of the Project's construction activities during installation of the duct bank and splice vaults within the identified zones of high and moderate archaeological sensitivity. Continued monitoring for the presence or absence of potential archaeological sites within the Project's construction footprint will be assessed as part of Project permitting to avoid and mitigate potential direct physical impacts.

9.1.3 Substation Site

The Project's proposed onshore substation will be located west of Oak Street near the Oak Street Bridge overpass of Route 6, approximately 0.25 miles west of the interconnection location at the existing West Barnstable Substation. More detailed information about the proposed substation site is described in Section 2.4. An historic resources assessment, terrestrial archaeological assessment, and visibility assessment have all been completed for the proposed site.

9.1.3.1 Direct Physical Impacts

No adverse physical effects to historic properties are anticipated associated with development of the proposed substation. While the substation site is within the Old King's Highway Regional Historic District, the site itself is vacant land, and there are no historic buildings or structures that would be disturbed by the proposed Project. Furthermore, archival research completed by PAL and previous cultural resource management studies identified no archaeological sites listed on the National Register of Historic Places in the vicinity of proposed onshore Project elements.

PAL obtained a permit to complete intensive surveys related to archaeological resources on the proposed onshore substation site and completed a due diligence survey and an intensive survey on parcels 3, 4, and 5 and sensitivity assessments on parcels 1 and 2 in December 2022 (see Figure 1-8). PAL concluded that no additional archaeological investigations were recommended for parcels 3, 4, and 5. On parcels 1 and 2, PAL completed a due diligence review and concluded there are no recorded archaeological sites within the study area for the potential substation. However, PAL has recommended intensive surveys on Parcels 1 and 2 and the Proponent intends to complete these surveys in Q2 2023.

9.1.3.2 Visual Impacts

Saratoga Associates, Landscape Architects, Architects, Engineers, and Planners, P.C. (Saratoga) was retained by the Proponent to conduct a visibility assessment of the revised onshore substation design (see Attachment G). The visibility assessment included a viewshed analysis, photographic simulations, and line-of-sight profiles to identify the degree and character of potential visibility of the proposed onshore substation from off-site vantage points. The Zone of Visual Influence (ZVI) analysis conducted identified the geographic area within which some portions of the proposed revised onshore substation design could potentially be visible. The ZVI extends to a two-mile radius from the proposed onshore substation. The results of the ZVI analysis demonstrate that within 0.5 miles of the proposed substation site, views of the equipment will be limited and occur in small, isolated geographic pockets. These isolated views are primarily found within cleared areas of the existing Eversource ROW #342 and Route 6. Areas with isolated views along Route 6 are generally on the west bound side of Route 6 with one location along the east bound side of Route 6, and these views will likely go unnoticed by motorists travelling at highway speed (Route 6 has a speed limit of 55 mph). Except for minor areas around the DCR fire tower and existing residential structures (to be removed), the substation site and all adjacent properties to the north, east and west are densely wooded with mature pitch pine and scrub oak vegetation. A 100-foot-wide densely wooded buffer also exists within the Route 6 state highway layout along the southern boundary of the substation site.

The visibility assessment demonstrates that views of the proposed new onshore substation are limited and represent a de minimis alteration to the existing visual character of the local landscape. Lower height electrical equipment and buildings associated with the proposed revised onshore substation will not be directly visible from any off-site vantage point. In areas where lightning masts are predicted to be visible; the lightning masts will be low within the intervening tree line. Land and tree clearing will be minimized to the extent practicable and an existing forested buffer around the substation will be maintained.

The proposed onshore substation site is located within the Old King's Highway Regional Historic District (regional district established by Massachusetts Chapter 470 of the Acts of 1973, as amended) (see Figure 9-1, Sheet 4). The Old King's Highway Regional Historic District is the only multi-town historic district in Massachusetts, with each participating community (such as Barnstable) having an independent commission or committee reviewing and approving proposed changes within its bounds. The Old King's Highway Regional Historic District is listed in the State Register of Historic Places. While the substation site is within the Old King's Highway Regional Historic District, the site itself is vacant land, there are no historic buildings or structures that would be disturbed by the proposed Project, and potential visual effects are minimal due to dense surrounding mature trees and no adverse visual effects are anticipated. The Proponent will work with the Old King's Highway Historic District Committee to obtain the required approvals prior to construction.

9.1.4 Grid Interconnection Routes

Above-ground historic resources, structures, and recorded archaeological resources along the Preferred and Noticed Alternative grid interconnection routes connecting the proposed substation site to the interconnection location are described below and shown on Figure 9-1, Sheet 4. Similar to onshore transmission routes, grid interconnection routes will largely be constructed underground and in previously disturbed areas (i.e., within public roadways or other ROWs). Therefore, it is unlikely that natural/undisturbed soils or potentially significant unrecorded, intact archaeological deposits would be located below or immediately adjacent to the onshore transmission routes. As noted above, no archaeological sites listed or eligible for listing in the State and/or National Registers of Historic Places have been identified through Project surveys. Relative to historic properties, construction will be temporary and localized; therefore, no adverse direct or visual impacts to existing historic or archaeological resources are anticipated.

9.1.4.1 Preferred Grid Interconnection Route (Fire Tower Access Road to Oak Street)

The Preferred grid interconnection route connecting the proposed substation to the interconnection at West Barnstable Substation passes by or through one State Register District (Old King's Highway Regional Historic District) and directly abuts 16 parcels containing single historic properties, Areas, and Districts (see Figure 9-1, Sheet 4). Variant 1 abuts those same 16 parcels. Similar to onshore transmission routes, no impacts to aboveground historic structures are anticipated, and no visual impacts to historic resources are anticipated given the underground and temporary nature of construction for the Project.

Based on a preliminary assessment performed by PAL, the general area surrounding the Project routes has been assigned moderate to high sensitivity for unrecorded archaeological resources. The Preferred grid interconnection route passes through areas identified as having moderate or high sensitivity for archaeological resources for approximately 0.2 miles (as does Variant 1 to the Preferred grid interconnection route). No adverse impacts to archaeological resources are anticipated. However, the Proponent will implement PAL's recommendation for archaeological monitoring of the Project's construction activities during installation within the identified zones of high and moderate archaeological sensitivity. Continued monitoring for the presence or absence of potential archaeological sites within the Project's construction footprint will be assessed as part of Project permitting to avoid and mitigate potential direct physical impacts. If selected, an archeological survey may be required based on consultation with MHC.

9.1.4.2 Noticed Alternative Grid Interconnection Route (Eversource ROW #342)

The Noticed Alternative grid interconnection route connecting the proposed substation to the interconnection at West Barnstable Substation also passes by or through one State Register District (Old King's Highway Regional Historic District) and directly abuts 18 parcels containing single historic properties, Areas, and Districts.

The Noticed Alternative grid interconnection route passes through areas identified as having moderate or high sensitivity for archaeological resources for approximately 0.4 miles. No adverse impacts to archaeological resources are anticipated. However, the Proponent will implement PAL's recommendation for archaeological monitoring of the Project's construction activities during installation within the identified zones of high and moderate archaeological sensitivity. Continued monitoring for the presence or absence of potential archaeological sites within the Project's construction footprint will be assessed as part of Project permitting to avoid and mitigate potential direct physical impacts. If selected, an archeological survey may be required based on consultation with MHC.

Similar to onshore transmission routes, no visual impacts to historic resources are anticipated given the underground and temporary nature of construction for the Project.

9.1.5 Comparison of Impacts and Mitigation Measures

9.1.5.1 Onshore Transmission Routes

The Preferred transmission route passes through or is directly adjacent to more historic districts, areas, inventoried properties, and National Register properties and as such, has a greater number (178) of historic resources associated with it than the Noticed Alternative transmission route (see Table 9-1 and Figure 9-1, Sheets 1-4). North of the intersection of Wianno Avenue and Main Street, the Preferred Route passes through an inventoried area of approximately 1.3 miles in length, with the number of inventoried properties along the southern section of Main Street being quite dense, whereas the Noticed Alternative only passes through an inventoried area of approximately 0.3 miles in length north of the intersection of Main Street and Old Mill Road, with a total of six inventoried properties (Inventoried and National Register Properties) directly abutting the roadway layout.

No impacts are anticipated to above-ground historic resources, as the proposed export cables will be underground. Excavation for the proposed onshore duct bank will comply will all pertinent codes and regulations for such work to ensure no damage occurs to adjacent properties. As the Project involves construction of an underground duct bank in existing roadways and/or ROWs, construction activities will temporarily affect the appearance of existing roads near historic properties. However, the effect will be limited to excavation, restoration, and resurfacing of existing roadway layouts. No adverse impacts to above-ground historic properties are anticipated.

As shown in Table 9-1, both routes pass through almost the same length of areas identified as having moderate or high sensitivity for archaeological resources.

Table 9-1 Archaeological Sensitivity and Historic Resources Located Along the Preferred Route and Noticed Alternative Transmission Routes

Route	*# of Historic Resources*	*Archaeological Sensitive Areas (miles)*
Preferred Route	304	5.8
Noticed Alternative	126	5.7

Both the Preferred Route and Noticed Alternative Route will largely be constructed in previously disturbed areas (i.e., within public roadways or existing parking areas). These previously disturbed areas have been modified by construction of the road or parking areas and contain above- and below-grade utilities, and it is unlikely that natural/undisturbed soils or potentially significant unrecorded intact archaeological deposits would be located below or immediately adjacent to them. Based on a preliminary assessment performed by PAL, the general area surrounding the Project routes has been assigned moderate to high sensitivity for unrecorded archaeological resources. In general, it is not expected to find unrecorded archaeological resources in previously disturbed roadway layouts where the duct banks will be placed.

9.1.5.2 Grid Interconnection Routes

Both grid interconnection routes connecting the proposed substation to the interconnection point at West Barnstable Substation pass by or through one State Register District (Old King's Highway Regional Historic District); the same is the case for Variant 1 of the Preferred grid interconnection route. The Preferred grid interconnection route directly abuts 16 parcels whereas the Noticed Alternative grid interconnection route directly abuts 18 parcels, Figure 9-1, Sheet 4.

Similarly, both grid interconnection routes (as well as Variant 1) have been assigned moderate to high sensitivity for unrecorded archaeological resources. The Preferred grid interconnection route passes through areas identified as having moderate or high sensitivity for archaeological resources for approximately 0.2 miles. The Noticed Alternative grid interconnection route passes through areas identified as having moderate or high sensitivity for archaeological resources for approximately 0.4 miles.

As noted above, portions of the grid interconnection route options will be constructed in previously disturbed areas (i.e., within public roadway layouts or within existing access roads). These previously disturbed areas have been modified by construction of roadways, and it is unlikely that natural/undisturbed soils or potentially significant unrecorded intact archaeological deposits would be located below or immediately adjacent to them. In general, it is not expected to find unrecorded archaeological resources in previously disturbed roadway layouts. Where the Project involves construction of an underground duct bank in existing public roadways, temporary construction activities will temporarily affect the appearance of existing roads near historic properties. However, the effect will be limited to excavation, restoration, and resurfacing. No adverse impacts to above-ground historic properties are anticipated as a result of installation of the underground duct bank. Construction and excavation for the proposed onshore duct bank will comply will all pertinent codes and regulations for such work to ensure no damage occurs to adjacent properties.

Outside of previously disturbed areas, where access roads and grid interconnection duct banks will be constructed or enlarged outside of existing layouts, tree removal and tree trimming will be required. For the Preferred grid interconnection route (Fire Tower Access Road to Oak Street), the existing Fire Tower access road will be improved, so the clearing of an entirely new corridor will not be required; for Variant 1, a short spur to Oak Street would involve clearing a new area. Forested vegetative buffers will remain, minimizing potential visual impacts on historic properties. The 20-foot-wide access road associated with the Noticed Alternative grid interconnection route (Eversource ROW #342) will require tree and vegetation removal along the approximate “panhandle” on the north side of the substation site as well as limited tree and vegetation removal on adjacent properties east and west of the panhandle for construction of the access road. After construction, cleared areas beyond the 20-foot-wide access road will be seeded and allowed to re-vegetate. Clearing of the panhandle will result in a new cleared corridor, with views of the new onshore substation from the north within Eversource ROW #342, the Spruce Pond Conservation Area, and the Falcon Road Conservation Area. Existing surrounding forested areas will remain and views of this new corridor from the east, west, and south will be screened from view by the remaining forested areas.

9.2 Marine Cultural Resources

A marine archaeological resource assessment (MARA) was completed for New England Wind (of which Commonwealth Wind/NE Wind 2 Connector is a part). On behalf of the Proponent, SEARCH, Inc. (SEARCH) and Gray & Pape, Inc. (G&P) completed MARAs of geophysical and geotechnical survey data collected for the Project. The MARAs are presented in Volume II-D of the Construction and Operations Plan (COP). The purpose of the assessments was to identify submerged cultural resources or potential submerged cultural resources that may be affected by seabed-disturbing Project activities, including site characterization surveys and the construction, operation, and/or decommissioning of project facilities. The Proponent has had a consultation meeting with the MBUAR to discuss the Project and results of the MARA.

SEARCH and G&P provided technical expertise to the Project as Qualified Marine Archaeologists (QMAs) pursuant to 30 CFR 585, which established BOEM procedures for the issuance and administration of offshore renewable energy leases. As required by the OCS-A 0534 lease agreement, the Proponent’s QMAs participated in pre-survey meetings with BOEM and tribal representatives to obtain feedback during the development and finalization of the marine archaeology survey plan. Gray & Pape served as the QMA for the OECC and subject matter expert (SME) for that portion of the project.

Best Management Practices within the MARA include involvement of a QMA in the design, interpretation, and reporting phases of the non-intrusive, high-resolution geophysical (HRG) survey following BOEM’s Guidelines for Providing Archaeological and Historic Property

Information Pursuant to 30 CFR Part 585 (BOEM 2020) and the MBUAR Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources. The responsibility of the QMA is to identify potential submerged cultural resources that may be eligible for listing in the NRHP within the project route.

The archaeological assessment for potential submerged resources included archival (background) research, geophysical (remote sensing) survey, geotechnical investigations, and laboratory analyses of sediment samples collected. Archaeological investigations and laboratory analyses were conducted in coordination with federally recognized Native American tribes.

Marine archaeological survey activities took place over multiple seasons from 2016 to 2020, with the 2020 survey season extending into February 2021. The initial two survey seasons in 2016 and 2017 were used for reconnaissance, feasibility assessment of testing methods, and site characterization. During these initial surveys, single survey track lines along selected alignments were surveyed to examine potential corridors, and additional survey lines were employed in SSU areas covering approximately 156.5 nautical miles (290 km), with 92 nautical miles (171 km) acquired in the present OECC. During the 2018 survey, a comprehensive survey was conducted along the OECC as well as other OECC options that encompassed 2,878 nautical miles (5,330 km), with 1,886 nautical miles (3,492 km) collected in the present OECC. During the 2020 to 2021 survey, additional survey lines were employed to complement the 2018 surveys that were comprised of 1,413 additional nautical miles (2,617 km).

Archival and documentary research and field investigations were conducted as part of the cultural resource examination. Background research included review of historical documents, previous research reports, shipwreck inventories, secondary sources, and historical map analysis. Much of this research was conducted utilizing material from the archives of the MBUAR.

Field investigations conducted in 2017, 2018, and 2020 included high-resolution geophysical surveys utilizing magnetometer, side-scan sonar, shallow and medium penetration sub-bottom profilers, and a multibeam echosounder. Geophysical data collected were analyzed for both materials of pre-contact and historical origin that might be affected by Project activities. Geotechnical explorations, bottom grabs, cone penetration tests, bores, and vibracores were conducted. The geotechnical surveys provided information on the nature of the Pleistocene/Holocene interface (ravinement surface) and geomorphological landscape features, and also provided material for sample radiocarbon dating. Geotechnical data also provide general verification of the geophysical interpretations and data throughout the OECC. Offshore geotechnical work is only conducted in areas already reviewed and cleared for cultural resources.

9.2.1 Submerged Ancient Landforms

Archaeological investigations of the OECC have recovered no pre-Contact Native American cultural materials to date. However, geoarchaeological analysis of geophysical and geotechnical data indicate there are ancient stream channel, lake, pond, and estuarine landscape features within the Project area that may have the potential to contain archaeological materials.

Geotechnical ground-truthing of some of these features provided data on their actual physical make-up and, in some instances, their age and depositional origin. Together, the geophysical and geotechnical investigation indicate that throughout much of the OECC, there is little potential for submerged cultural resources. This is due to the general lack of preserved former terrestrial landscape or landform features. Areas where such preserved former terrestrial landscape or landform features exist make up a small percentage of the overall Project area. As the submerged ancient landforms (SALs) are scattered throughout the Project area, complete avoidance of these features will likely not be possible.

If avoidance of these identified potentially archaeologically sensitive areas is not possible, mitigation will be required. Accordingly, a draft Historic Property Treatment Plan (HPTP) has been developed by the Proponent in accordance with Section 106 review (and accompanying regulations at 36 CFR 800) to address mitigation for SALs that cannot be avoided. Consultations regarding the HPTP are ongoing among BOEM, Native American tribes, and other parties as part of the Section 106 process.

The HPTP provides background data, historic property information, and detailed steps that will be implemented to carry out the mitigation identified during the Section 106 consultation process.

The NHPA Section 106 consultation process is ongoing for the Project and will culminate in a Memorandum of Agreement (MOA) detailing avoidance, minimization, and mitigation measures to resolve adverse effects on historic properties to which the consulting parties agree. MOA consulting party signatories include BOEM, Massachusetts SHPO (MHC), Advisory Council on Historic Preservation, US Army Corps of Engineers, Mashantucket Peqout Tribal Nation, Mashpee Wampanoag Tribe of Massachusetts, Wampanoag Tribe of Gay Head (Aquinnah), and the Proponent.

Draft HPTPs and the Draft MOA are included in Appendix J of the BOEM DEIS for New England Wind released on December 23, 2022. The conditions of COP approval and the final MOA will include measures to avoid adverse effects to identified historic properties and will include measures to minimize adverse effects.

9.2.2 Potential Shipwrecks

Analysis of the HRG survey data identified two potential submerged historic cultural resources (shipwrecks or potential shipwrecks) within the Western Muskeget Variant, which is located entirely within State waters. No potential shipwrecks were identified along the State waters portion of the OECC.

Potential shipwrecks will be avoided with the implementation of avoidance buffers. This avoidance plan was prepared by the QMAs and complies with the MBUAR Policy Guidance for Establishing Shipwreck and Underwater Resource Avoidance Protection Plans. Given the planned avoidance of potential shipwrecks, no adverse effect to submerged historical properties is expected.

9.2.3 Nantucket Sound Traditional Cultural Property

Nantucket Sound has been determined to be eligible for listing on the National Register as a TCP by the Keeper of the National Register. Roughly bound by Vineyard Sound, Cape Cod, Martha's Vineyard, and Nantucket, the boundary for the National Register eligible property of Nantucket Sound as it relates to other waterways has not been fully defined. The Keeper in her review of eligibility criteria determined that:

> *"Nantucket Sound is eligible for listing in the National Register as a traditional cultural property and as an historic and archeological property associated with and that has yielded and has the potential to yield important information about the Native American exploration and settlement of Cape Cod and the Islands. Although the exact boundary is not precisely defined, this determination answers the question for the area that prompted the request for this determination, the Sound itself. The Sound is eligible as an integral, contributing feature of a larger district, whose boundaries have not been precisely defined, under:*

- Criterion A for its associations with the ancient and historic period Native American exploration and settlement of Cape Cod and the Islands, and with the central events of the Wampanoags' stories of Maushop and Squant/Squannit;
- Criterion B for its association with Maushop and Squant/Squannit;
- Criterion C as a significant and distinguishable entity integral to Wampanoags' folklife traditions, practices, cosmology, religion, material culture, foodways, mentoring, and narratives; and,

  Criterion D for the important cultural, historical, and scientific information it has yielded and/or may be likely to yield through archeology, history, and ethnography about access to resources, patterns of settlement, mobility, and land use prior to and after 6,000 years ago as a result of the inundation of the Sound. It is also important for the significant information it provides and can provide about the cultural practices and traditions of the Native Americans of Cape Cod and the Islands in relationship with other peoples since ancient times."[2]

Potential SALs have been identified within portions of the OECC and Western Muskeget Variant where it passes through the Nantucket Sound TCP. As previously stated, while no intact archaeological artifacts, deposits, resources, or sites have been identified offshore, the SALs

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2 Shull S. 2010. National Park Service Determination of Eligibility Notification for Nantucket Sound. Retrieved from: https://www.boem.gov/sites/default/files/renewable-energy-program/Studies/NPS-to-MMS-Nantucket-Sound-Determination.pdf

represent locations of higher significance with the potential to contain those cultural resources. No visual impacts will occur as a result of the Project, since the cables in the OECC will be submerged and buried within the seabed.

The Proponent has prepared a draft HPTP for the crossing of the Nantucket Sound TCP by the offshore export cables. This draft HPTP includes the mitigation measures proposed by the Proponent for historic properties based on the evaluations and outreach performed by the Proponent prior to the issuance of the DEIS. The draft HPTP will sustain further revision and refinement as consultation with the consulting parties continues.

9.2.4 Unanticipated Discoveries

Any unanticipated discoveries of cultural resources would be managed in accordance with an unanticipated discoveries plan that is being developed through the NEPA process, with MBUAR and MHC participating.

Section 10.0

Climate Change, Air Quality, and Greenhouse Gas Emissions

10.0 CLIMATE CHANGE, AIR QUALITY, AND GREENHOUSE GAS EMISSIONS

This section describes the Project's climate change resiliency and sustainability, air quality considerations, and greenhouse gas (GHG) emissions.

10.1 Climate Change Resiliency and Sustainability

Global climate change is occurring rapidly and features sea level rise and increased storm intensity that pose profound threats to coastal areas. Massachusetts' vast and typically low-lying coastline makes it particularly vulnerable to the impacts of climate change.[1] In response to global climate change predictions, the governor of Massachusetts issued an Executive Order (No. 569) establishing an integrated climate change strategy for the Commonwealth. That Executive Order stated that climate change presents a serious threat to the Commonwealth and specifically that future extreme weather events present a serious threat to public safety and the lives and properties of residents.

Cape Cod has over 580 miles of coastline that are typically sandy, low-lying, and vulnerable to flooding and erosion. The NOAA National Hurricane Center has developed storm surge risk maps for Massachusetts using the Sea, Lake, and Overland Surge from Hurricanes (SLOSH) model. The NOAA model predicts large areas of inundation throughout Cape Cod resulting from future hurricanes[2], as shown in Figure 10-1. The Town of Barnstable has 104 miles of coastline and has approximately 15 square miles (9,834 acres) of property within hurricane inundation zones[3], as shown in Figure 10-2. Adaptation and resiliency strategies will need to be developed and implemented over time to avoid and minimize the impacts from increased flooding due to sea level rise and increased storm intensity. The impacts of major future storm events will require coordinated efforts to ensure public safety and maintenance of property and infrastructure. The proposed Project will not increase the potential for future storm damage and is being designed as a resilient infrastructure asset that acknowledges global climate change and its likely future conditions.

While the proposed onshore 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 banks, and transition joint bays that are located near to the shoreline and within the existing and future flood zones. Due to the nature of the Project, the offshore-to-onshore cable transition must be located on the coastline and in an area that could be

1 Massachusetts Executive Office of Energy and Environmental Affairs. 2011. Massachusetts Climate Change Adaptation Report. https://toolkit.climate.gov/reports/massachusetts-climate-change-adaptation-report.

2 Cape Cod Commission. 2023. Cape Cod Coastal Planner tool, Resilient Cape Cod Project. https://www.capecodcommission.org/our-work/cape-cod-coastal-planner/.

3 Woodard & Curran. 2022. Town of Barnstable 2022 Hazard Mitigation Plan Update. Town of Barnstable. June 2022. https://town.barnstable.ma.us/Departments/planninganddevelopment/Projects/Hazard-Mitigation-Plan-Update.asp.

affected by climate change and associated sea level rise and storm surge. 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 5-1 (shown as “FEMA LSCSF/BLSF”).

10.1.1 Project Infrastructure

The transition joint bays (where offshore export cables will be spliced to onshore export cables) proposed under the paved parking lot at the landfall site were originally designed to be installed to a maximum depth of approximately 10.5 feet, and with the tops approximately 2 feet below the parking lot surface. The transition joint bays are currently undergoing an engineering evaluation to determine the feasibility of lowering the elevation to avoid exposure during predicted worst-case storm events (Attachment Q2). The concrete transition joint bays will be approximately 61 feet long by 11 feet wide by 8.5 feet high. Within the parking lot, the only visible components of the cable system will be two metal manhole covers per transition joint bay which will be used to provide access. The offshore cables extending seaward from the paved parking lot will be enclosed within conduits installed via HDD, which will extend beneath the existing Coastal Dune and Coastal Beach at a depth of approximately 35 to 50 feet below the land surface; this will significantly decrease the probability of exposure during a severe storm event. Storm event erosion potential is addressed in Section 10.1.3 and long-term erosion potential is addressed in Section 10.1.4.

The onshore export cables were originally designed to be installed within an underground duct bank and manhole system measuring approximately 8 feet wide and 4.5 feet tall, set at a depth of 8 feet under existing roadways for the majority of the onshore export cable route. In cases where the duct bank crosses under utilities or other obstructions, it was designed to be approximately 11.5 feet wide and 4.5 feet tall, set at a depth of approximately 11.5 feet. The duct bank is undergoing an engineering evaluation to determine the feasibility of lowering and/or anchoring this infrastructure to minimize impact during predicted worst-case storm events (Attachment Q2). Attachments C1 and C3 contain engineering plans specific to the proposed duct bank and HDD activities, respectively.

As noted above, the nature of the Project requires installation of infrastructure below the existing ground surface. The transition joint bays, cables, and all associated infrastructure will be designed to withstand regular water inundation. Specifically, cable splices are designed to be sealed from water intrusion, and the cables are designed to function in inundated and submerged conditions. All structural supports will be fabricated with water/corrosion-resistant materials such as galvanized or stainless steel. Therefore, the underground cable systems extending from offshore to the onshore substation are not anticipated to be negatively impacted by flooding and/or extreme weather events.

The presence of Project infrastructure will not make the coastline or adjacent areas more vulnerable to storm damage or sea level rise. The transition joint bays will be buried within the paved parking lot, and the HDD conduits are expected to be approximately 50 feet below the surface of the beach at MHW (see Section 2.2) and under the adjacent dunes and coastal bank, significantly decreasing the probability of exposure during a severe storm event. The offshore to onshore export cable transition will be made in underground concrete transition joint bays and will not have any potential to cause erosion or to influence the existing coastal erosion patterns in this area. The Project will be installed under the existing landforms (beach, dunes, and bank) and will not impair their capacity to provide storm damage prevention and flood control functions due to their depth of burial and lack of surface alteration. Lastly, the transition joint bays and associated onshore duct bank will be installed within existing paved surfaces that will be completely restored following installation of the Project.

On Dowses Beach, the only Project infrastructure that would potentially be exposed due to an extreme storm event is a transition joint bay located beneath the parking lot. This worst-case exposure would be predicted to occur only if substantial portions of the beach and the entire parking lot were eroded away. If deemed feasible by the ongoing engineering evaluation, the transition joint bay will be lowered by an additional 2 feet. As a result, Project infrastructure on Dowses Beach would not be exposed even under extreme future storm events and would not have any effect on storm event impacts on Dowses Beach. The project design process is ongoing and will be finalized as part of the FEIR.

On the causeway leading to Dowses Beach, the coastal erosion analysis predicted sufficient erosion during extreme storm events to breach the causeway. As a result, the Project infrastructure on the causeway was originally designed to be resilient and modifications are currently being designed to improve resiliency via lowering and/or anchoring (Attachment Q2). The onshore duct bank will be installed under the existing paved causeway leading to Dowses Beach via an independent under-road structure that will span over the existing box culvert. This reinforced concrete structure will also be constructed within existing paved surfaces to minimize potential to cause erosion and will not influence existing erosion patterns or impair storm drainage capacity. It will also be designed to accommodate future needs to perform maintenance on the existing box culvert.

The project design process is ongoing and will be finalized as part of the FEIR.

10.1.2 Updated Resilient Massachusetts Action Team Reports

Updated Resilient Massachusetts Action Team Climate Resilience Design Standards Tool Project Reports (RMAT Reports) were generated for the revised onshore substation and onshore cables, including the three transition joint bays within the existing paved parking lot at the landfall site (see Attachment K). Note that the landfall site and the proposed onshore substation are located in distinctly different geographic areas in relation to the coastline, and as such could have the potential for different risks resulting from climate change. As such, separate updated RMAT Reports were developed for each of the Project components. These reports are presented in Attachment K as Attachment K1 (Landfall Site), Attachment K2 (Preferred Onshore Cable Route), Attachment K3 (Project Substation), and Attachment K4 (Noticed Alternative Route).

In the future, sea level rise and increasingly extreme storm events are predicted to combine to cause more expansive and more frequent coastal flooding and erosion. The Massachusetts Coast Flood Risk Model (MC-FRM) is a tool developed to evaluate potential impacts of climate change throughout the Massachusetts coastline. The MC-FRM is a hydrodynamic model that simulates tides, waves, winds, storm surges, sea level rise, and wave set-up at sufficient resolution to characterize site-specific locations.[4] The MC-FRM dynamically simulates hundreds to thousands of storms including hurricanes and nor'easters and predicts coastal flooding and inundation resulting from future sea level rise and storm events. MC-FRM predicted the annual exceedance probability of inundation under 2030, 2050, and 2070 conditions for the entire Massachusetts coastline. MC-FCM predictions were applied to predict flooding and erosion proximate to the shoreline and within the existing and future flood zones in the Project area to help evaluate the resiliency of the Project design.

The updated RMAT Reports provide baseline data for the potential for sea level rise/storm surge design criteria to be considered for each of the Project components. As noted on the RMAT Reports, "the projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5% annual exceedance probabilities). These values are projections based on assumptions as defined in the model and the LiDAR used at the time." The probabilities/return periods are as follows: 0.1% (1,000-year), 0.2% (500-year), 0.5% (200-year), 1% (100-year), 2% (50-year), and 5% (20-year). The updated RMAT Reports include projected water surface elevation maps for the Project for 2030, 2050, and 2070 planning horizons corresponding to the lowest return period (largest design storm) (0.5% [200-yr] return period or percentile for the Project). As shown in Attachment K1, the projected surface water elevations in NAVD88 for 2030, 2050, and 2070 for the 200-year return period storm at the landfall site are 10.1 feet (min) to 10.4 feet (max), 14.9 feet (min) to 16.0 feet (max), and 16.3 feet (min) to 17.3 feet (max), respectively, exclusive of wave heights. The RMAT Report for the landfall site also notes: "This project intersects areas influenced by wave overtopping based flooding. These areas are where flooding is caused by intermittent pulses that come from wave run-up and overtopping at a coastal structure. Additional site analyses are recommended to establish design values associated with design criteria."

10.1.3 Episodic Coastal Storm Erosion

The Proponent retained RPS to perform sediment transport modeling to predict flooding and erosion resulting from future major storm events. RPS' technical report is provided as Attachment Q1. The episodic coastal erosion analysis featured simulations of projected sea level rise (SLR) combined with major storm events with specific return periods in the future. The analysis resulted in predictions of flooding and erosion throughout portions of the Project area for each combined SLR and storm event scenario. Projected SLR estimates and associated water levels and wave

4 Woods Hole Group. 2020. Coastal Resiliency Planning for the Surf Drive Area. Draft Report. Prepared for: Town of Falmouth. August 2000. https://www.falmouthma.gov/1052/Coastal-Resilience-Planning-Surf-Drive-A.

parameter values of different storm events associated with 2030, 2050, and 2070 planning horizons were obtained from the Woods Hole Group using results of the MC-FRM. For each of the SLR scenarios, major storm events with 50-, 100-, and 200-year return periods were simulated. In addition, back-to-back storm event scenarios, designed to be similar to Hurricanes Carol and Edna in 1954, were applied to the 2050 and 2070 SLR scenarios.

The modeling study used XBeach, a two-dimensional sediment transport model that simulates waves approaching the shoreline obliquely and uses the latest topography-bathymetry LIDAR and grain size distribution (sand, gravel, and cobble) of the beach as model inputs. The analysis predicted nearshore, beach, and dune erosion and resulting changes in bathymetry and topography (i.e., elevation) associated with a set of worst-case storm events and SLR scenarios.

10.1.3.1 Coastal Storm Erosion Predicted during the 30-year Project Design Period

To support an assessment of whether proposed Project infrastructure would maintain adequate burial depth over the 30-year design life of the Project, coastal flooding and erosion based on a combination of SLR and worst-case storm events were predicted for the years 2030 and 2050. Specifically, landform elevation changes were predicted along all three HDD alignments, including at locations of the transition joint bays and along the causeway.

For the 2030 model scenarios, maximum predicted reduction in elevation (i.e., erosion) along all three HDD alignments was approximately 3.9 feet (1.2 meters) above mean low water (MLW) (see Attachment Q1). For the 2050 model scenarios, maximum predicted erosion along all three HDD alignments was approximately 4.3 feet (1.3 meters) above MLW. Sediment accretion (i.e., increase in sediment elevation) was predicted below the MLW along all three HDD alignments as a result of the 2030 and 2050 storm events. In summary, maximum sediment erosion of approximately 4.3 feet (1.3 meters) was predicted above MLW, and sediment accretion was predicted below MLW for the set of 2030 and 2050 worst-case storm events. This level of erosion would enable the HDD conduits and enclosed cables to maintain sufficient burial depths throughout the 30-year design life of the Project.

The sediment erosion model was also applied to predict erosion at the transition joint bay locations below the paved parking lot at the landfall site. The tops of the transition joint bays were originally designed to be set at an elevation at least two feet below the parking lot. For 2030 and 2050 model scenarios, the maximum predicted erosion due to extreme storm events at the transition joint bay locations was estimated to be 3.6 feet (1.1 m). Under this modeled extreme storm event scenarios, the tops of the transition joint bays were predicted to be exposed after substantial portions of the beach and the entire parking lot were eroded away. As described above, the transition joint bays are currently undergoing an engineering evaluation to determine the feasibility of lowering the elevation to avoid exposure during predicted worst-case storm events (Attachment Q2). If deemed feasible, the transition joint bays will be lowered by an additional 2 feet and Project infrastructure on Dowses Beach will not be exposed even under extreme future storm events. In that case, Project infrastructure would not have any effect on storm event impacts on Dowses Beach. The project design process is ongoing and will be finalized as part of the FEIR.

The erosion model was also applied to the existing causeway, and resulted in predictions that the causeway would be breached due to future worst-case storm events. The sediment erosion analysis described above was based on a set of conservative assumptions that included: (1) simulating the parking lot, road, and causeway as erodible surfaces (rather than more accurately as pavement or rip-rap); (2) using high (i.e., above average) predicted SLR rates; and (3) simulating extreme worst-case back-to-back storm events. These conservative assumptions mean that erosion of the causeway may be over-estimated. Regardless, Project engineers are currently modifying the duct bank design to enhance capacity to withstand the forces in these modeled scenarios, and such design considerations may include structurally anchoring the infrastructure in place and/or placing the infrastructure at a lower elevation to reduce exposure from erosion (Attachment Q2). The Proponent will consult with state and federal agencies about the design measures that could be incorporated to ensure the Project infrastructure is resilient under these modeled conditions. Under the modeled storm scenarios, the causeway would be breached regardless of whether Project infrastructure is present, and the Project will not exacerbate erosion.

10.1.3.2 Coastal Storm Erosion Predicted Beyond the 30-year Project Design Period

Coastal flooding and erosion based on a combination of SLR and worst-case storm events were also predicted for the year 2070 (Attachment Q1), although this model scenario is not directly relevant since it simulates conditions beyond the 30-year Project design period.

The 2070 erosion scenarios were similar to the 2030 and 2050 scenarios (see Attachment Q1). Landform elevation changes were predicted along all three HDD alignments, the transition joint bays locations, and along the causeway. For the 2070 model scenarios involving the 50-, 100-, and 200-year storm events, maximum predicted erosion estimates were similar to those of the 2030 and 2050 extreme storm event scenarios. For the extreme 2070 back-to-back storm event scenario, incrementally higher levels of erosion were predicted as would be expected due to the incrementally higher sea level and extremely rare storm event sequence evaluated. The model's conservative assumptions are described in Section 10.1.3.1, and in the case of the 2070 scenario the modeled conditions extend beyond the design life of the Project.

10.1.4 Long-Term Erosion

To evaluate long-term coastal erosion at the landfall site, the Proponent retained DHI to perform an analysis of the Dowses Beach shoreline and dune morphology for the period of 2002 through 2023, including before and after Hurricane Sandy (see Attachment R). The analysis assessed long-term historical (planform) shoreline stability and interpreted historical shoreline evolution. The analysis found that Dowses Beach has been dynamically stable (i.e., neither gaining nor losing sediment) with a tendency to return to an equilibrium shoreline state and to build up stabilizing vegetative zones. Migration of sediment was observed toward and away from shore and shifting back and forth along the shoreline without significant net sediment loss or gain. Following erosional events, increased areas of vegetation were observed with a general tendency for a migration of the vegetation line in the seaward direction.

These findings are consistent with those of the CZM's Shoreline Change Project for Dowses Beach, as shown in Figures 10-3, 10-4, and 10-5, which found that Dowses Beach was relatively stable.[5] CZM found that Dowses Beach was experiencing accretion or no statistical change along six transects observed. Notably, the eastern portion of Dowses Beach was observed to have accreted sufficiently, with the beach extending seaward by over 200 feet between 1938 and 2014.

10.2 Air Quality and Greenhouse Gas Emissions

The Project has significant air quality and greenhouse gas emission benefits. The NE Wind 2 Connector will enable the delivery of more than 1,200 MW of carbon-free energy to the regional electric grid, advancing GHG emission reduction goals and improving air quality by displacing electricity generated by fossil fuel power plants.

Table 10-1 quantifies the emissions associated with fossil fuel power plants that would be avoided annually by using electricity generated from the offshore wind energy generation facility in federal waters that will be interconnected by the Project. The avoided emissions analysis uses Northeast Power Coordinating Council (NPCC) New England air emissions data from EPA's Emissions & Generation Resource Integrated Database (eGRID2018(v2) released March 2020). The avoided emissions analysis assumes a total nameplate capacity of 1,200 MW and an annual capacity factor of 50%. Pollutants included in the analysis are CO_{2e}, NOx, and SO_2. Using these assumptions, the Project is projected to avoid approximately 2.35 million tons of CO_{2e} emissions annually, or the equivalent of taking approximately 460,000 fossil-fuel powered cars off the road.[6] The Project is also projected to reduce NOx and SO_2 emissions significantly as shown in Table 10-1. Based on NPCC New England 2018 air emissions data from eGRID2018, the energy delivered by NE Wind 2 Connector could displace up to 8% of CO_{2e} emissions, 6% of NOx emissions, and 9% of SO_2 emissions produced by New England's electric grid annually.

Table 10-1 Avoided Air Emissions in New England (Estimated)

Pollutant	CO_{2e}	NOx	SO_2
Annual Avoided Emissions (tons/year)	2.35 million	1,255	666
Avoided Emissions Over Operational Period (tons)	70.36 million	37,638	19,983

5 Massachusetts Coastal Zone Management. 2023. Massachusetts Coastal Erosion Viewer. https://czm-moris-mass-eoeea.hub.arcgis.com/apps/80fc0c7ef5e443a8a5bc58096d2b3dc0/explore.

6 Based on a typical passenger vehicle emitting about 4.6 metric tons (~5.1 US tons) of carbon dioxide per year. See: https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle.

As shown by this analysis, the Project would result in substantial emissions reductions in the New England region.

The Project will also 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. This is particularly important given that several large electrical generators in New England have recently retired, are slated for retirement, or are approaching the end of life. According to ISO-NE (2022a), 1,829 MW of coal, 1,332 MW of residual oil, and 1,281 MW of nuclear-fired power generation facilities retired between 2011 and 2020.[7] ISO-NE has identified another 5,000 MW of oil and coal capacity "at risk" for retirement in the coming years.[8]

A reduction in GHG emissions will have wide-reaching benefits for terrestrial, avian, and marine life as well as the human environment. The effects of climate change on human health and the environment include sea level rise and population displacement, property damage from floods, shifts in species' distributions worldwide[9], changes in agricultural productivity, increases in energy system costs (e.g., air conditioning costs), and impacts to water security, food security, and nutrition. By reducing regional reliance on fossil fuels, the Project will help mitigate additional climate change damages. Furthermore, the Project will reduce SOx, NOx, VOC, and particulate matter emissions that contribute to acid rain, ocean acidification, and ground level ozone/smog, which can damage sensitive ecosystems and other resources, as well as air contaminants, which lead to early death, heart attacks, respiratory disorders, stroke, and exacerbation of asthma.

As described in Section 1.3.4, construction activity and O&M activities will be spread out over a wide region of the eastern coast and may include foreign ports. Activities conducted at each port or combination of ports used is highly dependent on the final construction logistics schedule, the infrastructure ultimately available at each port, other users at each port, supply chain availability, and other factors. Therefore, it is not feasible to provide estimated emissions at individual ports.

While the Project will provide a net air quality benefit to the New England region by displacing electricity from fossil fuel power plants and avoiding their associated emissions, there will be emissions from vessels, vehicles, and equipment used during the construction and operation of the Project. As described further in Section 12.8, the Project will employ several best practices and design features to reduce emissions of GHGs and criteria pollutants during the construction and operational periods. These include limiting vehicle idling time, requiring contracted vessels to use good combustion practices and operate their engines in the most efficient configuration, using low-sulfur fuels, and using engines in compliance with applicable air quality regulatory standards, among others (see Section 12.8).

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7 ISO New England. 2022. 2020 ISO New England electric generator air emissions report. https://www.iso-ne.com/static-assets/documents/2022/05/2020_air_emissions_report.pdf

8 ISO New England. 2022. Resource mix. https://www.iso-ne.com/about/key-stats/resource-mix/

9 Simmonds MP, Isaac SJ. 2007. The impacts of climate change on marine mammals: early signs of significant problems. Oryx. 2007;41(1):19–26. doi:10.1017/S0030605307001524

10.3 SF_6 in Gas-Insulated Switchgear

The Project's proposed onshore substation will employ gas-insulated switchgear (GIS) rather than air-insulated switchgear (AIS) in the substation design for the reasons explained in Section 2.4. GIS uses sulfur hexafluoride (SF_6) gas as an insulating agent. If released to the atmosphere, SF_6 is a greenhouse gas. However, equipment used at the substation will be designed to be gas-tight and sealed for the life of the equipment. To further minimize the leakage of SF_6 from the onshore substation, in accordance with 310 CMR 7.72, the Project will: (1) use GIS that is represented by the manufacturer to have a maximum annual SF_6 leak rate of no more than 0.5% (depending on the supplier, it could be as low as <0.1% per year); (2) comply with manufacturer-recommended maintenance procedures or industry best practices to reduce SF_6 leakage (including pressure monitoring); and (3) upon equipment removal of any equipment containing SF_6, provide for the secure storage, re-use, recycling, or destruction of the SF_6. Little to no leakage of SF_6 is expected to occur from the substation's GIS equipment.

Section 11.0

Onshore Substation Operational Noise Analysis

11.0 ONSHORE SUBSTATION OPERATIONAL NOISE ANALYSIS

As described in Section 2.4, the Proponent has site control of contiguous privately owned parcels of land west of Oak Street in West Barnstable. Of the eight parcels, four will be developed into the new onshore substation. The proposed onshore substation will be sited primarily in the southern and central portions of those four parcels, an existing single-family residence located on one of the parcels will be removed.

As part of the environmental analysis and permitting effort, Epsilon Associates, Inc. (Epsilon) was tasked by the Proponent to conduct a sound-level impact assessment for operation of the proposed substation. The operational sound-level impact assessment included a baseline sound monitoring program to measure existing ambient sound levels in the vicinity of the substation site, computer modeling to predict future sound levels when the substation is operational, and a comparison of predicted sound levels with applicable noise criteria.

11.1 Summary

An eight-day baseline ambient sound survey was conducted under defoliate conditions in December 2022; survey results are discussed in Section 11.4. Existing ambient sound levels in the vicinity of the proposed onshore substation are heavily influenced by traffic noise from Route 6, a four-lane, limited access, divided highway located south of the substation site.

As described in Section 2.4, the proposed onshore substation is a 275 to 345 kV step-up design. Gas Insulated Switchgear (GIS) was selected, and the design also includes reactive compensation equipment appropriate for the length of the underground/undersea cabling. Computer modeling using the proprietary Cadna/A software was performed to predict sound levels produced by the operating onshore substation. The results of this modeling, in combination with the baseline ambient survey data, were then used to assess potential sound level increases at nearby residential properties and other receptors. The Massachusetts Department of Environmental Protection (MassDEP) Noise Policy, which limits a project-related sound level increase above the ambient sound measured at the property line and at the nearest residences to 10 dBA or less and prohibits 'pure tone' conditions, provided context for this operational sound-level impact assessment. The results of the operational sound-level impact assessment show a maximum modeled increase over the existing ambient sound level at a residential property is 7 dBA based on conservatively low established ambient levels. Because of the proximity of Route 6, daytime ambient sound levels in the vicinity of the onshore substation are typically much higher than the levels used in the evaluation. Accordingly, impacts will be much lower during these times. It should be noted that the measured ambient sound levels and modeled substation sound levels are outdoor sound levels. Sound levels inside a residence will typically be around 10 dBA lower (or more with windows closed).

Octave band modeling of onshore substation operations demonstrates that the onshore substation will not cause pure tones, as defined by MassDEP, at nearby residential properties.

An introduction to the general sound terms used in this assessment is provided in Section 11.2, Massachusetts regulatory policy with respect to acoustics is summarized in Section 11.3, baseline sound measurement procedures and ambient sound levels in the vicinity of the onshore substation site are presented in Section 11.4, onshore substation components, along with modeling methodologies and results, are described in Section 11.5, and an evaluation of future total sound levels is provided in Section 11.6.

11.2 Sound Terminology

There are several ways in which sound levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a 3-decibel increase (53 dB), which is equal to doubling in sound pressure, but not equal to a doubling in decibel quantity (100 dB). Thus, every 3-dB change in sound level represents a doubling or halving of sound pressure. The human ear does not perceive changes in the sound pressure level as equal changes in loudness. Scientific research demonstrates that the following general relationships hold between sound level and human perception for two sound levels with the same or very similar frequency characteristics[1]:

- A 3-dB increase or decrease results in a change in sound that is just perceptible to the average person;
- A 5-dB increase, or decrease is described as a clearly noticeable change in sound level; and
- A 10-dB increase (or decrease) is described as twice (or half) as loud.

Another mathematical property of decibels is that if one source of sound is at least 10 dB louder than another source, then the total sound level is simply the sound level of the higher-level source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure sound is a standardized instrument.[2] It contains “weighting networks” (e.g., A-, C-, and Z-weightings) to adjust the frequency response of the instrument. Frequencies, reported in Hertz (Hz), are detailed characterizations of sounds, often addressed in musical terms as “pitch” or “tone”. The most commonly used weighting network is the A-weighting because it most closely approximates how the human ear responds to sound at

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1 Bies, David, and Colin Hansen. 2009. *Engineering Noise Control: Theory and Practice*, 4th Edition. New York: Taylor and Francis.

2 *American National Standard Electroacoustics – Sound Level Meters – Part 1: Specifications,* ANSI S1.4-2014 (R2019), published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

various frequencies. The A-weighting network is the accepted scale used for community sound level measurements; therefore, sounds are frequently reported as detected with a sound level meter using this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. These sound levels are reported in decibels designated as “dBA”. The C-weighting network has a nearly flat response for frequencies between 63 Hz and 4,000 Hz and is noted as dBC. Z-weighted sound levels are measured sound levels without any weighting curve and are otherwise referred to as “unweighted”. Sound pressure levels for some common indoor and outdoor environments are shown in Figure 11-1.

Because the sounds in our environment vary with time, they cannot simply be described with a single number. Two methods are used for describing variable sounds. These are exceedance levels and the equivalent level, both of which are derived from some number of moment-to-moment A-weighted sound level measurements. Exceedance levels are values from the total amplitude distribution of all the sound levels observed during a measurement period. Exceedance levels are designated L_n, where n can have a value between 0 and 100 in terms of percentage. Several sound level metrics that are commonly reported in community sound assessments are described below.

- L_{90} is the sound level exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent sound sources.
- L_{eq}, the equivalent level, is the level of a hypothetical steady sound that would have the same energy (*i.e.,* the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated L_{eq} and is typically A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with linear mean square sound pressure values, the L_{eq} is mostly determined by loud sounds if there are fluctuating sound levels.

11.3 Noise Regulations

This section addresses federal, state, and local noise regulations.

11.3.1 Federal Regulations

There are no federal noise regulations applicable to the proposed onshore substation.

11.3.2 Massachusetts State Regulations

MassDEP has the authority to regulate noise under 310 CMR 7.10, which is part of the Commonwealth’s air pollution control regulations. Under MassDEP regulations, noise is considered to be an air contaminant and, thus, 310 CMR 7.10 prohibits “unnecessary emissions” of noise.

For projects requiring a state air permit, MassDEP administers this regulation through its Noise Policy DAQC 90-001, dated February 1, 1990 (see Attachment E1). The Noise Policy limits a source to a 10-dBA increase above the ambient sound measured at the property line for the site and at the nearest residences. "Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time (L_{90}), measured during equipment operating hours. While the NE Wind 2 Connector does not require a Massachusetts air permit, the MassDEP Noise Policy has been used as a guidepost in environmental reviews conducted by other state offices for other similar projects.

According to MassDEP, "Noise levels that exceed the criteria at the source's property line by themselves do not necessarily result in a violation or a condition of air pollution under MassDEP regulations (see 310 CMR 7.10). The agency also considers the effect of noise on the nearest occupied residence and/or building housing sensitive receptors". The MassDEP Noise Policy provides for further flexibility with respect to non-residential properties. More specifically, "A new noise source that would be located in an area that is not likely to be developed for residential use in the future (e.g., due to abutting wetlands or similarly undevelopable areas), or in a commercial or industrial area with no sensitive receptors may not be required to mitigate its noise impact on those areas, even if projected to cause noise levels at the facility's property line to exceed ambient background by more than 10 dB(A). However, a new noise source that would be located in an area in which housing or buildings containing other sensitive receptors could be developed in the future may be required to mitigate its noise impact in these areas." The Noise Policy interpretation is provided as Attachment E2.

MassDEP's Noise Policy further prohibits "pure tone" conditions where the sound pressure level in one octave band is 3 dB or more than the sound levels in each of the two adjacent octave bands. A qualitative example of a source emitting a "pure tone" is a fan with a bad bearing that is producing an objectionable squealing sound.

11.3.3 Local Regulations

The Town of Barnstable General Ordinance contains the following qualitative language regulating noise in Chapter 133-1:

> *It shall be unlawful for any person or persons occupying or having charge of or owning any building, dwelling, structure, premises, shelter, boat or conveyance or any part thereof in the Town, to cause or suffer to allow any unnecessary, loud, excessive or unusual noises in the operation of any radio, phonograph or other mechanical or electronic sound making device or instrument, or reproducing device or instrument, or in the playing of any band, orchestra, musician or group of musicians, or in the use of any device to amplify the aforesaid, or the making of loud outcries, exclamations or other loud or boisterous noises or loud and boisterous singing by any person or group of persons or in the use of any device to amplify the aforesaid noise, where the noise is plainly audible at a distance of 150 feet from the building, dwelling, structure, premises, shelter, boat or conveyance in which or from which it is produced. The fact that the noise is plainly*

audible at a distance of 150 feet from the building, dwelling, structure, premises, shelter, boat or conveyance from which it originates shall constitute prima facie evidence of a violation of this chapter.

In lieu of quantitative local limits, the MassDEP Noise Policy will be used to assess the proposed revised onshore substation's sound levels.

11.4 Existing Sound Levels

In December 2022, an eight-day ambient ("background" or "baseline") sound level survey was conducted to characterize the acoustical environment in proximity to the proposed substation site. The survey was conducted under defoliate winter conditions and during a month when recreational/tourist traffic on Cape Cod is at a low ebb (i.e., off-peak season). Existing sound sources during this time included vehicular traffic on Route 6, Oak Street, and Service Road, aircraft flyovers, some residential activity, birds, and wind running through the trees.

11.4.1 Measurement Methodology

The ambient sound measurement program consisted of long-term monitors at two locations in the vicinity of the onshore substation site; these monitors collected approximately eight days of continuous hourly ambient sound level data from Monday, December 5, 2022 to Tuesday, December 13, 2022. Short-term (i.e., 20-minute) measurements were collected at three additional locations in the community during the daytime on Monday, December 5, 2022 (between 2:00 PM and 3:40 PM) and during nighttime hours on Tuesday, December 6, 2022 (between 12:30 AM and 2:15 AM).

All measurements were made at publicly accessible locations or with landowner permission at a height of five feet (1.5 meters) above ground level. Ground level wind speeds were measured on-site at a height of six feet (2 meters). Additional meteorological data from the closest National Weather Service (NWS) station in Hyannis, MA (Barnstable Municipal Airport) provided by the National Centers for Environmental Information (NCEI) were obtained for the duration of the continuous monitoring period and used to determine hourly measurement periods when precipitation was present. The NWS data are provided in Attachment E3.

11.4.2 Measurement Locations

A total of five sound level measurement locations were selected to represent sound levels at the nearest noise-sensitive receptors to the proposed revised onshore substation, including residences to the northeast, east, west, and south of the proposed onshore substation site. These measurement locations are depicted on Figure 11-2 and described below.

- **Location LT1 – Southern Property Line** is located along the southern edge of the proposed revised onshore substation site, at a similar distance from Route 6 as the residences south of Route 6 and Service Road as well as the residence at 550 Oak Street to the east of the site.

- **Location LT2 – Plum Street** is located near the intersection of Spruce Pond Road and Plum Street and the existing Eversource ROW #342 to represent residences northeast of the site.
- **Location ST1 – Oak Street** is located along Oak Street, near 550 Oak Street. This short-term sampling location provides perspective for the residences along Oak Street east of the site.
- **Location ST2 – Minton Lane** is located at the end of Minton Lane, south of the revised onshore substation site. This short-term sampling location provides additional perspective for the residences south of Route 6 and Service Road.
- **Location ST3 – Spruce Pond Conservation Area** is located along Spruce Pond Road and the existing Eversource ROW #342. This short-term location provides perspective for the residential areas to the north and west of the proposed revised onshore substation site.

11.4.3 Measurement Equipment

Larson Davis Model 831 sound level meters, equipped with PCB PRM831 preamplifiers, PCB 377C20 or 377B20 half-inch microphones, and manufacturer-provided windscreens, were used to collect background sound pressure level data. This instrumentation meets the "Type 1 - Precision" requirements set forth in ANSI S1.4 for acoustical measuring devices. The measurement equipment was calibrated in the field before and after the survey with a Larson Davis CAL200 acoustical calibrator which meets the standards of IEC 942 Class 1L and ANSI S1.40. Statistical descriptors (e.g., L_{eq}, L_{90}, etc.) were measured for each 1-hour sampling period during the continuous measurements and for 20-minute periods during the short-term measurements. One-third octave band sound levels corresponding to the same datasets were also collected.

Wind speed, wind direction, temperature, and precipitation measurements were made at Location LT1 using an ATMOS 41 weather station and EM60 data logger (manufactured by Meter Group, Inc.). The weather station has a wind speed measurement range of 0 to 30 m/s (67 mph) and an accuracy of ±0.3 m/s (0.67 mph). The wind direction measurement range is 0 to 359 degrees with an accuracy of ±5 degrees. The air temperature measurement range is -50 to 60°C (-58 to 140°F) with an accuracy of ±0.6°C, and the precipitation measurement range is 0 to 400 mm/h with an accuracy of ±5% of the measurement from 0 to 50 mm/h.

11.4.4 Ambient Sound Levels

One-hour A-weighted sound pressure level data (L_{eq} and L_{90}) from continuous ambient monitors at locations LT1 and LT2 are presented in Figures 11-3 and 11-4, respectively, along with periods of precipitation recorded by the NWS and ground level wind speeds recorded on-site. Periods of precipitation were excluded from the analysis using guidance from ANSI S12.18. The average ground-level wind speed did not exceed 5 m/s during any hour during the measurement program; therefore, no data were excluded due to high wind.

A-weighted broadband L_{90} (dBA) values presented in Table 11-1 represent the average of the lowest L_{90} (dBA) sound pressure levels observed each day of the ambient sound measurement program.[3] The octave band L_{90} levels (dB) in Table 11-1 correspond to a representative 1-hour measurement period when the broadband L_{90} value was comparable to the averaged broadband level at that location.

As previously noted, the ambient measurements were taken in December, when traffic volumes on Route 6 are generally at an annual low ebb. As clearly shown on Figures 11-3 and 11-4, there remains a strong diurnal pattern in the L_{90} sound levels at both continuous monitoring locations even during the off-peak season. The lowest ambient sound levels (low to mid 30's) are typically only briefly observed during late overnight hours (generally after midnight) when traffic on Route 6 is minimal. The valid measured residual background (L_{90}) sound levels during the daytime[4] ranged from 36 to 57 dBA. The lowest daytime L_{90} sound level of 36 dBA was at Location LT2. The lowest daytime L_{90} sound level at Location LT1, which is approximately 1,000 feet closer to Route 6, was 45 dBA. For additional context, Table 11-2 presents the average of the broadband sound levels (L_{90}) measured during daytime hours at both locations. Octave band spectra, representative of these averages, are also included in the table for reference.

MassDEP-defined pure tones were measured at both long-term monitoring locations during various times of the day from December 5th to December 13th. Pure tones at Location LT1 were measured in the 250 Hz and 1,000 Hz octave bands. Pure tones at Location LT2 were measured in the 125 Hz and 1,000 Hz octave bands. Based on field personnel observations, the pure tones in the 1,000 Hz octave band are likely due to vehicular traffic. The source(s) of the pure tones at 125 Hz and 250 Hz are unknown without further assessment. The representative 1-hour octave band sound levels shown in Table 11-1 do not contain pure tones.

Table 11-1 Average Quietest Long-Term Ambient Sound Level Measurement Summary

Location ID	Broad-band L_{90}[1]	L_{90} Sound Pressure Level by Octave Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
LT1	34	40	39	31	31	30	31	24	17	14
LT2	32	43	40	36	33	31	27	15	10	8

Notes:

1. The average of the sound pressure levels observed during the quietest hour of each day.

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3 The partial day on the front end of the program (December 5) was excluded from the analysis as the quietest part of the day may not have been captured. In addition, precipitation was record on December 7, 10, and 11, which may have impacted the quietest hour, so these dates were also excluded. As such, the data represents the average of the lowest L_{90} (dBA) sound pressure levels from five days.

4 7:00 AM to 10:00 PM

Table 11-2 Average Daytime Long-Term Ambient Sound Level Measurement Summary

Location ID	Broad-band L_{90}[1]	L_{90} Sound Pressure Level by Octave Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
LT1	53	57	55	47	47	48	50	44	34	28
LT2	47	53	49	48	42	42	44	36	28	21

Notes:

1. The average of the sound pressure levels observed between 7:00 AM to 10:00 PM of each day.

Short-term broadband and octave band sound level data collected at locations ST1, ST2, and ST3 are presented in Table 11-3. The daytime short-term sound levels range from 43 to 56 dBA, and the nighttime short-term sound levels range from 31 to 33 dBA. Table 11-3 reveals that MassDEP-defined pure tones were measured at all three short-term locations during the day which are likely attributable to vehicles based on field personnel observations.

Table 11-3 Short-Term (20-minute) Ambient Sound Level Measurement Summary

Loc. ID	Period	Start Date/ Time	Broad-band L_{90}	L_{90} Sound Pressure Level by Octave Band Center Frequency (Hz)								
				31.5	63	125	250	500	1k	2k	4k	8k
			dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
ST1	Day	12/5/2022 2:04 PM	56	57	56	50	43	47	54[1]	49	37	26
ST2	Day	12/5/2022 3:20 PM	47	55	53	46	41	41	44[1]	38	26	18
ST3	Day	12/5/2022 2:42 PM	43	51	44	38	34	38	41[1]	32	22	16
ST1	Night	12/6/2022 1:07 AM	31	38	35	29	26	27	26	21	18	14
ST2	Night	12/6/2022 1:43 AM	33	39	37	30	27	27	28	24	23	19
ST3	Night	12/6/2022 12:25 AM	31	38	35	27	22	26	28	21	17	14

Notes:

1. Existing MassDEP-defined pure tone likely attributable to vehicles based on field personnel observations.

11.4.5 Establishment of Ambient Sound Levels for Evaluation

To evaluate the proposed onshore substation in the context of the MassDEP Noise Policy as described in Section 11.3.2, ambient sound levels were established for each measurement location before application to modeling receptors (i.e., evaluation points). Table 11-4 provides a summary of the ambient sound levels established for all five measurement locations as they will be utilized in the evaluations. Given that the onshore substation is anticipated to operate 24 hours per day at various loads, only the nighttime sound levels from the short-term measurements will be used in the evaluation.

An adjustment has been made to the short-term sound level data, originally presented in Table 11-3. This adjustment accounts for a weekly average of the broadband sound levels based on the sound level measured at a representative long-term location during the same hour of the nighttime short-term measurements.[5] Accordingly, octave band levels were adjusted using the same factor.

Table 11-4 Ambient Sound Levels for Evaluation

Measurement Location ID	Broad-band ANS L_{90}	L_{90} Sound Pressure Level (dB) by Octave-Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
LT1	34[1]	40	39	31	31	30	31	24	17	14
LT2	32[1]	43	40	36	33	31	27	15	10	8
ST1[2]	34	40	38	31	29	30	29	24	21	17
ST2[2]	36	42	39	33	30	30	30	27	26	22
ST3[3]	29	37	33	25	20	24	26	19	15	12

Notes:
1. The average of the sound pressure levels observed during the quietest hour of each day.
2. Includes adjustment factor of 2.6 decibels to account for average sound level based on Location LT1.
3. Includes adjustment factor of -1.7 decibels to account for average sound level based on Location LT2.

11.5 Modeled Sound Levels

11.5.1 Overview of Project Onshore Substation Sound Sources and Noise Controls

As described in Section 2.4, the proposed onshore substation is a 275-to-345-kV step-up GIS design that will step up the voltage in the onshore export cables in preparation for interconnection to the grid at the West Barnstable Substation (see the engineering plan set in Attachment C2). The proposed substation, including a full-perimeter access road and security

5 Measurement location LT1 is a comparable distance from Route 6 (the primary sound source in the area) as locations ST1 and ST2. The sound level measured at LT1 during the nighttime short-term measurements (12/6/2022 at 1:00 AM) was 2.6 dBA lower than the calculated average minimum L90 at that location. Therefore, this difference was added to the nighttime sound levels at ST1 and ST2 shown in Table 11-4 to account for and approximate an average. Measurement location LT2 is a comparable distance from Route 6 as location ST3. The sound level measured at LT2 during the nighttime short-term measurement (12/6/2022 at 12:00 AM) was 1.7 dBA higher than the calculated average minimum L90 at that location. Therefore, this difference was subtracted from the nighttime sound level at ST3 shown in Table 11-4 to account for and approximate an average.

fence, will occupy approximately 9.9 acres. The four parcels that will be developed for the new revised onshore substation will be partially cleared as a result of Project development. Land and tree clearing will be minimized to the extent practicable and existing forested buffer around the substation will be maintained (see Section 2.4).

The primary onshore substation equipment and features included in the sound level model are shown in Figure 11-5. Each of the three static compensators (STATCOM) include an engineered enclosure which houses the STATCOM itself; the necessary ancillary equipment (e.g., transformer, reactor, cooling fan bank) is outside of the enclosure. The 275-kV and 345-kV GIS buildings are centrally located within the substation fence line, west of the STATCOMs. A control room abuts the GIS buildings on the southern side. The balance of the substation equipment (six 275-kV shunt reactors [three 230 MVAR, three 60 MVAR], three 450 MVA main transformers, and three 275-kV harmonic filters) is arranged along the northern and southern portions of the site within the fence line. The overall arrangement was developed using an iterative process which allowed the design team to balance electrical, civil, and acoustical considerations while providing for ready access to all equipment.

Table 11-5 identifies the onshore substation equipment included in the model along with the type or rating, quantity, and the modeled sound power levels for each piece of equipment. Table 11-6 provides a summary of the outdoor STATCOM components included in the sound level model. A-weighted broadband and unweighted octave band sound level data are provided in the tables. Sound power levels for the site yard components were estimated by Epsilon by using data for a similar substation project or by using the MVA rating and methods outlined in the Electric Power Plant Environmental Noise Guide[6] (EEI Noise Guide). Broadband (dBA) sound power levels for the STATCOM components were originally provided by a major electrical equipment manufacturer[7] but modified to reflect sound level reductions as later described. Octave band spectra were estimated by Epsilon based on data from a similar substation project or by using the MVA rating and the EEI Noise Guide. Electrical and mechanical components of the proposed onshore substation, either in the site yard, in the STATCOMs, or contained within site buildings or engineered enclosures, not included in the tables are assumed to be insignificant sources of sound in the community and were excluded from the model.

Further details on the sound power levels for major components used in the acoustical modeling are provided below. For the transformers and iron core shunt reactors, "quieted" equipment served as the starting point. "Quieted", as defined in the EEI Noise Guide, is 10 dBA below standard sound levels. In many instances, further reductions in equipment sound levels were incorporated in the acoustical modeling as further described and quantified below to reduce off-

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6 Bolt Beranek and Newman Inc. (1984). *Electric Power Plant Environmental Noise Guide* (2nd ed.). Edison Electric Institute.

7 A substation EPC firm and specific equipment manufacturers will be selected later in the project development process.

site operational sound levels. The sound reductions would require modifications to the standard quieted design and will increase the cost of the equipment. In general, the sound levels presented in Tables 11-5 and 11-6 have been shown to be achievable based on a similar substation sound study performed by Epsilon and/or information provided from an engineering, procurement, and construction (EPC) contractor for a similar substation project. The Proponent will procure low noise equipment as follows:

- **Site yard 450 MVA main transformers**: The main transformers selected for the onshore substation have been modeled with sound power levels that are 17 dBA lower than a standard unit.

- **Site yard 230 MVAR iron core shunt reactors**: Due to similarities (e.g., physical appearance and sound characteristics) in iron core shunt reactors to main transformers, methods set forth in the EEI Noise Guide may be used to approximate sound levels for these units. The 230 MVAR iron core shunt reactors selected for the onshore substation have been modeled with sound power levels that are 16 dBA lower than a standard unit.

- **Site yard 60 MVAR iron core shunt reactors**: The 60 MVAR iron core shunt reactors selected for the onshore substation have been modeled with sound power levels that are 11 dBA lower than a standard unit.

- **Site yard harmonic filter capacitor**: The capacitor selected for the onshore substation has been modeled with sound power levels that are 4 dBA lower than what was provided in original unquieted reference data.

- **Site yard HVAC**: The HVAC units selected for the onshore substation have been modeled with sound power levels that are 6 dBA lower than what was provided in original unquieted reference data.

- **STATCOM air-core shunt reactor**: The air-core shunt reactors selected for the onshore substation have been modeled with sound power levels that are 15 dBA lower than what was provided in original unquieted reference data.

- **STATCOM 180 MVA transformer**: The 180 MVA transformers selected for the onshore substation have been modeled with sound power levels that are 18 dBA lower than what was provided in original unquieted reference data.

- **STATCOM cooling fan bank**: The cooling fan banks selected for the onshore substation have been modeled with sound power levels that are 2 dBA lower than what was provided in original unquieted reference data.

- **STATCOM HVAC**: The HVAC units selected for the onshore substation have been modeled with sound power levels that are 6 dBA lower than what was provided in original unquieted reference data.

Table 11-5 Reference Sound Power Levels - Site Yard Components

Component	Type/ Rating	Qty.	Broad-band	Sound Power Levels (dB) by Octave Band Center Frequency (Hz)								
				32	63	125	250	500	1k	2k	4k	8k
			dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
Transformer	450 MVA; 345/275kV	3	93	90	96	98	93	93	87	82	77	70
Iron Core Shunt Reactor	230 MVAR; 275kV	3	90	87	93	95	90	90	84	79	74	67
Iron Core Shunt Reactor	60 MVAR; 275kV	3	86	83	89	91	86	86	80	75	70	63
Harmonic Filter Capacitor[1]	50 MVAR; 275kV	9 (1 per phase)	72	-	-	88	38	63	57	28	20	-
Harmonic Filter Reactor[1]	50 MVAR; 275kV	9 (1 per phase)	76	-	47	70	76	76	72	57	-	-
HVAC[1]	Unknown	2	88	-	-	-	-	-	-	-	-	-

Notes:
1. Sound levels in some octave bands were not available.

Table 11-6 Reference Sound Power Levels – STATCOM Components

Component	Type/ Rating	Qty.	Broad-band	Sound Power Levels (dB) by Octave Band Center Frequency (Hz)								
				32	63	125	250	500	1k	2k	4k	8k
			dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
Air-core Shunt Reactor Cell[1]	180 MVAR	9 (3 per)	77	-	-	93	-	-	-	-	-	-
Step-up Transformer[1]	180 MVA	3 (1 per)	83	-	-	97	83	80	67	59	52	47
Cooling Fan Bank[1]	Unknown	6 (2 per)	90	-	96	95	92	87	85	79	73	67
HVAC[1]	Unknown	3 (1 per)	88	-	-	-	-	-	-	-	-	-

Notes:
1. Sound levels in some octave bands were not available.

11.5.2 Modeling Methodology

Predicted sound levels resulting from the operation of the proposed onshore substation, assuming all equipment operating simultaneously and at full load, were modeled using Cadna/A noise calculation software (DataKustik Corporation). This software uses the ISO 9613-2 international standard for sound propagation.[8] The benefits of the Cadna/A software are a more refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. The Cadna/A software allows for octave band calculation of sound from multiple sources as well as computation of diffraction.

Inputs and significant parameters specified in the model are described below:

- *Site Plan:* A site arrangement drawing (see Attachment C2) was used to build the sound model and position electrical components and site structures. Aspects of this site arrangement as included in the sound model are depicted in Figure 11-5.
- *Modeling Locations:* Sound levels were evaluated at 19 discrete receptor locations, modeled at a height of 1.5 meters (five feet) above ground level to mimic the height of typical adult standing observer's ears. These locations, shown in Figure 11-6, represent the ambient measurement locations (R01-R05), the closest properties with residences in the vicinity of the onshore substation (R06-R16), as well as the residentially zoned properties surrounding the onshore substation ("OnSS") boundary (R17-R19).
- *Terrain Elevation:* Elevation contours for the modeling domain were generated with a resolution of 1 meter from elevation information derived from sub-meter LiDAR data developed by the U.S. Geological Survey as part of the LiDAR for the North East Project and modified for distribution by the National Oceanic and Atmospheric Administration. Site terrain was modeled based on proposed future finished grading provided in the site arrangement drawing.
- *Source Sound Levels:* Broadband and octave band sound power levels for the proposed equipment presented in Tables 11-5 and 11-6 were used as input to the sound model representing simultaneous full load conditions for all equipment.

  Meteorological Conditions: A temperature of 10°C (50°F) and a relative humidity of 70% was assumed in the model to minimize atmospheric attenuation in the 500 Hz and 1,000 Hz octave bands where the human ear is most sensitive. As per ISO 9613-2, the modelassumed favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night, or equivalently downwind propagation.

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8 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation,* International Standard ISO 9613-2:1996 (International Organization for Standardization, Geneva, Switzerland, 1996).

- *Ground Attenuation:* Spectral ground absorption was calculated using a G-factor of 0.5 over land surfaces to represent a moderately reflective surface characterized by a mixture of hard and porous ground, a conservative assumption for much of the year when the ground would be covered in vegetation. The substation site area will be largely finished with crushed stone and was modeled using a G-factor of 0, representing a completely reflective (hard) surface.

11.5.3 Sound Level Modeling Results

Predicted A-weighted and octave band sound level modeling results from the proposed onshore substation layout and equipment at the 19 discrete modeling receptors are presented in Table 11-7. As shown in the table, modeled onshore substation broadband sound levels are expected to range from 24 to 51 dBA between the 19 modeling locations. Predicted sound levels at the neighboring residential property lines ("PL"), R06 through R16, range from 24 to 40 dBA. The values presented in Table 11-7 are "Onshore Substation Only" sound levels and do not include contributions from existing sound sources (e.g., Route 6 vehicular traffic, natural sounds).

In addition to modeling at discrete receptor points, sound levels were also modeled throughout a large grid of points, each spaced 10 meters apart to allow for the generation of sound level isolines. These isolines are presented in Figure 11-6.

Table 11-7 Sound Level Modeling Results – Onshore Substation Only

Modeling Receptor	Type	Broad-band L_{eq}	Sound Pressure Level by Octave Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
		dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
R01	Measurement Loc. LT1	50	54	55	56	50	47	45	38	30	17
R02	Measurement Loc. LT2	39	41	44	45	37	37	33	25	10	0
R03	Measurement Loc. ST1	39	47	47	45	38	35	34	26	13	0
R04	Measurement Loc. ST2	28	34	34	37	29	25	17	6	0	0
R05	Measurement Loc. ST3	36	37	39	43[1]	36	35	28	21	8	0
R06	Residential PL	37	39	43	44	36	36	31	23	6	0
R07	Residential PL	36	37	42	41	34	35	30	22	4	0
R08	Residential PL	24	33	33	35	26	21	13	3	0	0
R09	Residential PL	30	37	37	40	31	27	20	9	0	0
R10	Residential PL	26	37	36	37	29	23	16	6	0	0
R11	Residential PL	36	40	41	43	38	33	28	18	4	0
R12	Residential PL	36	39	40	43	37	33	29	21	8	0
R13	Residential PL	33	37	38	40	35	31	26	18	2	0

Table 11-7 Sound Level Modeling Results – Onshore Substation Only (Continued)

Modeling Receptor	Type	Broad-band L_{eq}	Sound Pressure Level by Octave Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
		dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
R14	Residential PL	40	47	48	45	38	36	35	27	13	0
R15	Residential PL	34	38	39	42	35	32	28	20	5	0
R16	Residential PL	39	40	44	45	38	37	33	25	10	0
R17	OnSS PL (No Residence)	46	54	54	53	45	42	41	35	26	10
R18	OnSS PL (No Residence)	51	49	55	56	50	50	45	40	32	19
R19	OnSS PL (No Residence)	46	47	52	52	45	45	41	35	27	9

11.6 Evaluation of Sound Levels

Sound level modeling results are evaluated in this section for the operational sounds from the proposed onshore substation. A broadband sound level and 'pure tone' evaluation of potential sound level impacts from the onshore substation are provided in the context of the MassDEP Noise Policy. The evaluation is performed using the quiet ambient sound levels described in Section 11.4 and the modeled sound levels from operation of the proposed onshore substation with all equipment operating simultaneously at full load presented in Section 11.5.

The ambient sound levels summarized in Table 11-4 have been assigned to each modeling location. Measurement location LT1 was on the southern edge of the onshore substation site and is representative of modeling locations R01, R08, R09, R10, R11, R12, R13, and R17. Measurement location LT2 was northeast of the onshore substation site near Plum Street and is representative of modeling locations R02, R06, and R16. Measurement location ST1 was east of the onshore substation site on Oak Street and is representative of modeling locations R03, R14, and R15. Measurement location ST2 was south of the onshore substation site and south of Route 6. This location is representative of modeling location R04. Measurement location ST3 was northwest of the onshore substation site and is representative of modeling locations R05, R07[9], R18, and R19.

Table 11-8 presents an evaluation of broadband sound levels at 19 modeling locations, which include residential property lines and other nearby receptors in the vicinity of the proposed revised onshore substation site. Quiet ambient L_{90} sound levels shown in the table were assigned to each modeling location as previously described. Modeled onshore substation broadband L_{eq} sound levels are also provided in the table. The ambient sound levels have been logarithmically added to the modeled sound levels to determine a total broadband sound level for each modeling

9 While R07 is closer in proximity to LT2, this modeling location is farther from Route 6 and Oak Street which primarily drive the ambient sound levels at LT2. Therefore, ST3 was conservatively chosen to represent R07 as it is farther from these roadways.

location. The total sound levels have been compared to the representative, yet conservative, quiet ambient L_{90} sound levels for evaluation. The range of predicted increases over ambient sound levels are outlined in Table 11-8.

The maximum predicted increase over ambient at a property containing a noise-sensitive receptor, e.g., residential, is 7 dBA (at receptors R07, R14, and R16). This increase is predicted only during the quietest hours and with conservative modeling assumptions, as described above (including the simultaneous full-load operation of all substation equipment at the quietest hours and during meteorological conditions favorable for sound propagation). Modeled increases over ambient at all other residential property lines containing a noise-sensitive receptor (at receptors R06, R08 through R13, and R15), during quiet hours are 6 dBA or less. Figure 11-7 shows the modeled increase over ambient at all residential property lines containing a noise-sensitive receptor. As previously noted, ambient sound levels in the general vicinity of the Project onshore substation are substantially higher during the daytime, and during those times, sound level increases will be lower. As described in Section 11.3.2, the MassDEP Noise Policy states, "A new noise source that would be located in an area that is not likely to be developed for residential use in the future (e.g., due to abutting wetlands or similarly undevelopable areas), or in a commercial or industrial area with no sensitive receptors may not be required to mitigate its noise impact on those areas, even if projected to cause noise levels at the facility's property line to exceed ambient background by more than 10 dB(A).." Receptors R17, R18, and R19 are located along the revised onshore substation's eastern, western, and northern property lines, respectively, with modeled increases over ambient greater than 10 dBA. In each of these cases, the adjacent property is residentially zoned; however, the adjacent properties are Article 97-protected land owned by the Town of Barnstable and managed by the Conservation Commission. As such, it is not likely that these parcels could be developed for residential use in the future. Additionally, based on the location of these parcels, access easements from one or more property owners may be required for them to be developed in the future.

Table 11-9 presents total octave band sound levels at each of the 19 modeling receptors. Modeled OnSS-only octave band L_{eq} sound levels shown in the earlier Table 11-7 were logarithmically added to the representative, yet conservative, quiet ambient octave band L_{90} sound levels. A review of the levels in Table 11-9 reveals that no MassDEP-defined pure tones are anticipated from operation of the Project onshore substation at any modeled receptor.

Table 11-8 Evaluation of Broadband Sound Levels

Modeling Location	Type	Rep. Ambient Location	Ambient L_{90} Sound Level (dBA)	Modeled Project OnSS-Only L_{eq} Sound Level (dBA)	Total Sound Level (dBA)[1]	Increase Over Ambient[1]	Meets MassDEP Noise Policy?
R01	Measurement Loc. LT1	LT1	34	50	50	16	n/a[2]
R02	Measurement Loc. LT2	LT2	32	39	39	7	Yes
R03	Measurement Loc. ST1	ST1	34	39	40	6	Yes
R04	Measurement Loc. ST2	ST2	36	28	36	1	Yes
R05	Measurement Loc. ST3	ST3	29	36	37	8	Yes
R06	Residential PL	LT2	32	37	38	6	Yes
R07	Residential PL	ST3	29	36	36	7	Yes
R08	Residential PL	LT1	34	24	35	0	Yes
R09	Residential PL	LT1	34	30	36	1	Yes
R10	Residential PL	LT1	34	26	35	1	Yes
R11	Residential PL	LT1	34	36	38	4	Yes
R12	Residential PL	LT1	34	36	38	4	Yes
R13	Residential PL	LT1	34	33	37	2	Yes
R14	Residential PL	ST1	34	40	41	7	Yes
R15	Residential PL	ST1	34	34	37	3	Yes
R16	Residential PL	LT2	32	39	40	7	Yes
R17	OnSS PL (No Residence)	LT1	34	46	46	12	Yes[3]
R18	OnSS PL (No Residence)	ST3	29	51	51	22	Yes[3]
R19	OnSS PL (No Residence)	ST3	29	46	46	17	Yes[3]

Notes:

1. Sound pressure levels rounded to the nearest whole decibel are shown. Sound level addition was performed with greater precision.
2. Location is within the Project OnSS parcel; therefore, the limit does not apply but the results are presented for informational purposes.
3. Location is on the property line of an adjacent residentially zoned parcel; however, there is no residence (noise sensitive receptor) on the property and the property is Article 97-protected land owned by the Town of Barnstable and managed by the Conservation Commission. As such, it is unlikely that those parcels could be developed for residential purposes, so the 10 dBA increase for residential property under the MassDEP Noise Policy does not apply

Table 11-9 MassDEP Pure Tone Evaluation of Octave Band Sound Levels

Modeling Receptor	Type	Total Sound Pressure Levels[1] by Octave Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
		dB	dB	dB	dB	dB	dB	dB	dB	dB
R01	Measurement Loc. LT1	55	55	56	50	47	45	39	31	19
R02	Measurement Loc. LT2	45	45	46	39	38	34	25	13	8
R03	Measurement Loc. ST1	48	48	45	38	36	35	28	21	17
R04	Measurement Loc. ST2	43	41	38	32	31	30	27	26	22
R05	Measurement Loc. ST3	40	40	43	36	35	30	23	16	12
R06	Residential PL	44	44	44	38	37	32	23	11	8
R07	Residential PL	40	42	41	34	35	31	23	16	12
R08	Residential PL	41	40	37	32	31	31	24	17	14
R09	Residential PL	42	41	40	34	32	31	24	17	14
R10	Residential PL	42	40	38	33	31	31	24	17	14
R11	Residential PL	43	43	43	39	35	33	25	18	14
R12	Residential PL	43	42	43	38	35	33	26	18	14
R13	Residential PL	42	41	41	36	33	32	25	18	14
R14	Residential PL	48	48	45	39	37	36	29	22	17
R15	Residential PL	42	41	42	36	34	31	25	21	17
R16	Residential PL	45	45	46	39	38	34	25	13	8
R17	OnSS PL (No Residence)	54	54	53	46	42	41	35	26	15
R18	OnSS PL (No Residence)	50	55	56	50	50	45	40	32	19
R19	OnSS PL (No Residence)	47	52	52	45	45	41	35	27	14

Notes:

1. Sound pressure levels rounded to the nearest whole decibel are shown. Sound level addition was performed with greater precision.

In summary, the sound level increases, and total sound levels presented in this section are conservatively based on the average of the daily low background sound levels, typically occurring during late-night hours, that were measured during defoliate, off-peak season, conditions. Conservative assumptions were applied to the modeling as well. During the vast majority of time, background sound levels are expected to be considerably higher than those assumed in this evaluation based on the diurnal vehicular activity on Route 6 that also increases during warmer seasons, and the resulting increase in sound levels over ambient sound levels will be less. Finally, based on modeled sound levels, the onshore substation complies with the MassDEP Noise Policy.

Section 12.0

Construction Period Methods and Considerations

12.0 CONSTRUCTION PERIOD METHODS AND CONSIDERATIONS

This section describes construction methodologies and the sequence of activities as well as addresses construction-related topics including schedule, construction work hours, safety, environmental compliance, monitoring, and mitigation.

The Proponent has prepared a Draft Environmental Construction Management Plan (CMP) that will be used by the Proponent and its contractors to ensure environmental protection and sound construction practices are implemented throughout construction (see Attachment N). The CMP will be updated, as necessary, prior to and during construction. The CMP will reflect permitting updates and include relevant commitments made during environmental reviews and permitting processes as well as a verbatim listing of formal permit conditions.

The Proponent has selected construction techniques to maximize efficiency while minimizing potential environmental and socioeconomic impacts. The Proponent expects construction for the Project to begin with the new onshore substation civil works, followed by installation of substation equipment coincident with HDD proposed at the landfall site as well as installation of the onshore duct bank. Installation of the offshore export cables will follow.

12.1 Offshore Cable Installation

The three offshore export cables will be installed at a target burial depth of approximately 5 to 8 ft (1.5 to 2.5 meters) below stable seabed, which the Proponent's engineers have determined is more than twice the burial depth that is required to protect the cables from potential anchor strikes and fishing activities. 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. Generally, jetting methods are better suited to sands or soft clays, whereas a mechanical plow or mechanical trenching tool is better suited to stiffer soil conditions (but is also effective in a wider range of soil conditions). While the actual offshore export cable installation method(s) will be determined by the cable installer based on site-specific environmental conditions and the goal of selecting the most appropriate tool for achieving adequate burial depth, the Proponent will prioritize the least environmentally impactful cable installation alternative(s) that is/are practicable for each segment of cable installation. The two most common methods are described below under "Typical Techniques."

While the Proponent anticipates primarily using jetting techniques or mechanical plowing for installing the offshore export cables, other specialty techniques may be used in a limited fashion in certain areas to maximize the likelihood of achieving sufficient burial depth (such as in areas of coarser or more consolidated sediment, rocky bottom, or other difficult conditions, where the typical techniques may not be feasible for achieving sufficient cable burial depth), while minimizing the need for possible cable protection and accommodating varying weather conditions. These additional techniques that may be used where necessary are described below under "Other Possible Specialty Techniques."

Typical Techniques

- **Jetting techniques** (e.g., jet-plowing or jet-trenching): Jetting tools may be deployed using a seabed tractor, a sled, or directly suspended from a vessel. Jetting tools typically have one or two arms that extend into the seabed (or alternatively a plow share that runs through the seabed) equipped with nozzles which direct pressurized seawater into the seafloor. As the tool moves along the installation route, the pressurized seawater fluidizes the sediment allowing the cable to sink under its own weight to the appropriate depth or be lowered to depth by the tool. Once the arm or plow share moves on, the fluidized sediment naturally settles out of suspension, backfilling the narrow trench. Depending on the actual jet-plow equipment used, the width of the fluidized trench could vary between 1.3 and 3.3 ft (0.4 – 1 meters). While jet-plowing will fluidize a narrow swath of sediment, it is not expected to result in significant sidecast of materials from the trench. Offshore cable installation will therefore result in some temporary elevated turbidity, but sediment is expected to remain relatively close to the installation activities (see Section 6.2.1 for a discussion of sediment dispersion modeling).

- **Mechanical plowing:** A mechanical plow is pulled by a vessel or barge and uses cutting edge(s) and moldboard, possibly with water jet assistance, to penetrate the seabed, while feeding the cable into the trench created by the plow. While the plow share itself would likely only be approximately 1.6 ft (0.5 meters) wide, a 3.3-ft (1 meter) wide trench disturbance is also conservatively assumed for this tool. This narrow trench will infill behind the tool, either by slumping of the trench walls or by natural infill, usually over a relatively short period of time.

Other Possible Specialty Techniques

- **Mechanical trenching:** Mechanical trenching is typically only used in more resistant sediments. A rotating chain or wheel with cutting teeth/blades cuts a trench into the seabed. The cable is laid into the trench behind the trencher and the trench collapses and backfills naturally over time.

- **Shallow-water cable installation vehicle:** While any of the "Typical Techniques" described above could be used in shallow water, the Project also includes specialty shallow-water tools if needed. In this scenario, either of the Typical Techniques described above would be deployed from a vehicle that operates in shallow water where larger cable-laying vessels cannot efficiently operate. The cable is first laid on the seabed, and then a vehicle drives over or alongside the cable while operating an appropriate burial tool to complete installation. The vehicle is controlled and powered from a shallower draft vessel that holds equipment and operators above the waterline.

- **Pre-pass jetting:** Prior to cable installation, a pre-pass jetting run using a jet-plow or jet trencher may be conducted along targeted sections of the cable route with stiff or hard sediments. A pre-pass jetting run is an initial pass along the cable route by the cable installation tool to loosen sediments without installing the cable. A pre-pass jetting run maximizes the likelihood of achieving sufficient burial during the subsequent pass by the cable installation tool when the cable is installed. Impacts from the pre-pass jetting run are largely equivalent to cable installation impacts from jetting described under "Typical Techniques" above.

- **Pre-trenching:** Pre-trenching is typically used in areas of very stiff clays. A plow or other device is used to excavate a trench, the excavated sediment is placed next to the trench, and the cable is subsequently laid into the trench. Separately or simultaneously to laying the cable, the excavated sediment is returned to the trench to cover the cable. It is unlikely that the Company will use a pre-trench method because site conditions are generally not suitable (i.e., sandy sediments would simply fall back into the trench before the cable-laying could be completed). If needed, it would likely be necessary for only very limited areas.

- **Pre-lay plow:** In limited areas of resistant sediments or high concentrations of boulders, a larger tool may be necessary to achieve cable burial. One option is a robust mechanical plow that would push boulders aside, while cutting a trench into the seabed for subsequent cable burial and trench backfill. Similar to pre-trenching, if this tool is needed it would only be used in limited areas to achieve sufficient cable burial.

- **Precision installation:** In situations where a large tool is not able to operate, or where another specialized installation tool cannot complete installation, a diver, or Remotely Operated Vehicle (ROV) may be used to complete installation. The diver or ROV may use small jets and other small tools to complete installation.

- **Jetting by controlled flow excavation:** Jetting by controlled flow excavation uses a pressurized stream of water to push sediments to the side. The controlled flow excavation tool draws in seawater from the sides and then propels the water out from a vertical down pipe at a specified pressure and volume. The down pipe is positioned over the cable alignment, enabling the stream of water to fluidize the sediment around the cable, which allows the cable to settle into the trench. This process causes the top layer of sediments to be sidecast to either side of the trench. In this way, controlled flow excavation simultaneously removes the top of the sand wave and buries the cable. Typically, a number of passes are required to lower the cable to the minimum sufficient burial depth. This method will not be used as the conventional burial method for the offshore export cables, but may be used in limited locations, such as to bury cable joints or bury the cable deeper and minimize the need for cable protection where initial burial of a section of cable does not achieve sufficient depth. Controlled flow may require several passes to lower the cable to a sufficient burial depth, resulting in a wider disturbance than use of a jet-plow or mechanical plow. Jetting by controlled flow excavation is not to be confused with jet-plowing or jet trenching (a typical cable installation method described above). Jetting by controlled flow excavation can also be used for dredging small sand waves.

Potential impacts from offshore export cable installation are described and quantified in Section 5.1). The impact calculations shown in Table 5-1 conservatively assume a 3.3-foot (1-meter) wide direct trench disturbance throughout the entire installation corridor for the offshore export cable (i.e., the widest expected trench width), though as mentioned, the Proponent expects the trench width to vary between 1.3 and 3.3 feet (0.4 and 1 m). In addition, as described above, each skid/track on the installation tool will have the potential to cause minor disturbance along an area approximately 5 feet (1.5 m) wide. The skids/tracks are not expected to dig into the seabed, and therefore the impact is expected to be minor.

The impact area identified in Table 5-1 reflects the temporary impact from two skids/tracks (one on either side of the installation tool), and therefore assumes a 10-foot-wide (3-meter-wide) disturbance zone. The trench is expected to naturally backfill as sediments settle out of suspension and no separate provisions to facilitate restoration of a coarse substrate are required.

Cable-laying vessels can only safely operate in certain wave conditions. To ensure the safety of the cable during installation and welfare of the vessel and its crew, NE Wind 2 Connector will only start to conduct cable-laying if the upcoming weather forecasts show high probability of obtaining the required weather conditions during the installation activity. An extensive analysis of historic weather conditions indicates it is statistically likely to obtain the safest weather conditions for cable-laying during the period of approximately May to October. Scheduling work within safe weather conditions where possible is a target for the Project because, if weather conditions exceed the limiting operational conditions for the cable and safe working limits for the vessel, then the crew may have to undertake a controlled abandonment of the cable, whereby the cable will be cut and placed on the seabed so the vessel can seek refuge. In this instance, the cable would then have to be spliced. Such a repair joint would take approximately six days to complete, which would then seriously compromise the progress of the operation since it would require a favorable weather window both for the repair joint and the remaining cable-laying activity.

Sequencing the Project to begin to deliver power by the expected operational date requires offshore export cable installation and WTG commissioning (which is partially dependent on having power from the offshore export cables). Project schedule is described in greater detail in Section 1.6.

The full installation process for each of the three offshore export cable nearshore sections will take a significant amount of time (several months), and this timing must account for delays due to adverse weather. The following export cable installation work cannot start until the vast majority of works are complete for the preceding cable, and each of the cable installation phases cannot start unless there is high confidence that the works will be complete, including contingency time.

Any boulders identified along the final offshore export cable alignments may need to be relocated prior to cable installation, facilitating installation without any obstructions to the burial tool and better ensuring sufficient burial depth. Boulder relocation is accomplished either by means of a grab tool suspended from a crane onboard a vessel that lifts individual boulders clear of the route, or by using a plow-like tool which is towed along the route to push boulders aside. Boulders will be shifted perpendicular to the cable route; no boulders will be removed from the site.

In accordance with normal industry practice, a pre-lay “grapnel run” will be completed. The pre-lay grapnel run will consist of a vessel towing equipment (i.e., a grapnel train) that hooks and recovers obstructions such as fishing gear, ropes, and wires from the seafloor. Depending on the size and type of debris, the debris will be either removed from the route or recovered and brought aboard the vessel deck. Any abandoned fishing gear recovered will be disposed of or returned to its owner in accordance with requirements of DMF and other relevant Massachusetts regulations.

The proposed offshore cables will be deployed from a turntable mechanism aboard a cable ship or cable barge and installed along a surveyed installation corridor. This installation corridor will be within the surveyed OECC to enable the avoidance or minimization of impacts. Impacts will be avoided and minimized by allowing the contractor to micro-site the cable inside the installation corridor such that localized areas of hard bottom or boulders, for example, may be avoided. This installation corridor, rather than a specific cable alignment, allows for optimal routing of the cables.

Cable burial tools (e.g., jet-plow, mechanical plow) can be mounted on a sled pulled by the cable-laying vessel or can also be mounted on a self-propelled underwater tracked vehicle. The tracked vehicle would run along the seafloor using a power feed from the cable-laying vessel. This type of vehicle is routinely used for wind energy cable projects in Europe and has proven effective in dynamic marine environments like the proposed Project route. Typical cable installation speeds are expected to range from 230 to 656 feet (70 to 200 m) per hour, and it is expected that installation activities for the offshore export cables will occur 24 hours per day. For the integrity of the cable, this activity is ideally performed as a continuous action along the entire cable alignment up to splice joints.

Although the Proponent is considering the use of Dynamic Positioning (DP) vessels, anchored cable laying vessels may be used along the entire length of the offshore export cables due to varying water depths throughout the OECC (see Section 5.1.2).

The Proponent’s preferred installation approach is to install the offshore export cables sequentially. 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 feet (50 to 100 m) 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.

Cable burial will temporarily displace marine sediments, but in normal operations these displaced sediments return to the ocean floor in the wake of the cable installation vehicle generally within a few meters of the furrow created by the cable installation. Particle sediment monitoring studies recently completed for the Block Island Wind Farm's offshore cable installation found that displaced sediments were an average of 12.5 feet (3.8 meters) from the trench with a thickness of 2.8 inches (7 cm).[1] Given the limited spatial extent of impacts from the offshore cable installation, no impacts in state waters are expected from cable installation activities in federal waters.

For any of the offshore export cable installation methodologies described above, the trench would be expected to backfill naturally after passage of the tool since surveys have identified only granular material (not clays) along the OECC. Where cobbles are present on the seafloor, they are mixed with granular material (e.g., sand), and therefore even though cobbles may be present, the sediment is expected to behave as a frictional material, resulting in natural backfilling of the trench. Given the high-energy marine environment along the OECC, this trench backfilling is likely to occur in a short period of time; this process was recently evidenced in the Martha's Vineyard Hybrid Cable Project installed from Falmouth to Tisbury (on Martha's Vineyard) over an approximately seven-month period in 2013-14. It is anticipated that a condition of the 401 WQC will require the Proponent to submit a bathymetric survey of the routes within Commonwealth waters to MassDEP depicting prior- and post- installation conditions.

12.1.1 Cable Jointing

Due to the length of the offshore export cables and other considerations, each offshore export cable will likely require two or three splices (i.e., joints), at least one of which may be located in state waters. Upon reaching the jointing location, the end of the installed cable will be retrieved from the seabed and brought up to the surface and inside the cable-laying vessel or other specialized vessel (e.g., jack-up vessel). Inside a controlled environment (i.e., a jointing room) aboard the vessel, the two ends of the cable will be spliced together. Once cable jointing is completed, the offshore export cable will be lowered to the seafloor and buried (likely via controlled flow excavation). Depending on the design of the cable and joint, the jointing process may take several days, in part because the jointing process must be performed during good weather. Prior to retrieving the cable ends from the seabed for cable jointing, cable protection may be temporarily placed over the cable ends to protect them.

If a jack-up vessel is used for cable jointing operations, the vessel would impact approximately 0.15 acres (600 square meters) of seafloor each time the vessel jacks up. Any jacking-up needed to complete a splice within the OECC will occur within its surveyed boundaries.

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1 James Elliott, K. Smith, D.R. Gallien, and A. Khan. 2017. Observing Cable Laying and Particle Settlement During the Construction of the Block Island Wind Farm. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2017-027. 225 pp.

12.1.2 Sand Waves and Potential Dredging

As described in Section 2.1.3, multiple seasons of marine surveys have confirmed that segments of the OECC contain sand waves, and portions of these sand waves may be mobile over time. Therefore, the upper portions of the sand waves may need to be removed (i.e., dredged) so the cable laying equipment can achieve sufficient burial depth below the sand waves in the stable seabed.

As described in Section 5.1.4, a TSHD is the anticipated methodology for dredging given the heights of sand waves in the OECC, although jetting by controlled flow excavation could be used for smaller sand waves. 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 navigate several hundred meters away and deposit the dredged material within an area of the surveyed corridor that also contains sand waves. Such depositing of dredged material would be prohibited within areas identified as hard bottom (see Attachment H1). Dredging will be limited to the extent required to achieve adequate cable burial depth during cable installation. If sufficient burial cannot be achieved, some bottom areas may require cable protection in the form of rock placement, gabion rock bags, concrete mattresses, or half-shell protection (see Section 5.1.3).

12.1.3 Cable Crossings

No offshore cable crossings are currently anticipated based on the proposed construction schedule of this Project and publicly available information on other project schedules. In the unlikely event that such a crossing becomes necessary, that is, if another offshore cable is installed in the OECC prior to installation of the offshore export cables for the Project, the Proponent would coordinate closely with the other cable owner. If required, a cable crossing would likely include the following steps:

1. Perform a full desktop study of any as-built and post-construction survey data for the previously installed cable.
2. Upon identification of a suitable crossing point that is agreed to by the cable owner, perform a full survey and inspection of the proposed crossing location and the existing cable using an ROV, diver-held instrument, or similar.
3. Carefully remove any existing debris surrounding the crossing point.
4. Depending on the depth of the existing cable and cable owner's requirements, there may be cable protection placed between the existing cable and NE Wind 2 Connector's proposed cable. Alternately, if there is sufficient vertical distance between the existing cable and NE Wind 2 Connector's proposed cable, there may be no manmade physical barrier between the cables.

5. During installation of an offshore export cable on approach to the crossing location, the cable will be graded out of burial with the cable installation tool. At this point, some form of cable protection (e.g., half-shell pipes or similar) will likely be applied to the cable when it is surface-laid on the seabed across the cable crossing. Once NE Wind 2 Connector's cable has been laid over the existing cable and clears the crossing location, no further protection will be applied to the cable and cable burial methods will resume using the cable installation tool.
6. Soon after installing the cable at the crossing, the surface-laid section of NE Wind 2 Connector's cable would be protected with either additional concrete mattresses, controlled rock placement, or a similar physical barrier. Remedial post-lay burial of NE Wind 2 Connector's cable on either side of the crossing may be performed to lower the cable into the seabed to ensure its protection.
7. If necessary, additional cable protection will be carefully placed on and around the crossing.
8. A final as-built survey of the completed crossing will be undertaken to confirm the exact location of NE Wind 2 Connector's surface-laid cable and the cable protection laid over the crossing. As-built positions for the cable crossing will be shared with the existing cable's owner and provided to the NOAA for charting purposes.

Cable protection measures will be designed to protect the offshore export cables against mechanical impact from above and respect the vertical distance and physical barrier (if any) to the existing cable. The cable crossing will also be designed to minimize the risk of fouling or snagging of fishing equipment. The design of the crossing structure, as well as any survey at the crossing, will be defined, planned, executed, evaluated, and documented in agreement with the cable's owner. Cable protection is discussed in detail in Section 5.1.3.

12.1.4 Navigation and Vessel Traffic

This section describes the maritime navigation and vessel traffic characteristics of Project-related construction activities as they may impact navigation and vessels operating to and from ports along the south coast of Massachusetts, Cape Cod, and the Islands. The Proponent is not proposing any restrictions on navigation, fishing, or the placement of fixed or mobile fishing gear. However, construction and installation activities may temporarily affect navigation and/or fishing activities in the vicinity of construction and installation vessels. These impacts are temporary in nature and largely limited to the Project's construction and installation period. During cable installation, safety zones will be implemented around the cable installation as it proceeds and will not preclude activity along the entire routes for the duration of construction. Safety zones will be determined by the USCG and are anticipated to be activity specific (see Sections 6.3 and 7.1). The Proponent, through its fisheries liaison, will coordinate with fishermen while discussions with the USCG are underway.

The Proponent is developing a detailed Navigational Risk Assessment for the Project that will conform to the USCG guidance for Offshore Renewable Energy Installations contained in Navigation Vessel Inspection Circular 02-07.

During construction and installation, the Proponent will employ a Marine Coordinator to manage all construction vessel logistics and act as a liaison with the USCG, port authorities, state and local law enforcement, marine patrol, and port operators. The Marine Coordinator will keep informed of all planned vessel deployments and will manage the Project's marine logistics and vessel traffic coordination between the staging ports and offshore. The Proponent has also engaged with the Northeast Marine Pilots Association to coordinate construction and installation of vessel approaches to the Project region, as required by state and federal law, and to minimize impacts to commercial vessel traffic and navigation.

The Proponent is actively engaged with fisheries stakeholders and will continue building on engagement undertaken for the past several years. The Proponent has developed a Fisheries Communication Plan that will continue to be refined throughout permitting and development of the Project. As described in the Fisheries Communication Plan, the Proponent will employ both a Fisheries Liaison and Fisheries Representative to ensure effective communication and coordination between the Project and fishermen. The most recent version of the Fisheries Communications Plan is provided in Attachment J.

During cable preparation/installation, vessels will be used for route clearance (e.g., dredging sand waves, removing boulders, pre-construction surveys, and grapnel runs), cable-laying and burial, cable jointing, and installation of remedial protection, if required. Approximately four vessels will be used for route clearance, one or two vessels will be used for cable laying and burial, and one vessel will be used for the installation of remedial protection. Onboard Fisheries Liaisons (OFLs) will be on vessels whenever possible. OFLs will be able to identify local active fishing gear and will be able to relay positions to the survey captains/crews. In addition, at any given time during cable construction, a guard vessel may be used to monitor vessel activity around the construction area and a crew transfer vessel may be used to transport crew and supplies between shore and the installation vessels. The Proponent will utilize local fishing vessels and their crews as guard vessels whenever possible.

The Proponent will distribute Notices to Mariners to notify recreational and commercial vessels of their intended offshore operations. Local port communities and media will be notified and kept informed as the construction and installation process progresses. Upon request, the Proponent will provide portable digital media with electronic charts depicting locations of Project-related work to provide fishermen with accurate and precise information on work within the offshore Project area. The Project's website will be updated regularly to provide information on the construction zone, scheduled activities, and specific Project information. As described in Section 6, the Proponent intends to deploy the WATERFRONT Application, which has the ability to provide real time streamlined marine updates and capabilities straight to mobile users and includes: offshore wind project information and newsletters, marine charts, marine hazards logs and the capability to provide real-time feedback and/or gear interaction reports.

12.1.5 Summary of the Phases of Offshore Export Cable Installation

There are a number of components to the cable-laying process that will involve marine operations. These can be categorized as Route Clearance, Cable Lay/Burial and jointing, and Remedial Protection:

- Route Clearance: This activity is required to prepare the cable alignment for the subsequent installation, and it involves dredging sand waves, relocating boulders, grapnel runs for debris, and survey work. The extent of the need for route clearance activities will be further refined as Project design advances and when a contractor is selected. An exclusion zone to be set by the USCG will be established around major cable installation vessels.

- Cable Laying: The cable laying itself is expected to proceed at a rate of approximately 230 to 650 feet (70 to 200 meters) per hour. During the cable-laying process, an exclusion zone to be defined by the USCG will be established around cable-laying vessels (see Section 7.1).

- Cable Jointing: Given the length of the OECC, each offshore export cable could require up to three joints (at least one of which may be located in state waters). Depending on the design of the cable and joint, the jointing process may take several days, in part because the jointing process must be performed during good weather (see Section 12.1.1).

- Remedial Protection: Any area of the cable that cannot be buried to adequate depth will be protected by the placement of rock, gabion rock bags, concrete mattresses, or halfshell protection (see Section 5.1.3). During the remedial protection process, an exclusion zone to be set by the USCG will be established around cable-laying vessels.

12.1.6 Post-Installation Inspections and Survey

A number of inspections and surveys will be performed following completion of offshore export cable installation. These activities are described below.

12.1.6.1 Post-Installation Offshore Export Cable Inspections

The Proponent anticipates that an as-built survey will be carried out within six months of commissioning. Subsequent inspections will be performed in Years 1 and 2, and then every 3 years thereafter as well as after major storm events. Major storm events are defined as when metocean conditions meet or exceed the 1 in 50-year return period calculated in the metocean design basis. Post-storm surveys will be focused on areas of concern following an analysis of distributed temperature sensor (DTS) data. If conditions warrant adjusting the frequency of inspections following the Year 2 survey, a revised monitoring plan may be provided to MassDEP for review. The offshore export cables will be monitored continuously with the DTS system. If DTS data indicate that burial conditions have deteriorated or changed significantly and remedial actions are warranted, the DTS data, a seabed stability analysis, and report of remedial actions taken or scheduled will be provided to MassDEP.

12.1.6.2 Draft Benthic Habitat Monitoring Plan

The Proponent has assembled a Draft Benthic Habitat Monitoring Plan for all of New England Wind (inclusive of Park City Wind/NE Wind 1 Connector and Commonwealth Wind/NE Wind 2 Connector) intended to document habitat and benthic community disturbance and recovery as a result of construction and cable installation in the Primary OECC (see Attachment L). The OECC transects will be placed along the easternmost NE Wind 1 Connector cable to avoid confounding results from installation of subsequent NE Wind 2 Connector cables, which will be installed to the west.

Post-construction monitoring surveys are planned to occur within the first year after impact associated with installation of the NE 1 Connector to capture short-term recolonization, and the surveys will repeat for multiple years after impact to establish whether benthic community metrics and habitats have recovered to a state similar to pre-impact conditions. These surveys will assess recovery progression of the various habitats that overlap with the OECC, species composition, and benthic habitat quality at monitoring sites. Prior studies have observed benthic recovery within a year, so early surveys are useful for observing the start of recovery. Monitoring will occur in Years 1 and 3 and, if necessary, Year 5 post-construction, unless benthic community metrics indicate recovery has occurred and it is agreed that monitoring may cease.

All data generated from the benthic community monitoring, bathymetric surveys, cable burial monitoring, turbidity and sediment monitoring should be digitized and reported to MassDEP, DMF, and CZM.

12.2 Transition from Offshore to Onshore

The proposed landfall site for the Project is within the approximately 2.5-acre paved parking lot located adjacent to Dowses Beach, a residents-only beach that is owned and managed by the Town of Barnstable (see Section 2.2). The landfall site is situated on a peninsula between East Bay and the Centerville Harbor away from nearby residences.

The offshore export cables will make landfall via horizontal directional drilling (HDD), a proven technology that will minimize Project-related impacts to the beach, intertidal zone, and nearshore areas, as well as ensuring that the cables remain sufficiently buried and permanently out of the human environment at the shoreline. HDD is a “trenchless” installation technique that will avoid disturbance to the shoreline by negating the need to open-excavate existing coastal wetland resource areas. The use of HDD as a construction technique will not preclude recreational use of the beach during installation, although portions of the parking lot may be partially occupied by staging and laydown during construction.

The average horizontal length of the three HDDs (one for each offshore export cable) will be approximately 2,250 feet (see Attachment C3). Although the HDD trajectory is still undergoing engineering refinement, it is estimated that the trajectory will result in the HDD passing at a depth of approximately 50 feet below the ground surface at MHW.

The transition from offshore to onshore export cables will be made in underground concrete transition joint bays (three total, one per offshore export cable) that will be installed within the paved parking lot at the landfall site (see Attachment C3). Each HDD process will begin with drilling a pilot hole originating at the onshore HDD staging area within the paved parking lot to an offshore HDD exit point approximately 0.5 miles from the shoreline (see Section 12.2.1 for a detailed construction sequence). The hole diameter will be increased with progressively larger reaming passes until the required diameter is achieved. Once the borehole is completed, an HDPE conduit will be inserted for installation of the offshore export cable. To facilitate cable pull-in and expose the casing end, a shallow "pit" will be excavated at the offshore HDD exit point using techniques such as controlled flow excavation. The offshore export cable will be drawn from the vessel and pulled through the conduits toward land. The seaward end of each conduit will then be buried beneath the seafloor. Once each three-core offshore export cable is pulled into a transition joint bay, it will be spliced to three separate single-core onshore export cables. Each underground transition joint bay will be approximately 11 feet wide by 62 feet long and up to 8.5 feet tall, subject to further engineering refinement, and will be approximately two feet beneath the surface of the parking lot. Each underground concrete transition joint bay will be accessed via two manholes. The transition joint bay manhole covers will be the only visible components of Project infrastructure once construction is complete.

12.2.1 HDD and Other Landfall Site Construction Activity Sequencing

The selected contractor will be responsible for the specific construction means and methods and will be responsible to submit detailed site logistics, dewatering, drill fluid management, and spill response plans and procedures for the Proponent's approval. The anticipated construction sequence for installation of the export cables from offshore-to-onshore via HDD will consist of the following methods:

- **Surface Casing:** Approximately 100 feet of surface steel casing will be installed in the ground underneath the parking lot and will follow along the trajectory of the HDD to provide a stable, watertight corridor for downhole tooling and drilling fluid, and to ensure stability in the shallow section of the borehole immediately in front of the HDD rig. The surface casing will be removed upon completion of the HDD work.

- **Approach Pit:** Land-based HDD rigs are typically staged behind an approach pit that will provide the contractor with access to the proper trajectory for drilling and will also serve as a reservoir for drilling fluids (i.e., a slurry consisting predominantly of water and bentonite, a naturally occurring, inert and non-toxic clay) used to extract material from the drill head.

- **Pilot Hole:** A small pilot hole will be drilled from the approach pit to the pre-determined location offshore where the offshore cable will enter the HDPE conduit. The pilot hole will be drilled at an angle such that it arcs down beneath the nearshore coastal resources and extends to a depth of approximately 50 feet beneath the surface of the seafloor. The path of the pilot hole will then arc back up towards the desired point on the seafloor that will be the transition point between offshore cable installation and the seaward end of the HDD. Drilling fluid (a bentonite slurry) will cool and lubricate the drill bit, stem, and other equipment, and will also serve to keep the hole stable and seal the bore’s walls. The pilot bore’s progress is continuously monitored via a steering system.

- **Surfacing of HDD Pilot Hole:** At the HDD exit point, a shallow “pit” will be excavated to expose the conduit end using techniques such as controlled flow excavation.

- **Reaming and HDPE Conduit Insertion:** After the pilot hole has been established, divers will replace the drilling head on the end of the drill shaft with a reaming head and swivel connection. The reaming head will enlarge the pilot hole through multiple passes with increasingly larger diameters, finishing at the diameter required for pull-back of the high density polyethylene (HDPE) conduit into the underground bore. HDPE pipe segments will be thermally fused and staged offshore and pulled to the HDD rig located onshore. The HDPE conduit will be pulled into the bore using equipment staged in the paved parking lot. Cuttings from the reaming/pull-back effort will be pumped from the HDD drill pit back to HDD settling tanks, then passed to a reclaim/cuttings separation tank. Any excess fluids remaining at the completion of HDD activities will be trucked off-site to an appropriate disposal site. Similarly, any waste drill cutting solids will be properly and legally disposed of as solid waste or landfill material.

- **Disposal of drill cuttings and drill fluids:** The HDD installation method will produce a slurry of two co-mingled byproducts: drill cuttings and excess drill fluids (water and bentonite clay). During drilling, this slurry will be collected from the reservoir pit and will be processed through a filter/recycling system where drill cuttings (solids) will be separated from reusable drill fluids. Non-reusable material consisting of drill cuttings and excess drill fluids will be trucked to an appropriate disposal site (see Section 12.2.2 for additional information).

- **Cable Insertion and Transition:** Upon conclusion of the reaming and conduit pullback, the end of the conduit will remain exposed on the seafloor. The conduit will likely have a messenger wire passing through it with a cap on each end until the export cable is ready to be installed. The export cable will be drawn from the vessel offshore and pulled through the conduit to the onshore transition joint bays using equipment staged in the paved parking lot. The seaward end of the conduit will then be reburied beneath the seafloor.

- **Transition Joint Bays:** After each offshore export cable is pulled back through the conduit installed via HDD, it will be spliced with the onshore export cables in a proposed transition joint bay. Two manhole covers for each of the three transition joint bays will be the only visible components of Project infrastructure at the landfall site.

- **Site Restoration:** The work area will be restored to pre-construction grades and stabilized (re-paved) to match pre-construction conditions.

Throughout HDD operations, the Proponent will prioritize shore-side site safety, security, and traffic control, which will be coordinated with Town officials. As described in Section 2.2 and illustrated on Attachment P, HDD operations will be sequenced using a single HDD drill rig, and will maintain public access both to the paved parking lot at the landfall site as well as the jetty and fishing pier on the east end of the peninsula.

Assuming that a single HDD drill rig will be deployed, construction work at the landfall site is anticipated to require three (3) construction seasons as follows:

- Season 1: Construction of the northernmost and middle HDDs (HDD North and HDD Center as labeled on engineering plans in Attachment C3);

- Season 2: Construction of the southernmost HDD (HDD South) and installation of the transition joint bays, as well as construction of duct bank in the paved parking lot and access road, including the culvert crossing; and

- Season 3: Cable pull-in for all three offshore export cables into HDD conduits, terminating in the transition joint bays (as shown on engineering plans provided in Attachment C8).

The preliminary estimated timeline for the three construction seasons at the landfall site is detailed in Table 12-1.

Table 12-1 Estimated Construction Timeline at the Landfall Site

Construction Season	*Time (Weeks)*
Season 1	
HDD Mobilization & Set-Up	5
HDD North Installation	7
Restage Equipment from HDD-North to HDD-Center Site	4
HDD Center Installation	7
HDD Demobilization	2
Repave Parking Lot	1

Table 12-1 Estimated Construction Timeline at the Landfall Site (Continued)

Construction Season	Time (Weeks)
Season 2	
HDD Mobilization & Set-Up	5
HDD South Installation	7
HDD Demobilization	2
Transition Joint Bay Installation	5
Causeway/Parking Lot Duct Bank Installation (temporary closure of access)	8
Repave Parking Lot	1
Season 3	
Offshore Export Cable Pull-Ins (3)	26
Repave Parking Lot	2

Basis/Assumptions:

1. All durations are approximate. Actual durations are predicated on contractor means and methods.
2. Single HDD Rig is deployed.
3. Six-day work week, 12 hours per day.
4. Five winter weather delays per season.

The Proponent will continue to optimize the construction schedule to prioritize access to the paved parking lot at the landfall site while balancing safety and the Project schedule. The Proponent is evaluating other sequencing options, including but not limited to, use of a second HDD drill rig to afford simultaneous drilling operations to shorten overall schedule. While this would reduce the number of construction seasons needed to complete work, it may reduce or eliminate public access to the parking lot during construction. Therefore, the Proponent will seek input from the Town and other stakeholders on the construction sequencing approach.

12.2.2 Management of Drilling Fluids

HDD is a well-known and commonly used installation technique for this type of project, and with proper construction management, the risk of drilling fluid release is very low. The Project will use a drilling fluid composed of bentonite clay or mud. This benign, naturally occurring material will pose no significant threat to water quality or ecological resources in the rare instance of seepage around the HDD operations. The HDD Contractor, once selected, will be required to develop a detailed contingency plan consistent with the general approach provided here.

The HDD installation method will produce a slurry of two co-mingled byproducts: drill cuttings and excess drill fluids (bentonite clay or mud). During drilling, this slurry will be collected from the reservoir pit and will be processed through a recycling system where drill cuttings (solids) will be separated from reusable drill fluids. Once the drilling fluid cannot be recycled any further, the non-reusable material consisting of drill cuttings and excess drill fluids will be trucked to an appropriate disposal site. This material is typically classified as clean fill, and it is anticipated that will be the case for this Project. The material may have an elevated water content, which could require transport to occur in sealed trucks. Typical disposal sites for this type of material include gravel pits or land farmed as upland field or pasture.

Effective construction management contingency plan procedures during HDD operations will minimize construction period disturbances for nearby land uses and will also minimize the already remote potential for seafloor disturbance through drilling fluid seepage (i.e., frac-out). Drilling fluid seepage can be caused by pressurization of the drill hole beyond the containment capacity of the overburden soil material. Providing adequate depth of cover for the HDD installation can substantially reduce this potential impact and the Project will use a drilling fluid composed of bentonite clay or mud that will pose little to no threat to water quality or ecological resources should seepage occur. Nonetheless, the Proponent will adhere to operational standards to minimize the chances of drilling fluid seepage.

The trajectory of the HDD installation has been a primary consideration for contingency planning and prevention of drilling fluid seepage. The HDD drill hole will descend from the HDD pit location to a depth of approximately 50 feet below the seafloor before curving toward the exit hole on the seafloor where installation will transition to the end of the HDD alignment. The geometry of the drill hole profile can also affect the potential for drilling fluid seepage. In a profile that makes compound or tight-radii turns, down-hole pressures can build, thus increasing the potential for drilling fluid seepage. The proposed drilling profile, with its smooth and gradual vertical curves, will avoid this potential effect.

The drilling crew will be responsible for executing the HDD operation, including actions for detecting and controlling drilling fluid seepage. The drilling contractor will also be required to have proper monitoring and response action plans in place. The process and actions of the drilling crew will be closely supervised. HDD is a technically advanced process, and the Proponent will ensure that the drill crews have the proper training and oversight to minimize the potential for drilling fluid seepage and to respond to seepage promptly and competently should it occur.

Detecting a potential seep prior to it actually occurring is dependent upon the skill and experience of the drilling crew. For this reason, the Project will utilize a specially assigned drill crew. The drilling crew will monitor certain aspects of the drilling operation to detect fluid loss, including but not necessarily limited to the following:

- Drilling pit returns, where a sudden loss of drilling fluid would indicate that fluid may be lost to geological materials or a release at the seafloor surface;
- Down-hole pressure, which will be compared to the calculated confining pressure during pilot hole drilling;
- Returning drilling fluid volumes and rates, which will be compared to the volumes and rates of drilling fluid pumped down-hole; and
- Pump pressures and flow rates.

The drill crew will be responsible for immediately notifying the Health, Safety, and Environmental (HSE) Manager and Site Manager if seepage occurs. The HSE Manager and Site Management Team will immediately assess the situation and estimate the quantity of drilling fluid lost and the square footage of area potentially affected. If drilling fluid seepage is detected, the drilling crew will take immediate corrective action and implement the project mitigation plan as appropriate. The primary factor causing seepage would be pressure from the drilling fluid pumps, so the most direct corrective action will be to stop the rig pumps. By stopping the pumps, pressure in the drill hole will quickly dissipate, and with no pressure in the hole seepage will cease. Pumps will be stopped as soon as seepage is suspected or detected. In the event of seepage, the Proponent will notify the client and appropriate regulatory agencies.

Corrective actions for conditioning the drill hole should seepage occur differ with specific issues encountered during a particular HDD operation. Common corrective actions include, but are not limited to:

- Transitioning the down-hole tooling in a drill hole closer to the entry or exit location to reestablish drilling fluid returns, and "swabbing" out the drill hole;
- Modifying drilling pressures and/or pumping rates to account for an unanticipated or changing soil formation;
- Pumping drilling fluid admixtures into the drill hole at the location of seepage to solidify or gel the soil; and
- Suspending drilling operations for a period of time to allow the drill hole to set up.

12.2.3 Construction Schedule Considerations

HDD activities at the landfall site will be performed during the non-summer months, or as otherwise permitted by the Town and relevant agencies. To minimize any disturbance to area residents or visitors, the Proponent plans to maintain beach access as much as possible, while keeping the safety of both construction crews and residents the top priority. The Proponent expects to maintain public access to the parking lot throughout HDD operations, and pedestrian access to the existing pier at the east end of the parking lot will also be maintained as shown in Attachment P. HDD construction layouts are shown in Attachment C3.

As discussed in Section 7.2, the NE Wind 2 Connector is located within rare species habitat for the Piping Plover and Least Tern. Based upon MESA consultation completed for the Vineyard Wind Connector 1 and NE Wind 1 Connector, the Proponent anticipates the need to repeat similar protective measures for the Piping Plover (and this time also the Least Tern) at the NE Wind 2 Connector landfall site. Specifically, NHESP's MESA Determinations for the NE Wind 1 Connector (NHESP File No.: 17-37398; 4/1/2022) and the Vineyard Wind Connector 1 (NHESP File No.: 17-37398; 5/14/2019) 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, that all work associated with HDD cable installation shall not commence during April 1 — August 31, and that HDD work initiated in advance of April 1 may continue past April 1, provided the Piping Plover Protection Plan is fully implemented. Additional measures for Least Tern will be implemented in consultation with NHESP, as appropriate. The Proponent has assembled a draft Piping Plover and Least Tern Protection Plan, included as Attachment I, to avoid impacts to these species. No construction activities, unless otherwise authorized by NHESP, will be performed at the landfall site after May 1 and extending through the end of the nesting season (August 31).

12.3 Onshore Cable Installation

Installation of the onshore export cables will occur in two stages. The first stage will consist of installing the concrete splice vaults and duct bank that will house the onshore export cables and associated infrastructure. The second stage will consist of pulling/installing the cables through the duct bank conduits and completing splices and terminations.

Construction of the onshore export cable duct bank system will be performed via open trenching with equipment such as excavators and backhoes. The open trench will be supported by temporary trench boxes or other shoring as appropriate. Proposed trenching will occur within existing roadway layouts or existing utility right-of-way (ROW). All work will be performed in accordance with local, state, and federal safety standards, as well as any Project-specific local requirements.

All three circuits will be installed in a single, common underground concrete duct bank system along the entire length of the onshore export cable route, which will include separate conduit for each onshore export cable and fiber optic cable. The conduit within the duct bank will be constructed of PVC or HDPE and encased in concrete. Spare conduits and grounding will also be installed within the duct bank. Final layout and configuration of the conduits within the duct bank will vary somewhat along the cable route, and the final layout and configuration is subject to final design and survey, including survey of existing utilities.

The Proponent anticipates that the three-circuit duct bank will be arranged three conduits wide by four conduits deep for the majority of the onshore export cable route. The duct bank dimensions will be approximately 8 feet wide and 4.5 feet tall, set at a depth of 8 feet or, in n discrete locations where the duct bank crosses under utilities or other obstructions, it will be approximately 11.5 feet wide and 4.5 feet tall, set at a depth of 11.5 feet (see Attachment C1). Fluidized thermal backfill will likely be placed over the duct bank for both scenarios. The duct bank will have a typical (minimum) depth of cover of 3.5 feet; however, if required due to existing conditions (e.g., at certain utility crossings), the depth of cover will be 7 feet. When crossing the box culvert in the paved causeway leading to the landfall site, the circuits will be arranged in a twelve conduit wide by one conduit deep configuration (see Attachment C6).

Staggered splice vaults will be installed every 1,500 to 3,000 feet or more along the duct bank alignment. Each splice vault will be approximately 6 feet wide by 26 feet long and up to 8 feet deep (interior dimensions) and will be fitted with two manholes, subject to further engineering (see Attachment C1). Splice vaults are typically two-piece (top and bottom) pre-formed concrete chambers with penetrations at both ends to connect with the duct bank conduits and admit the cables. After the splice vaults and duct bank are installed and backfilled, the cables will be pulled via underground splice vault manholes.

Installation of the in-road underground duct bank and onshore export cables within public roadway layouts will be performed during the off-season, or as otherwise permitted by the Town and/or MassDOT, 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 applicable 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/or landowner agreements.

During construction, traffic will be managed in accordance with approved Traffic Management Plans (TMPs). Draft TMPs for the onshore export cable route are included in Attachment C1. The Proponent will work closely with the Town of Barnstable and the MassDOT, where applicable, on TMPs for construction, including submittal of the TMPs for review and approval by appropriate authorities (typically DPW/Town Engineer and Police). In addition, the Proponent will work with community members, including local business owners, to minimize construction period traffic related impacts.

12.3.1 Duct Bank Sequence and Timing

The onshore construction sequence includes survey/marking underground utilities, installation of erosion controls and traffic management signage/controls, pavement marking, saw cutting of pavement, pavement excavation/removal, trench excavation and removal of excess excavate, trench shoring, placement of ducts and spacers, placement of concrete around the ducts, backfill, temporary repaving, and cleanup. Open-trench work areas will be kept to a minimum, and any open trench will be covered with heavy steel plates at the end of each day.

The typical duct bank construction sequence will include the following steps:

- Survey and mark splice vault and duct bank locations.
- Set up erosion and siltation controls, including silt sacks or similar protection for existing storm drains.
- Set up traffic management measures in coordination with local police and public works officials.
- Conduit will be delivered on flatbed trucks, stockpiled in a local staging area or within the roadway layout if space is available, and advanced ahead of the trench.

- Trench excavation and removal of excess material for recycling or disposal in accordance with state regulations.
- The PVC or HDPE conduits will be fused, placed in the excavation, and secured with spacers to establish the duct bank array.
- After the duct bank conduit array is secure, concrete trucks will backfill the array in place.
- Trench areas that are not backfilled by day's end will be secured with steel plates set in place to cover and protect the trench overnight. Openings in the shoulder will be protected and barricaded to ensure traffic and pedestrian safety.
- While new trench excavation advances, backfill will be placed above new concrete-encased sections from the prior day's work. Backfill will be brought to required grade, and the trench will be secured with steel plates again overnight.
- Subject to local permit conditions, temporary pavement will be placed at completed trench sections as soon as there is enough work to occupy a paving crew for a full day's work.
- Final roadway restoration will be performed in accordance with the DPU's "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/or landowner agreements.
- The work area will be cleaned up and erosion controls will be removed.

All work associated with roadway restoration will conform to applicable MassDOT and Town specifications for new road construction. The construction crews involved in trench excavation are expected to progress at an average rate of approximately 80 to 200 feet per day.

This cycle of trench work will proceed up to any given vault (vaults will be installed prior to duct bank trench work, staggered to minimize roadway impacts). For vault installations, a separate, but similar, sequence or work will be performed by a separate crew, while trench work advances:

- Vault locations will be excavated to required grade, and a base of leveling stone will be set in place.
- The vault (pre-delivered sections) waiting nearby will be set in place by a crane and fully assembled, including required manway risers.
- Conduit connections to the vault will then be made from trench ducts in place on each side of the vault.
- When all exterior connections are complete, the vault area will be fully backfilled and compacted to grade.
- Temporary pavement will be placed when vault work is complete, as described under the duct bank construction sequence above.

- If dewatering is required for vault installation, then procedures as described in Section 12.3.2 will be employed.

12.3.2 Dewatering

Prior to the commencement of construction activities, the Contractor shall submit for review and approval a detailed dewatering and drainage design plan. The plan shall be designed and stamped by a Professional Engineer with a current license in the Commonwealth of Massachusetts and at least 10 years of dewatering design experience for similar scopes of work.

12.3.2.1 HDD Dewatering

It is anticipated that construction activities within the paved parking lot at the landfall site will require some excavations that will extend below the groundwater level. Consequently, it will be necessary to temporarily lower the water table adjacent to these excavations so construction activities can be completed "in the dry". The excavations and the entire dewatering apparatus will be located on paved surfaces, and any water generated from the dewatering operations will be filtered prior to discharge within the identified workspace.

An appropriately sized infiltration bed will be established at the discharge point, but it is anticipated that some of the filtered water may overflow onto the parking lot pavement. In that instance, to minimize the potential for beach scour, crushed stone may be placed along the edge of the parking lot at those discrete locations where the filtered water leaves the paved surface. The Proponent shall ensure that all dewatering will be conducted in accordance with all applicable regulatory requirements.

The dewatering plan shall be designed to control surface water and groundwater such that excavations to final grade are made in the dry. All construction and backfilling shall proceed in the dry, and necessary measures shall be incorporated to prevent floatation of installed infrastructure prior to backfill. Methods for groundwater control may include, but are not limited to, perimeter trenches, sump pumping, perimeter groundwater cutoff, soil solidification, well point systems, ejectors, deep wells, and a combination thereof.

The Contractor shall collect, treat, filter, and properly dispose of all discharge water from dewatering and drainage systems as well as from the HDD drilling operation in accordance with all Federal, State, and local requirements and permits. If discharge is planned to a storm drain or surface water body, the applicable permits shall include an applicable U.S. Environmental Protection Agency (USEPA) National Pollutant Discharge Elimination System (NPDES), Construction General Permit (CGP), Dewatering General Permit (DGP), and/or Remediation General Permit (RGP). The Contractor shall be responsible for submitting for, obtaining, and satisfying all the conditions of the required permits.

The dewatering plan must provide allowances for both saltwater and freshwater dewatering conditions. Saltwater dewatering must consider both groundwater and tidal conditions. The dewatering plan shall include specific details specifying the means and methods for standard excavations, HDD, and microtunnel work. There shall be no direct discharge from any dewatering operations into wetlands, waterways, sewer collection systems, or drainage systems, unless explicitly allowed by the regulatory permits for the Project.

A treatment system for groundwater collected as part of a dewatering system may be required prior to discharge. Groundwater may require treatment beyond typical parameters, such as pH and total suspended solids (TSS). This includes metals (i.e., iron), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs), in addition to pH and TSS, depending on the permit(s) required for the dewatering system. TSS, turbidity, and pH fluctuations of the effluent shall be monitored daily and maintained within the permitted range limits.

Frac/sedimentation tanks, bag filters, granular activated carbon (GAC), vessels, and all other components of the portable groundwater treatment system shall be of sufficient size and capacity to handle the dewatering flows and to reduce suspended materials and groundwater contaminants in the excavation dewatering effluent in accordance with all permits obtained for the Project. Sedimentation tanks shall contain baffles to reduce flow velocity and allow sediment to settle inside them.

12.3.2.2 Duct Bank Trench Dewatering

Dewatering of the duct bank trench may be necessary in areas where groundwater is encountered, where soils are saturated, or at times when the trench is affected by stormwater. Dewatering will likely be necessary in areas where the onshore export cable route is adjacent to wetlands, streams, or other bodies of water. Standard erosion control practices will be employed as necessary to minimize erosion during trenching operations and construction activities in general. Areas where groundwater may be encountered will be identified as part of the pre-construction environmental investigation of soils.

Trench dewatering is the process of removing excess runoff and groundwater that has accumulated and is occupying the trench line to allow for the installation of the duct bank and dry backfilling of the trench. Trench dewatering management will be accomplished using a combination of BMPs that will be tailored to the site-specific conditions for each dewatering operation. Water found in all excavations must be assessed for obvious signs of contamination (e.g., discoloration, odor, signs of oil) prior to discharge. Water exhibiting signs of contamination cannot be pumped to the ground, catch basin, storm drains, sewer system, or surface water; such water will typically need to be pumped by a waste management contractor for proper off-site disposal. If the assessment shows no evidence of contamination, BMPs must be followed to avoid pumping sediment-laden water from the excavation.

If high groundwater conditions are encountered, then groundwater will be pumped from a series of sumps within the trench or vault excavation. Each sump will have a submersible pump surrounded by clean crushed stone and will discharge groundwater to filter bags for further filtration prior to release. Water released from the filter bags will flow through a series of floc-log check dams to an appropriate nearby Town catch basin or drainage way.

12.3.3 Soil Management

The proposed 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 should it not be required for backfilling the trench. The soil will not be stockpiled along the edge of the roadway, thus reducing the size of the required work area, and reducing the potential for sedimentation and nuisance dust.

The Proponent's objective is to minimize the potential for erosion and sedimentation impacts during construction, and to restore any disturbed areas. The Proponent will meet these objectives by implementing the erosion and sediment control measures described in Section 12.5.2.

When considering the onshore export cable routes from the landfall site to the proposed onshore substation site, no Tier-Classified Chapter 21E or MassDEP Tier Classified oil and/or hazardous material disposal sites or AUL sites were identified within 300 feet of any Project elements. If there are suspected contaminated soil, contaminated groundwater, or other regulated materials encountered along the route, soils/groundwater will be managed under the Utility-Related Abatement Measure (URAM) provisions of the MCP. The Proponent will contract with a third-party Licensed Site Professional (LSP) as necessitated by conditions encountered along the route, consistent with the requirements of the MCP at 310 CMR 40.0460 et seq.

The selected contractor will be required to identify suitable locations for any temporary storage of stockpiled soil, if required. All soil stockpiles will be controlled and maintained using appropriate BMPs. Any excess soils which cannot be reused will be taken to a licensed receiving facility in accordance with all applicate regulatory requirements.

12.3.4 Trenchless Crossing Techniques

Trenchless crossing techniques (e.g., HDD, micro tunnel, direct pipe, pipe jacking) are typically used where either: (1) open trenching is not feasible from a construction perspective due to subsurface infrastructure, bridges, culverts, or railroad tracks; (2) open trench construction is not practical due to traffic conditions; or (3) as a means of avoiding impacts to environmentally-sensitive resources. For crossings of busy roads, nighttime work may allow for open trench construction.

The landfall site HDD is described in Section 12.2, while the trenchless crossing of Route 6 via pipe jacking is described in Section 2.3.6. Alternative trenchless crossing techniques considered for exiting the Dowses Beach Landfall Site are discussed in Section 2.3.5.

12.3.5 Onshore Cable Installation and Testing

Prior to cable installation, each conduit within the installed duct bank will be tested and cleaned by pulling a mandrel (a close-fitting cylinder designed to conform to a conduit's shape and size) and swab through each of the conduits. When the swab and mandrel have been pulled successfully, the conduit is ready for cable installation.

To install each cable section, a cable reel will be set up at the “pull-in” splice vault and a cable puller will be set up at the “pull-out” splice vault. Following the initial pulling of the mandrel and pulling line through each conduit, a hydraulic cable-pulling winch and tensioner will be used to individually pull cable from the pull-in to the pull-out splice vaults via the manholes. This process will be repeated until all cables have been installed.

Once adjacent cable sections are installed, they will be spliced together inside the vaults. Splices will be performed for straight joints, whereby two cable ends will be joined and then encapsulated with a heat-shrinking material to protect the splice. Cable sheath grounding will be either single- or cross-bonded. The splicing operation requires a splicing van and a generator. The splicing van contains all equipment and materials needed to make a complete splice. An air conditioning unit may be used at times to control the moisture content in the manhole. A portable generator will provide the electrical power for the splicing van and air conditioning unit, and the generator will be muffled to minimize noise. Typically, the splicing van will be located at one manhole access cover, the air conditioner will be located near the second manhole access cover, and the generator will be located in a convenient area that does not restrict traffic movement around the work zone.

Once the complete cable system is installed, it will be field-tested from the substation. At the completion of successful testing, the line will be energized.

During Project operation, the Proponent will conduct routine maintenance per a preventative maintenance schedule based on the cable manufacturer’s recommended maintenance schedules and best industry management practice. This will include visual inspection of the splice vault and associated cabling, splice joints, grounding cable connections, and link boxes. The fiber optic splice boxes will also be visually inspected for signs of moisture and corrosion. Inspection of and access to manholes within roadways will be scheduled with Town departments for permission and implementation of any required traffic management mitigation measures. Entering a manhole will be in full compliance with the Project’s safety management system and work permit practices.

12.3.6 Restoration

Where the trench location requires cutting of pavement, pavement restoration will be carried out in compliance with Section 9.0 of the DPU Street Restoration Standards (D.T.E. 98-22). Generally, all pavement excavations will be repaired with same-day permanent patches unless specifically agreed to by the Town. Typically, temporary patches are only permitted for work between December 1 and March 31, when bituminous concrete is not available, or if the excavation must be reopened within five working days (e.g., to continue work after a weekend). In general, the length of new excavation completed each day will equal the length of duct bank installed, backfilled, and compacted.

If, at the end of any given day, construction is not complete along an active section, all open trenches or excavations will be covered with steel plates and marked with drums and yellow flashers until pavement patching is accomplished. During active construction any openings in the shoulder will be properly protected and barricaded to ensure traffic and pedestrian safety.

The final backfill in roadway areas will be town- and/or state-required road sub-base graded material upon which base course and finish course pavements are placed. All affected public roadways will be repaved to as-new condition after construction is complete. In landscaped areas, the final backfill above the fluidized thermal backfill (FTB) will typically be a sandy loam which can be seeded. The shoulder will be graded to its pre-existing contours, with slight mounding to allow for settlement. Any disturbed vegetated areas will be loamed and seeded to match pre-existing vegetation. Any lawn-edge that has been affected by construction activities will be hand-dressed, seeded, and mulched.

Depending on final duct bank design, some vegetation clearing as well as selective tree removal and/or trimming may be required along the onshore export cable route. Vegetation clearing, tree trimming, and selective tree removal will be minimized to the extent feasible. Any disturbed vegetated areas will be loamed and seeded to match pre-existing vegetation and the vegetation would be allowed to grow back. Any vegetation removal would be completed in accordance with all applicable state and local laws and regulations.

12.3.7 Tree Clearing

The exact alignment of the onshore duct bank has not yet been developed but it is likely that installation along the identified public ways will require the removal of some public shade trees where construction along road shoulders is required. As per M.G.L. Chapter 87 (MGL c. 87), public shade trees are defined as any tree located within a public way or on the boundaries thereof. Public shade trees are subject to protection under MGL c. 87, which is administered by locally-appointed Tree Wardens in each municipality when located within public roadways or by MassDOT when located within state-controlled roadways. Each municipality's Tree Warden is responsible for the care, control, protection, and maintenance of all public shade trees (except those within a state highway) and enforces all provisions of law for the preservation of such trees. M.G.L. c. 87 further specifies that public shade trees shall not be cut, trimmed, or removed by any person other than the tree warden or his deputy except upon a permit in writing from said tree warden issued following a properly-noticed public hearing before the tree warden.

Within the Town of Barnstable, public shade trees are further protected under Chapters 180 (Scenic Roads) and 221 (Trees) of the municipal bylaw, which require that a valid work permit be obtained from the Barnstable tree warden prior to the trimming or removal of any shade trees located within the boundaries of public roadways. Chapter 180 addresses tree removals within the layouts of designated scenic roads and requires approval of the tree warden and municipal planning board at a properly noticed public hearing for removal of more than three shade trees per 200 feet of right-of-way. Chapter 221 reaffirms the requirement for a public hearing for public shade tree removals and further specifies pruning and trimming standards as well as requirements for tree replacements and maintenance. These standards include a provision that grants the tree warden the authority to either assess a replacement fee based on the monetary value of the trees being removed or require the applicant to replant a sufficient number of trees of equivalent value to those being removed.

The Proponent has completed an inventory of public shade trees along the Preferred Route and Noticed Alternative Route, which includes the precise locations of each shade tree. As design of the onshore duct bank advances, it will be possible to identify all public shade trees that will be impacted by the Project. Prior to construction, the Proponent will meet with the Town of Barnstable Tree Warden and/or MassDOT to confirm the location and condition of trees along the onshore duct bank route relative to construction work areas. As required, the Proponent will obtain permits from the Tree Warden and MassDOT and work with both to identify appropriate mitigation. Mitigation measures may include, but are not limited to, tree protection, temporary fencing, and excavation by means other than mechanical excavation techniques. If impacts to trees and vegetation along the duct bank route cannot be avoided, appropriate mitigation measures will be identified as needed. Land and tree clearing will be minimized to the extent practicable.

Some tree clearing will be required along the grid interconnection routes where new access roads or expansions of existing access roads will be required. As described in Section 2.5, tree clearing associated with the Preferred grid interconnection route alone would be approximately 0.2 acres, bringing the total tree clearing associated with the substation development plus development of the Preferred grid interconnection route to approximately 13.5 acres. Tree clearing associated with Variant 1 alone would be approximately 0.4 acres, bringing the total tree clearing associated with the substation development plus use of Variant 1 to approximately 13.7 acres, just 0.2 acres more than the total clearing for the substation and Preferred grid interconnection route. And tree clearing associated with the Noticed Alternative grid interconnection route alone would be approximately 0.5 acres, bringing the total tree clearing associated with the substation development plus development of the Noticed Alternative grid interconnection route to approximately 13.8 acres.

The contractor will be encouraged to utilize advanced tree clearing measures, reducing the need for excessive clearing. These measures include utilizing survey equipment to locate the precise extent of clearing limits required in the Project plans. Trees will be cut using track-mounted bunchers, which will facilitate tree removal without impacting nearby trees.

The timing of clearing trees (greater than 3 inches diameter at breast height) may be affected by the U.S. Fish and Wildlife Service rule regarding protections for the northern long-eared bat. The Proponent will comply with federal protections for the species and is consulting with the U.S. Fish and Wildlife Service so Project activities avoid any “take”. Time-of-year restrictions are discussed in Section 12.7.2.

The Proponent will work with the tree removal contractor to ensure that any suitable wood will be recycled for production of lumber, wood pellets, or for use as wood chips and mulch. Pine trees will be limbed and sold for milling. Hardwood trees, depending on species, will be limbed and sold for milling. Hardwoods that cannot be sold for milling will be corded for firewood. Wood that cannot be sent to a mill or cut into cordwood will be chipped. Chipped wood may be sent to wood-fired power plants as a fuel or may be otherwise used as ground cover (mulch) or for potential use onsite for erosion control.

12.4 Substation

The proposed substation and substation site are described in Sections 1.4.5 and 2.4, and the proposed substation design is shown on the plans provided in Attachment C2.

The Proponent will coordinate with the Town of Barnstable, the Barnstable Fire District, and the Department of Conservations and Recreation to ensure the construction of the new onshore substation and improvements to the private way (including any construction of an underground duct bank within the private way) do not adversely interfere with access to their respective parcels.

Construction of the substation will include the following steps:

- Widen/resurface the substation access road;
- Clear trees (see Section 12.3.7);
- Install perimeter construction fencing and security gate, install initial erosion controls;
- Prepare the site for construction, which entails clearing and grading the site (installing additional erosion controls where needed) and excavating required drainage swales and basins required for site drainage;
- Install the Route 6 trenchless crossing;
- Excavate areas required for major component foundations and full volume containment sumps;
- Form and pour major foundations/containment sumps;
- Excavate areas required for spread footings, form, and pour footings;
- Deliver and place major equipment (e.g., transformers, reactors) using appropriate heavy load vehicles and equipment (transformers are filled with dielectric fluid later in the construction sequence);
- Trench areas for underground cabling, install duct bank, and backfill;
- Install ground grid and place crushed stone in yard area;
- Construct Gas Insulated Switchgear (GIS) buildings;
- Construct the Static synchronous compensator (STATCOM) building;

- Deliver and place GIS and other equipment in the GIS Buildings. Deliver and place STATCOM and other equipment in the STATCOM building buswork, begin cabling, including bringing 275-kV transmission into the site and 345-kV cabling to the West Barnstable Substation;
- Complete cabling, control wiring, and installation of protection systems;
- Test and commission;
- Install permanent perimeter security fencing and screening;
- Restore site; and
- Remove construction stage erosion controls.

The Contractor will identify laydown/staging areas necessary to complete construction. A temporary parking area has been incorporated into the design along the western limits of the substation. This area will be restored with loam and seed prior to installation of permanent perimeter fencing. Staging and laydown areas shall be located within the limits of the final perimeter fencing. No staging shall be located along Oak Street or the private access road. It is anticipated that the existing residence will be utilized as a Project office until it needs to be razed to complete site construction. Existing cleared areas around the existing residence may be utilized for staging, if the Contractor chooses to do so. These specific locations, and any others that have not yet been identified, will not be located within 100 feet of any wetland resource areas, within 100 feet of known private or community potable wells, within 200 feet of perennial waterways, or within the Zone I area of any public water supply wells along the route.

Prior to construction, the Project will obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges from Construction Activities from the U.S. Environmental Protection Agency (EPA).

Handling and management of trees removed at the substation site will mirror the management described in Section 12.3.7.

12.5 General Construction Best Management Practices for the Project

The following construction best management practices apply to all of the onshore components of the Project.

12.5.1 Laydown and Staging

The contractor will identify laydown/staging areas necessary to complete construction. These locations will be located more than 100 feet from any wetland resource areas, more than 200 feet from perennial waterways, and outside the Zone I area of any public water supply wells.

All construction and staging activities at the landfall site will occur within portions of the existing paved parking lot, and the duct bank will be installed beneath or within ten feet of road pavement where the duct bank route will pass directly adjacent to rare species habitat. Along this common segment, the routes are equivalent with regard to associated impacts. The Proponent will coordinate with the Town of Barnstable and the Barnstable Land Trust to ensure that existing parking for conservation areas that have walking/hiking trails remains available and accessible during construction of the onshore duct bank.

12.5.2 Erosion and Sediment Control

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 and maintaining erosion and sediment control measures during construction;
- Establishing vegetation where required as soon as possible following final grading; and
- Inspecting construction work areas and maintaining erosion and sediment controls as necessary until final stabilization is achieved and final inspections completed.

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 EPA National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities. It will be the responsibility of the contractor to implement and maintain erosion and sediment control measures during construction, and such measures will be overseen by the contractor's environmental compliance manager.

The sections below include erosion and sediment control techniques that apply to all areas of onshore construction. Erosion and sedimentation controls will be maintained until disturbed areas are stabilized. The Proponent anticipates that all upland areas affected by construction will be fully restored within two growing seasons.

As for offshore construction, the OECC is located in high-energy, coarse-grained areas such that turbidity generation is expected to be minor and short-term.

12.5.2.1 Temporary Erosion Control Barriers

Hay/straw bales and silt fences are interchangeable, except where noted below. Temporary erosion control barriers will be installed prior to initial disturbance of soil and maintained as described below:

- At the outlet of a slope break when existing vegetation is not adequate to control erosion;
- Down slope of any stockpiled soil in the vicinity of waterbodies and vegetated wetlands;
- At sideslope and downslope boundaries of the construction area where run-off is not otherwise directed by a slope break;
- Maintained throughout construction and remain in place until permanent revegetation has been judged successful, upon which they will be removed;
- At boundaries between wetlands and adjacent disturbed onshore areas;
- As necessary to prevent siltation of ponds, wetlands, or other waterbodies adjacent to/downslope of the Project;
- At the edge of the construction area as needed to contain soil and sediment; and
- Catch basins along the work area will be protected using “silt sacks” and perimeter hay bales. The silt sacks and hay bales will be installed before pavement removal and trench excavation begins and will remain in place until the area is repaired and the shoulder repaved and revegetated.

Temporary erosion control barriers will be inspected on a daily basis in areas of active construction or equipment operation, on a weekly basis in areas with no construction or equipment operation, and within 24 hours of a storm event that is 0.5 inches or greater.

In addition, the following provisions will be made as part of erosion control:

- A water truck will be present on-site and used as necessary to minimize fugitive dust during demolition of existing pavement, or during excavation for trenches, vaults, foundations, and general construction processes.
- Although stockpiling of soils will be discouraged, any stockpiled soils located in staging areas (topsoil, special structural fill, etc.) are to be covered to minimize fugitive dust and erosion.
- All exposed slopes are to be stabilized with erosion control netting and/or temporary plantings.
- A covered dumpster will be maintained on or near the active construction site to minimize windblown debris from littering neighborhood and resource areas.
- Regular road sweeping will be conducted if any soil is tracked onto the pavement at the Oak Street intersection with the grid interconnection route/access road.

12.5.2.2 Silt Fence Installation and Maintenance

Any silt fence used as a construction-period control will be installed as directed by the manufacturer and applicable permit conditions. Accumulated sediment will be removed and the fence inspected to ensure it remains embedded in the soil as directed. Sufficient silt fence will be stockpiled on-site for emergency use and maintenance.

12.5.2.3 Hay/Straw Bale Installation and Maintenance

Hay/straw bale installation and maintenance will be performed as follows:

- Hay/straw bales will be anchored in place with at least two properly sized wooden stakes;
- Bindings on bales will be horizontal;
- Bales shall be replaced if damaged or allowing water to flow underneath;
- Damaged bales will be replaced with new bales as deemed necessary by the environmental compliance manager;
- A sufficient supply of bales will be maintained on-site for emergency use;
- Bales bound with wire or plastic will not be used; and
- Properly placed and staked straw wattles or fiber rolls may be used in lieu of hay bales in certain circumstances. Such substitutions will be approved by the environmental compliance manager in advance.

12.5.3 Construction Equipment and Refueling

Procedures for refueling construction equipment will be finalized during consultations with the CCC to ensure safety and spill prevention. Nearly all vehicle fueling and all major equipment maintenance will be performed off-site at commercial service stations or a contractor's yard. A few pieces of large, less mobile equipment (e.g., excavators, paving equipment) will be refueled as necessary on-site. Any such field refueling will not be performed within 100 feet of wetlands or waterways, or within 100 feet of known private or community potable wells, or within any Town water supply Zone I area. The fuel transfer operation will be conducted by a competent person knowledgeable about the equipment, the location, and the use of the work zone spill kit. Proper spill containment gear and absorption materials will be maintained 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. During construction, equipment will be inspected for incidental leaks (e.g., hydraulic fluid, diesel fuel, gasoline, anti-freeze) prior to site access and on a daily basis at the commencement of each work shift. The Proponent will require its contractor to document the daily inspections as part of the approved means and methods. Small pieces of powered equipment such as generators and pavement saws will be placed in containment bins or on absorbent blankets or pads to contain any accidental fuel spills or leaks. In addition, under no circumstances shall fuel or oils of any kind be stored or brought into any duct bank vault, nor shall there be any re-fueling of equipment either inside a vault or within 100 feet of any vault.

Further, the contractor will ensure that all refueling is performed consistent with the requirements described above, and that impact minimization measures and equipment will be sufficient to prevent discharged fluids from leaving the construction zone or reaching wetlands or waterbodies, and be readily available for use. Minimization measures and equipment will include some combination of the following:

(a) dikes, berms or retaining walls sufficiently impervious to contain spilled oil;

(b) sorbent and barrier materials in quantities determined by the contractor to be sufficient to capture the largest reasonably foreseeable spill;

(c) drums or containers suitable for holding and transporting contaminated materials;

(d) curbing;

(e) culverts, gutters, or other drainage systems;

(f) weirs, booms, or other barriers;

(g) spill diversion or retention ponds;

(h) sumps and collection systems;

(i) secondary containment of non-mobile pumps;

(j) The contractor will prepare a list of the type, quantity, and storage location of containment and clean up equipment to be used during construction, and the Company will review this list prior to construction;

(k) All spills will be cleaned up immediately. Containment equipment will not be used for storing contaminated material; and

(l) Date and location of refueling activities will be documented and maintained by the contractor and made available to the Company for review.

The Proponent will prohibit its contractors from refueling machinery or storing oil and/or hazardous materials within Zone I areas and will require its contractors to regularly inspect construction equipment for leaks. Construction equipment not in use will not be stored within Zone I areas. Spill containment equipment will be immediately available throughout construction in the unlikely event of a leak. In addition, under no circumstances will fuel or oils of any kind be stored or brought into in any duct bank vault, nor will there be any re-fueling of equipment either inside a vault or within 100 feet of any vault.

During operations and maintenance, there will be no on-site refueling of vehicles within Zone I areas or within 100 feet of vaults.

12.5.4 Hazardous Materials Storage

The contractor will ensure that bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils will have appropriate secondary containment systems. Storage areas will not have drains unless such drains lead to a containment area or vessel where the entire spill can be recovered. No petroleum products or refueling equipment will be stored within 100 feet of a waterbody, wetland, or Wellhead Protection Area. The containment area shall have a capacity of at least 1.5 times the maximum volume of the largest container. A berm or other suitable containment device will be installed around any storage shed housing potentially environmentally hazardous materials. The Environmental Monitor will designate specific areas where fuel trucks, mobile tanks, and lubricating vehicles will be parked when not in use.

12.5.5 Safety and Protection of Existing Utilities

During construction and installation of the proposed duct bank, the work area will be cordoned off to prevent unauthorized or accidental access. At the end of the day, if construction is not complete along an active section of trenching, any street openings will be covered with steel plates and marked with drums and yellow flashers until pavement patching is accomplished. Openings in the shoulder will be protected and barricaded to ensure traffic and pedestrian safety.

Construction at the proposed onshore substation will be contained within a secured fence line.

Final engineered drawings will be based on the most recent underground utility location information available. Contractors will comply with all Dig-safe regulations and protocols. The Proponent will also ensure their contractors are in strict compliance with the local town road opening requirements and work closely with the applicable department of public works and local utilities. Some existing utilities (storm drain, water etc.,) may need to be relocated in accordance with utility company requirements. Other existing utilities may need to be "supported" (often times use of nylon straps attached to fix points such as jersey barriers to hang pipes) during excavations in accordance with utility company requirements. The work will be performed in a cautious manner, physical barriers, protection devices and hand digging may be required when in close proximity to anticipated utilities.

12.5.6 Solid Waste Management and Recycling

Since the Project will involve open trenching through existing roadways, 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 of at a suitable facility.

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

Rubble generated by the demolition of the existing residential structure on the proposed substation site will be handled in accordance with MassDEP's Solid Waste Regulations.

12.5.7 Environmental Inspections

The Proponent will require the contractor to have a qualified environmental compliance manager who will manage an environmental inspection program to ensure that construction activities will comply with requirements of applicable federal, state, and local environmental permits and approvals. The environmental compliance manager will have immediate access to a Proponent contact and will have "stop work" authority relative to environmental non-compliance

12.6 Traffic Management

As described in Section 2.3, the proposed onshore export cable route is located entirely within public roadway layouts or within the existing parking lot area at the landfall site. As a result, the Proponent has assessed potential traffic-related impacts and has proposed the mitigation measures described below. The traffic analysis took into consideration MassDOT's road classification system, work zone requirements for construction activities, and means of accommodating traffic. Based on estimated work zone requirements, estimated paved area to accommodate a single lane of traffic past a work zone, and paved roadway widths, the traffic assessment conservatively assumed that detours would be required along all roadway segments during construction work hours. Identification of detour routes associated with individual roadway segment was based on a desktop review of roadway networks. Detours were then assessed for potential traffic impacts based on three factors: functional classification of the detour route; detour length, and presence of traffic signals. All proposed work within MassDOT rights-of-ways will be permitted through MassDOT and will adhere to their specific traffic management requirements.

Public transportation is somewhat limited in the Project area, and the busiest transportation facilities, such as the Cape Cod Gateway Airport (formerly Barnstable Municipal Airport) Terminal and Hyannis Transportation Center, are well removed from the onshore routes. In addition, the Proponent is striving to minimize impacts to traffic by avoiding construction in roadways during the busiest times of the year and will also provide suitable detours during construction. For these reasons, potential impacts to public transit or other transportation corridors were not regarded as an important siting criterion for the Project.

Both the Preferred and Noticed Alternative Routes are located entirely within public roadway layouts or within the existing paved parking lot area at the landfall site, and both are of comparable length. From a traffic management perspective, there are no road segments along either route that are considered unique or unusual for this type of construction.

While both routes will require thoughtful traffic management, in terms of the potential for traffic congestion along the onshore export cable routes, the Preferred Route is considered superior to the Noticed Alternative because it has shorter detours, as compared to the Noticed Alternative. In addition, the Noticed Alternative follows some roadways where the identified detour routes would involve diverting traffic to roadways with a lower functional classification.

The Proponent or its contractors will use signage, lane restrictions, police details, certified flaggers, and other appropriate traffic management measures to maintain traffic flow, and traffic management will be coordinated with Town officials. The Proponent will utilize various methods of public outreach prior to and during the construction phase, to keep residents, business owners, and officials updated on the Project construction schedules, vehicular access to abutting properties, lane closures, detours, other traffic management information, local parking availability, emergency vehicle access, construction crew movement and parking, laydown areas, staging, equipment delivery, nighttime or weekend construction, and road repaving. The Proponent will work with the Town, local police and emergency service departments prior to commencement of any work and will formulate a comprehensive traffic plan for each phase of the upland works.

Draft Traffic Management Plans (TMP) for the Preferred Route are included in Attachment C1. 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 for work on roadways under MassDOT jurisdiction. The TMP will be a living document, such that any unanticipated change in construction location, timing, or method previously identified will result in revision of the TMP and approval by the appropriate authorities before any construction changes are implemented.

The Proponent will work closely with the Barnstable DPW and MassDOT District 5 traffic engineers to develop a series of temporary TMPs that include the following mitigation measures:

- Use of Advanced Warning Signs and Changeable Message Boards to alert motorists of “Road Work Ahead” and Alternate Routes.
- Use of Construction Signage to alert motorists of construction activities in the “Work Zone.”
- Use of One Lane Road (Bi-directional) traffic control with police details in the “Work Zone.”
- Use of Detour plans around the “Work Zone” for short-duration road closures during daylight construction activities.
- Use of Traffic Control Devices such as traffic cones, reflectorized drums, and barricades for delineation of travel ways and walkways.
- Use of defined hours of operation.

- Reasonable limits on the length of trench the contractor may have open at any given time.
- Use of Road Plates to cover trench work in progress to restore two-way traffic during nonworking hours or to allow access to local streets and driveways.
- Use of Designated Staging and Laydown Areas to minimize impacts to pedestrian and vehicular traffic.
- Use of public communications media to inform the public of current and future construction activities and how they may affect local traffic conditions.
- Use of uniformed police officers and/or certified flaggers.

The traffic mitigation measures will be in accordance with the *Manual of Uniform Traffic Control Devices* (2009 Edition) and the MassDOT *Work Zone Safety Guidelines*. These manuals and guidance documents provide detailed national and state standards for the application of traffic control devices for temporary roadway modifications that the Proponent will implement in the Project construction zone, including necessary lane widths, lane tapers, size, type and color of warning signs, and similar provisions that ensure safe travel through the construction zone. For additional detail on the TMP, please refer to Attachment C1.

The Proponent and contractors will employ various measures to ensure residents and business owners can access their properties during construction. These measures include avoiding work during certain times of day and using steel plates to bridge trenches along driveways. The Proponent's outreach team and contractors will work with property owners to determine the best method of maintaining access in a given location.

In addition, the Proponent will work with community members, including local business owners and sensitive receptors to minimize construction period traffic-related impacts. Because the Project will maintain continuous access to businesses, the Proponent does not expect significant impacts on businesses. Furthermore, any in-road construction will occur outside the busy summer season, or as otherwise permitted by the Town or relevant agency. The Proponent believes the most effective approach to mitigation will be to communicate directly with each business that might be affected by the Project to determine if there are specific timing concerns such as hours of operation, deliveries, high-traffic periods, or other constraints. The Proponent will work with businesses located along the selected route to minimize any impacts to these businesses.

In terms of parking accommodations for construction workers, for similar types of construction past practice has been to utilize off-site commercial locations such as large existing parking lots or contractors' yards for satellite parking. Employees are then "shuttled" to the project site in company-supplied passenger vans. The Proponent will coordinate any required parking with the local police and town departments, as necessary. There are several areas near the Preferred and Noticed Alternative routes where off-site parking could potentially be utilized, and employees shuttled to the work sites. Installation of the in-road underground duct bank and onshore export 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.

12.7 Construction Hours and Schedule

As described in Section 1.6, the Proponent anticipates that construction of the Project including the duct bank and onshore substation will begin in 2025 and, under the current schedule, commercial operations are expected to commence in 2028. More details regarding construction hours and time-of-year restrictions are provided below.

12.7.1 Construction Hours

For the installation of the onshore duct bank and cables, construction is anticipated to occur during typical work hours (7:00 AM to 6:00 PM) on Monday through Friday, though in specific instances at some locations, or at the request of the Barnstable DPW or MassDOT, the Proponent may seek municipal approval to work at night or on weekends. Nighttime work will be minimized and performed only on an as-needed basis, such as when crossing a busy road, and will be coordinated with the Town.

For work at the landfall site, the Proponent's proposed HDD construction schedule is from 7:00 AM to 7:00 PM on Monday through Saturday, though during cable pull-in the contractor will likely need to work around the clock since once that process is started it cannot be stopped. Should the Proponent need to extend construction work beyond those hours and/or days (i.e., on Sunday), with the exception of emergency circumstances on a given day that necessitate extended hours, the Proponent will seek prior permission from the Town of Barnstable.

With respect to work at the new onshore substation site, construction is anticipated to occur during typical construction work hours (7:00 AM to 7:00 PM) on Monday through Saturday.

12.7.2 Time-of-Year Restrictions

The Proponent will be adhering to the general summer limitations on construction activities on Cape Cod, which the Proponent has reflected in the Project schedule for construction at the landfall site and along the onshore export cable route, where the route follows public roadway layouts. Activities at the landfall site, where the cables will transition from offshore-to-onshore, are not expected to be performed during the summer unless authorized by the Town. Activities along the onshore export cable route (particularly where the route follows public roadway layouts) will also likely be subject to significant construction limitations from Memorial Day through Labor Day unless authorized by the Town, but could extend through June 15 subject to consent from the Town. The Proponent will consult with the Town of Barnstable and MassDOT regarding the construction schedule.

The NE Wind 2 Connector includes the offshore components located within state waters. The Proponent has consulted with NHESP to discuss survey and other technical evaluations relating to listed species in state waters and has included that information in both state and federal permit filings. For context, portions of the Commonwealth Wind project located in federal waters include 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 federal review, either directly or through the CZM consistency process. The Proponent will continue to communicate with NHESP throughout the permit review process.

The Proponent will continue to consult with federal and state agencies regarding relevant TOY restrictions for all aspects of Project construction. The Proponent is proposing the following TOY restrictions at this time:

- HDD activities at the landfall site will begin in advance of April 1 and will be complete by May 1, to avoid and minimize noise impacts to Piping Plover and Least Tern during the breeding season (see Attachment I for a draft Piping Plover and Least Tern Protection Plan). No construction activities, unless otherwise authorized by NHESP, will be performed at the landfall site after May 1 and extending through the end of the nesting season (August 31).

In addition, the Proponent will comply with federal protections for the northern long-eared bat and is consulting with the U.S. Fish and Wildlife Service so Project activities avoid any "take".

12.8 Air Quality

Electricity generated by the Project's offshore wind energy generation facility (in federal waters) will displace electricity produced by fossil fuel power plants and significantly reduce emissions from the New England electric grid over the lifespan of the Project (see Section 10.2). However, during construction of the Project, there will be air emissions from vessels, construction equipment, aircraft (e.g., helicopters), generators, and vehicles, as well as some fugitive emissions. Construction emissions will occur temporarily in portions of the offshore wind energy generation facility, OECC, and onshore facilities under active construction and during vessel transits to and from ports; these construction emissions will be quickly offset by reductions in emissions from the electric grid during the operational period.

12.8.1 Offshore Construction

Offshore Project-related emissions are primarily from internal combustion engines, including marine diesel engines, diesel engines on construction equipment, and diesel generators. Engine manufacturers use minimization and mitigation techniques specific to their engine type to ensure compliance with air quality regulatory standards. Emissions are generally minimized by ensuring complete combustion to avoid the formation of carbon monoxide (CO), particulate matter (PM), and volatile organic compounds (VOC) and by controlling the mixing of fuel and oxygen in the combustion process to avoid "hot spots" that generate nitrogen oxides (NOx). Such techniques can include the use of water injection and exhaust gas recirculation to cool the combustion temperature. Engine manufacturers can also use add-on pollution controls to mitigate air emissions formed during the combustion process. For example, selective catalytic reduction can be used to convert NOx to nitrogen and water in the presence of a catalyst. Oxidation catalysts can also be used to eliminate products of incomplete combustion (e.g., CO, VOCs, and PM) using technology similar to the catalytic converter found in cars.

The Project will minimize sulfur dioxide (SO_2) and PM emissions through the use of clean, low-sulfur fuels in compliance with the air pollution control requirements detailed in this section. Annex VI of the International Maritime Organization's International Convention for the Prevention of Pollution from Ships (MARPOL) treaty is the main international treaty that addresses air pollution from marine vessels. In the U.S., MARPOL Annex VI is implemented through the *Act to Prevent Pollution from Ships* (33 U.S.C. §§ 1901-1905) and *Control of NO_x, SO_x, and PM Emissions from Marine Engines and Vessels Subject to the MARPOL Protocol* (40 CFR Part 1043). Under MARPOL Annex VI and EPA's corresponding regulations, any foreign and domestic vessel used during the Project will comply with the fuel oil sulfur content limit of 1,000 parts per million (ppm). Applicable non-road engines (e.g., generators used offshore) will comply with the non-road diesel fuel sulfur limit of 15 ppm under *Regulations of Fuels, Fuel Additives, and Regulated Blendstocks* (40 CFR Part 1090).

The engines and generators used during construction of the Project will be certified by the manufacturer to meet or emit less than the applicable non-road and marine engine emission standards for NOx, CO, VOCs (as hydrocarbons), and PM, which include:

- **MARPOL Annex VI:** Annex VI of the MARPOL treaty establishes global limits on the sulfur content of fuel oil used aboard any foreign or domestic vessel and NOx emissions limits from foreign vessels built after 2000 with engine sizes greater than 130 Kilowatts (kW) (~174 horsepower).

- **40 CFR Part 1039, Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines:** 40 CFR § 1039 sets emission standards and certification requirements for non-road diesel engines.

- 40 CFR Part 1042, Control of Emissions from New and In-Use Marine Compression-Ignition Engines and Vessels: 40 CFR § 1042 sets emission standards and certification requirements for domestic marine diesel engines.

EPA's emission standards for marine and non-road compression-ignition internal combustion engines contained in the above regulations are structured as a tiered progression, with each tier of emission standards becoming increasingly stringent. These standards are primarily a function of the size, engine displacement, and age of the diesel engine. Each tier phased in over several years (by categories of engine size).

In addition to the regulations above, the Project's emissions on the Outer Continental Shelf (OCS) (i.e., federal waters) are regulated through the EPA's OCS Air Permit process under the Outer Continental Shelf Air Regulations (40 CFR Part 55). The OCS Air Regulations, which implement Section 328(a)(1) of the CAA, establish federal air pollution control requirements for OCS Sources located beyond a state's seaward boundaries. An OCS source is defined as "any equipment, activity, or facility which—(i) emits or has the potential to emit any air pollutant, (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. 1331 et seq.], and (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf." Per 40 CFR Part 55.2, vessels are only considered OCS sources when they are: "(1) Permanently or temporarily attached to the seabed and erected thereon and used for the purpose of exploring, developing, or producing resources therefrom, within the meaning of section 4(a)(1) of Outer Continental Shelf Lands Act (OCSLA) (43 U.S.C. § 1331 et seq.); or (2) Physically attached to an OCS facility, in which case only the stationary sources aspects of the vessels will be regulated." The Project's activities and equipment that meet the definition of an OCS source are expected to include engines and equipment on the WTGs, ESP(s), and certain vessels (e.g., jack-up vessels, stationary anchored vessels) operating within the lease area.

Under 40 CFR Part 55, OCS sources located within 25 miles beyond a state's seaward boundary are also required to comply with the air quality requirements of the Corresponding Onshore Area (COA). Massachusetts has been designated as the COA. Therefore, the Project's OCS sources will be required to comply with the applicable Massachusetts air quality regulations including Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) under 310 CMR § 7.00. The Proponent expects to meet LAER and BACT for vessels that operate as an OCS source by using vessels with engines meeting or emitting less than the highest EPA and/or MARPOL Annex VI Tier emission standards that are available at the time of deployment, operating engines efficiently, using good combustion practices, and using clean fuels.

The Proponent's OCS Air Permit will contain, at a minimum, emission limitations, monitoring, testing, and reporting requirements for OCS sources. Additionally, it is expected that the OCS Air Permit will require the Proponent to offset applicable NOx and VOC operational emissions by acquiring emissions offsets or other means acceptable to EPA.

At this time, the specific construction equipment and vessels (and hence, engines) that will be used for the Project are unknown; all vessel and equipment specifications are highly speculative at this stage of the development process and are subject to change. The Project requires the flexibility to use OCS source vessels with the highest tiered engines that are available *at the time of deployment* for numerous reasons. There are a limited number of vessels globally that are capable of supporting offshore wind energy project construction and operation, which must be shared by an exponentially increasing number of projects world-wide. This pool of suitable vessels is further limited by the Jones Act, the Passenger Vessel Services Act, the Proponent's contractual agreements, and Project-specific criteria regarding vessel size, power, and other characteristics. The Project cannot tolerate delays in its construction schedule to wait for cleaner vessels that are capable of the required task; otherwise, the Project risks missing key weather windows, having installation processes run up against TOY restrictions for important species, and incurring knock-on effects to other parts of the Project's installation and commissioning, all of which introduce significant risks for timely completion of the Project and could result in higher overall Project-wide emissions. For similar reasons, it is technically infeasible for the Proponent to retrofit or replace specific marine engines on vessels used during the Project. The Proponent expects to use third-party vessels and does not have the ability to direct vessels owned and operated by others to be taken out of service to be upgraded or retrofitted.

12.8.2 Onshore Construction

No stationary source air permit is anticipated to be needed from MassDEP. The Proponent will require all construction to be performed in accordance with applicable sections of the MassDEP Air Pollution Control Regulations at 310 CMR 7.00. During Project construction, temporary impacts to air quality from vehicle and construction equipment emissions, as well as dust generated by construction activities, will be minimized and mitigated.

The Proponent will require its contractors to use ultra-low sulfur diesel (ULSD) with a maximum sulfur content of 15 ppm in all diesel-powered vehicles and non-road engines used onshore, in accordance with 40 CFR Part 1090. The Proponent will also comply with the requirements of the MassDEP Diesel Retrofit Program. The Diesel Retrofit Program originated as an air quality mitigation measure for the Central Artery/Tunnel Project. The program encourages users of diesel construction equipment to install exhaust emission controls such as oxidation catalysts or particulate filters on their diesel engines. MassDEP requires participation in the Diesel Retrofit Program by municipalities applying for funding under the State Revolving Fund for water and wastewater projects. There is no MassDEP requirement for participation by other project proponents; nevertheless, the Proponent is voluntarily committing to comply with the Diesel Retrofit Program requirements.

Consistent with the Diesel Retrofit Program, all onshore diesel-powered non-road construction equipment over 50 horsepower to be used for 30 or more days over the course of Project construction will either be EPA Tier 4–compliant or will have EPA-verified (or equivalent) emissions control devices, such as oxidation catalysts or particulate filters (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine. The Proponent will require its contractors to maintain a list of all engines being used for onshore construction of the Project 50 horsepower or greater, their emission tiers and, if applicable, the best available control technology installed on each piece of equipment.

In accordance with Massachusetts' anti-idling law (G.L. c. 90, § 16A, c. 111, §§ 142A–142M) and MassDEP's corresponding regulations at 310 CMR 7.11, the Proponent and its contractors will limit vehicle idling time to five minutes except when engine power is necessary for the delivery of materials, to service vehicles, or to operate accessories to the vehicle (e.g., power lifts). To reduce idling times, the Proponent's pre-construction environmental training will include training on vehicle idling times, the environmental inspector and site supervisors will be required to periodically inspect and monitor for vehicle idling times, and anti-idling signage will be posted in Project construction trailers and at other potentially appropriate locations.

Although fugitive dust may be generated during construction activities, the relatively short duration of construction at any single location for this Project makes it unlikely that the migration of dust will cause off-site impacts. Furthermore, soil excavation does not typically generate dust due to the natural moisture content of subsurface soils. Nonetheless, the Proponent will require its contractors to implement dust control measures during active construction, as needed and in accordance with 310 CMR 7.09. These measures are expected to include:

- Mechanical street sweeping of construction areas and surrounding streets and sidewalks, as necessary;
- Using track out pads to prevent off-site migration of soils, as appropriate;
- Minimizing stockpiling of materials and storage of construction waste on-site;
- Minimizing the duration that soils are left exposed;
- Wetting and/or covering exposed soils and stockpiles to prevent and control dust generation; and
- Removing soil and construction waste in covered or enclosed trailers.

Pavement will be cut with a pavement saw, which cuts a trench line in the pavement and across driveways and any intersecting roadways. Pavement will then be removed, trucked away, and disposed of in accordance with applicable regulations. No pavement crushing will occur on-site.

These measures to minimize impacts to air quality are included in the draft Construction Management Plan (CMP) included in Attachment N.

12.9 Construction Period Noise

Potential construction period noise impacts associated with the onshore components of the Project and proposed mitigation measures are described below. In addition, potential noise impacts from operation of the Project substation are discussed in Section 11.

12.9.1 Sound Level Considerations - Duct Bank and Cable Installation

Civil construction activities related to the Project will generally consist of the following five principal noise-producing phases:

- Trench excavation;
- Duct bank installation;
- Splice Vault installation;
- Backfill and Compaction; and
- Final pavement restoration.

Each of these phases will be conducted in sequence at each location; it is possible that several phases of construction will be ongoing simultaneously along various sections of the onshore export cable route.

The potential for noise impacts from Project construction is a function of the specific receptors along the route as well as the equipment used and proposed hours of operation. Construction is anticipated to occur during typical work hours (Monday to Friday, from 7:00 AM to 6:00 PM), though in specific instances at some locations, or at the request of the DPW, the Project may seek municipal approval to work at night or on weekends. Nighttime work will be minimized and performed only on an as-needed basis, such as when crossing a busy road, and will be coordinated with the Town.

Onshore export cable installation will generate noise levels that are periodically audible along the Project route, conductor-pulling sites, and staging and maintenance areas. Proposed construction equipment will be similar to that used during typical public works projects (e.g., roadway resurfacing, storm sewer installation, transmission line installation).

In general, sound levels from construction activities will be dominated by the loudest piece of equipment operating at the time. Therefore, at any given point along the work area, the loudest piece of equipment will be the most representative of the expected sound levels in that area. Maximum sound levels from typical equipment proposed during construction are listed in Table 12-2 at a reference distance of 50 feet.

Table 12-2 Reference Sound Levels of Construction Equipment at 50 feet

Equipment	Max. Sound Level (dBA) at 50 feet
Mobile Crane *(duct bank and manhole installation)*	85 (1)
Pavement Saw *(trench excavation)*	90 (1)
Asphalt Paver *(manhole installation, street restoration)*	85 (1)
Pneumatic Hammer *(trench excavation)*	85 (1)
Mounted Impact Hammer (Hoe Ram) *(trench excavation if ledge)*	90 (1)
Backhoe *(trench excavation)*	80 (1)
Dump Truck *(manhole installation, trench excavation)*	84 (1)
Generator (cable pulling and splicing)	82 (2)
Air Conditioning (cable splicing)	60 (at 3 feet) (2)

Source:

1. Thalheimer, E., “Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project,” Noise Control Eng. Journal 48 (5), 2000 Sep-Oct.
2. US EPA, “Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances,” prepared by Bolt, Beranek and Newman, Report No. NTID300.1, December 31, 1971.

Construction equipment proximity to noise-sensitive land uses will vary along the proposed onshore export cable route. Because sound levels from a point source drop off due to geometric divergence (hemispherical spreading) at a rate of 6 dB per doubling of distance, the reference sound levels at 50 feet in Table 12-2 will decrease by 6 dBA for locations 100 feet back from the edge of construction. For example, maximum backhoe sound levels at 100 feet would be expected to be approximately 74 dBA. Similarly, if setbacks are less than 50 feet, sound levels will be higher. For example, if a setback is 25 feet from construction activity, sound levels from each piece of equipment would increase by 6 dBA. Therefore, the same backhoe at 25 feet would be expected to produce a maximum sound level of 86 dBA. To reiterate, the 80 dBA is the maximum expected backhoe sound level, while typical levels would be lower.

In addition, the modeled sound impacts conservatively assume that construction equipment is operated continuously at maximum load. In fact, construction equipment generally does not operate at maximum load with significant variation in power and usage. Actual received sound levels would fluctuate depending on the construction activity, equipment type, and separation distances between source and receiver. Other factors such as terrain and obstacles (e.g., buildings) will act to further limit the impact of construction-period noise levels.

Trench excavation and manhole installation are typically the loudest phases of construction. Under normal trenching conditions (i.e., no ledge, no excessive underground utilities), the construction crews involved in trench excavation are expected to progress at an average rate of approximately 80 to 200 feet per day for an average duration of approximately seven days at any one location. If rock is encountered during construction, equipment such as a hoe ram will be used, which would temporarily increase noise levels.

In general, cable pulling and splicing phases are not expected to generate significant noise. Once adjacent cable sections are installed, they will be spliced together inside the manholes. Splicing high-voltage solid-dielectric transmission cable is a complex operation; splicing activities will not be continuous, but will take place over four or five extended workdays at each manhole location. The splicing operation requires a splicing van and a generator, and an air conditioning unit may be used to control the moisture content in the manhole. A portable generator will provide electrical power for the splicing van and air conditioning unit, and will be muffled to minimize noise; this technique has been used successfully in locations with sensitive receptors. Typically, the splicing van will be located at one manhole access cover, while the air conditioner will be located near a second manhole access cover, and the generator will be located in a convenient area that does not restrict traffic movement around the work zone.

The electric generator and truck with ventilation fans will generate some noise when manholes are occupied; however, every practicable effort will be made to limit noise disturbance from this source. Mitigation measures will include use of a low noise/muffled generator, portable sound walls (temporary noise barriers) as needed, blocking the path of generators, and working with municipalities to coordinate work.

The Proponent has developed construction procedures and policies to govern the manner in which construction will occur within existing public roadway layouts, and construction management is described in Section 12.6. During construction, BMPs will be implemented to minimize and mitigate potential impacts to the surrounding area and sensitive resources, and the hours of construction will be coordinated with local authorities.

12.9.2 Comparison of Preferred Route and Noticed Alternative Route

Noise from construction of the Preferred Route and the Noticed Alternative Route will impact residences, commercial/industrial units, and sensitive receptors. There are 13 more residential units along the Preferred Route versus the Noticed Alternative Route. The potential for impacts to residential units is effectively the same for each route. As there are 151 more commercial/industrial units along the Preferred Route versus the Noticed Alternative Route, the Preferred Route will impact more commercial/industrial units during construction. As there are nine more sensitive receptors along the Preferred Route than along the Noticed Alternative Route, the Preferred Route will impact more sensitive receptors during the construction phase of the Project. However, as explained throughout this section, the Proponent will implement mitigation measures to avoid and minimize construction-related impacts.

12.9.3 Sound Level Considerations – Trenchless Crossings

HDD will be used to accomplish the offshore-to-onshore transition at the landfall site, and a trenchless crossing of Route 6 is likely to be accomplished via pipe jacking.

12.9.4 Landfall Site HDD

HDD has three major processes: (1) conductor casing installation; (2) pilot hole drilling/alignment reaming; and (3) conduit pull-back. Conductor casing installation involves drilling or hammering the conductor sleeve using a pneumatic hammer powered by a compressor and suspended by an excavator. A drill then creates a pilot hole through the casing followed by multiple reaming passes to the HDD exit location. A conduit is subsequently pulled back through the drilled alignment for future installation of the subsea cable.

The conductor sleeve (casing) or conductor casing is an oversized steel casing relative to the HDD conduit. The casing is installed prior to beginning HDD pilot bore installation over the planned drill path such that the pilot bore, reamers, and pipe pullback are all performed through the center of the conductor casing. The depth of installation depends on ground conditions, particularly the transition from loose or soft overlying soils to denser or stiffer underlying soils. The casing can be installed with drilling methods wherein teeth are welded to the end of the casing and the casing is drilled into place using the HDD drill rig or other similar rig. Alternatively, the casing can be rammed into place using a similar rig utilizing a percussive hammer. The choice to use ramming or drilling methods depends on noise and vibration limitations and ground conditions.

There are typically two purposes for a conductor casing in HDD operations. The first purpose is to support unstable ground prior to starting pilot bore, reaming, and product pipe installation. HDD requires a larger overcut between the product pipe (conduit) and the borehole to facilitate installation relative to other trenchless methods. As such, there is an increased risk of hole collapse in unstable soils. The conductor casing holds the hole open in these soils until the drill path can reach deeper, more competent material. The second purpose is to mitigate inadvertent drilling fluid release, the risk of which is often higher in thin ground cover near HDD exits and entries. The conductor casing prevents drilling fluid from leaving the confines of the casing.

While there are multiple noise sources associated with the HDD process, the loudest activity is conductor sleeve installation, and to be conservative this analysis assumes the loudest installation technique (i.e., hammering). Reference sound level measurements of conductor sleeve drilling activity were performed by Epsilon Associates, Inc. for another project, and Table 12-3 provides a series of expected sound pressure levels at varying distances from HDD conductor sleeve drilling based on measured data. Section 12.2 provides a more detailed description of the HDD to be used to accomplish the offshore-to-onshore transition at the landfall site, and Section 2.3.6 provides a detailed description of the Route 6 trenchless crossing.

Table 12-3 Conductor Sleeve Drilling Sound Levels (part of HDD)

Distance (feet)	Sound Pressure Level (dBA)
50	102
100	96
250	88
500	82
1,000	76
1,500	72
2,000	70
3,000	66

Potential receptors in the vicinity of the HDD will be at a variety of setback distances from the actual activity. The closest residence to potential HDD activity at the Dowses Beach Landfall Site is located over 500 feet from where conductor sleeve drilling will take place. This corresponds to an outdoor estimated sound level of approximately 82 dBA (unmitigated and assuming direct, unobstructed line of sight). For a point of reference, a typical heavy truck is approximately 85 dBA at 50 feet. Installation at the landfall site will be performed in the off-season, and the Proponent will assess additional sound mitigation techniques and will work with homeowners who may be in the area during HDD operations.

Construction noise mitigation techniques are discussed in Section 12.9.6. The estimated noise level while installing the landfall HDD conductor sleeve using the vibratory hammering process is approximately 102 dBA (unmitigated) at a distance of 50 feet. The actual sound level will be predicated on the contractor's specific means and methods. A temporary sound barrier can be installed to minimize sound propagation.

In addition to conductor sleeve drilling, other HDD activities that will produce sound include trucks for hauling/disposal of slurry, the HDD drill rig, mobile site equipment such as a crane, excavator, and/or front-end loader, generator, slurry plant, and pumps. The following sound level estimates for the equipment associated with HDD are estimated based on equipment noise ratings from recently completed projects and noise attenuation data presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, dated September 2018 and the Federal Highway Administration (FHWA) Construction Noise Handbook. Actual noise levels may vary. The estimated maximum unmitigated sounds levels at a distance of 50 feet associated with other activities for HDD are as follows:

- Trucks: 84 dBA
- Excavator: 80 dBA
- Front End Loader: 79 dBA
- Mobile Crane: 83 dBA
- HDD Rig: 81 dBA during drilling / 87dBA during casing advancement (if drilled)
- Generator: 81 dBA
- Slurry Plant: 83 dBA
- Pumps: 81 dBA

In general, extended work hours would only be required if an unexpected condition were encountered during construction. However, the HDPE pipe pullback process requires a continuous operation to maintain borehole stability. As such, 24-hour operations are anticipated to be required for that activity.

12.9.5 Route 6 Trenchless Crossing

Pipe jacking is likely to be utilized as the trenchless crossing technique for crossing Route 6, and no residences are located within approximately 400 feet. Hours for pipe jacking are anticipated to be consistent with onshore duct bank and cable installation or as otherwise agreed upon with the Town and/or MassDOT. The proximity of Route 6 means there are already significant ambient sound levels in the location of this crossing.

12.9.6 Construction Noise Mitigation

While intermittent increases in noise levels are expected during construction activities, the Proponent is committed to minimizing these impacts. The Proponent will mitigate noise from construction equipment along the selected route near sensitive locations such as residences. The distance between the construction equipment and the sensitive locations will vary along the selected route. Mitigation equipment may include temporary noise barriers.

The Proponent will require that construction equipment be operated such that construction-related noise levels will comply with applicable sections of the MassDEP Air Quality Regulations at 310 CMR 7.10, particularly subsections (1) and (2), which pertain to the use of sound-emitting equipment in a considerate manner as to reduce unnecessary noise. The Project will make every reasonable effort to minimize noise impacts from construction. The Town of Barnstable does not have a bylaw applicable to construction-related noise.

Noise mitigation measures expected to be incorporated into the Project include:

- Minimizing the amount of work conducted outside of typical construction hours;
- Ensuring that appropriate mufflers are installed and maintained on construction equipment;
- Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance;
- Requiring muffling enclosures on continuously operating equipment such as air compressors and welding generators;
- Turning off construction equipment when not in use and minimizing idling times; and
- Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical.

Blasting is not anticipated, nor is construction expected to result in noticeable vibrations.

Specific to the HDD operation at the landfall site, a primary noise mitigation technique that could be implemented is installation of a temporary sound barrier between the HDD activity and residences. The sound barrier would be an acoustical (i.e., sound-absorbing or blocking) blanket installed on the construction fence or as a free-standing barrier that could function as a substitute to the construction fence. Conductor sleeve installation will be the loudest component of the HDD operation. Such a barrier would likely need to be approximately 16 feet high such that the line-of-sight is broken between the conductor sleeve installation and the second story of the nearest residences. This temporary barrier would be expected to reduce sound levels from conductor sleeve installation, and all subsequent construction activity, by about 5 to 10 dBA. The Proponent would determine whether to use an acoustical blanket based on whether its use would be expected to significantly reduce sound levels at occupied residences during the scheduled construction activity.

To further reduce potential impacts, conductor sleeve drilling will be consistent with the work hours described in Section 12.7 unless otherwise coordinated with the Town, and the HDD schedule will avoid the summer season.

12.10 Water Quality, Drainage, and Water Supply Protection

The Project will have no long-term impact on drainage or water quality, and construction is designed to avoid any impact to existing drainage systems. Post-construction, the Project will not generate nitrogen or hazardous liquids and will have no impacts to water quality.

12.10.1 Refueling

Procedures for refueling construction equipment will be finalized during consultations with the CCC to ensure safety and spill prevention. These procedures are discussed in Section 12.5.3.

12.10.2 Groundwater

High groundwater levels are not expected along the route, although depending on the relative elevation of proposed duct bank, dewatering may be necessary in the trench during construction and if affected by stormwater. Construction-period dewatering procedures are described in greater detail in Section 12.3.2. Standard erosion control practices will be employed to minimize erosion during trenching and construction activities, as described in further detail in Section 12.5.2.

As described in Section 6.1, onshore routing options pass through Zone I and Zone II protection areas. As per MassDEP regulation, Zone I is the protective radius required around a public water supply well or wellfield and Zone II is an area identified the area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). Project construction is not expected to result in impacts to any of these water supply protection areas.

Storage areas for hazardous materials such as oils, greases, and fuels will be provided with secondary containment to ensure that no spills reach stormwater or other wetlands or waters. Contingencies for the proper disposal of contaminated soils shall be established (e.g., use of a licensed hauler and approved landfill) early in the construction period. The Proponent will develop a Spill Prevention Control and Countermeasure (SPCC) Plan which will be overseen by the contractor's environmental compliance manager. The contractor's responsibilities will include:

- Monitoring waste collection and disposal;
- Preparing a pre-job inventory of lubricants, fuels, and other materials that could potential be discharged;
- Consulting with the Proponent to determine reportable spill quantities for materials identified in the inventory;
- Classifying each material on the pre-job inventory as hazardous or nonhazardous waste;

- Identifying the approved waste transporters and disposal sites for both hazardous and non-hazardous wastes;
- Approving the contractor's list of equipment and spill procedures and impact minimization measures;
- Defining the duties and coordinating the responses of all persons involved in cleaning up a spill;
- Maintaining, with support from the Proponent, an up-to-date list of names, addresses, and phone numbers of all persons to be contacted in case of a spill; and
- Conducting training for spill prevention and impact minimization.
- Conduct pre-planning meetings and trainings with foremen and crews for any work within 100 feet of wetlands waterways, or within 100 feet of known private or community potable wells, or when working within the Zone 1 of any Town wells.

12.10.3 Turbidity

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; sediment dispersion is discussed in Section 6.2.1. Jet-plowing and minimizing the amount of sand wave dredging will minimize sediment disturbance (see Section 12.1). Estimated dredge volumes are shown in Table 5-3.

As described in Section 12.2, during HDD operations at the landfall site, little to no turbidity is expected as the drill head reaches the surface of the seafloor. Although not anticipated, a small amount of bentonite clay could be released at the exit point of the HDD operation, and the contractor may install silt curtains at the exit point; alternatively, where the pilot hole exits the seafloor, the contractor may lower a gravity cell that would capture any incidental bentonite drilling fluid released from the end of the HDD drill. Bentonite clay is an inert, naturally occurring substance and is appropriate for use in sensitive environments because it poses minimal environmental risks; for this reason, bentonite is commonly used for the HDD process. Nevertheless, the contractor will minimize the amount of bentonite near the exit hole and will have controls near the exit hole to minimize and contain any bentonite.

12.10.4 Spill Prevention Control and Countermeasures Plan

For onshore construction, procedures for maintaining and refueling construction equipment are described in Section 12.5.3, and hazardous materials storage is discussed in Section 12.5.4.

A variety of offshore vessels will be used for Project construction and will require refueling. The environmental risks associated with such refueling are small and will be minimized using appropriate best practices, compliance with all applicable requirements, and effective advanced planning. Smaller vessels will likely refuel in port. Offshore refueling of large installation vessels may occur. The method of refueling will be dependent on the final selection of contractors, their vessel spread, the type of fuel used by those vessels, and fuel availability. In the case of offshore refueling, a Jones Act-compliant bunker barge or vessel would likely be used. The offshore refueling process would consist of the following three steps: (1) mooring the bunker barge/vessel to the installation vessel; (2) pumping the fuel from the bunker barge/vessel to the installation vessel; and (3) de-mooring the bunker barge/vessel. Vessels may need to travel to a more sheltered location (i.e., an area with more quiescent seas) before refueling can take place.

Vessel fuel spills are not expected. Nonetheless, the Proponent is drafting an Oil Spill Response Plan (OSRP) in accordance with the requirements of 30 Code of Federal Regulations (CFR) Part 254, Subpart B, Oil Spill Response Plans for Outer Continental Shelf Facilities that will pertain to construction activities. In accordance with 30 CFR 254, the OSRP will demonstrate that the Proponent can respond effectively in the unlikely event that oil is discharged from the Project. The OSRP will provide for rapid spill response, clean up, and other measures that would minimize any potential impact to affected resources from spills or accidental releases, including spills resulting from catastrophic events. Routine training and exercises regarding the content of the OSRP will be carried out regularly to prepare personnel to respond to emergencies should they occur. Secondary containment systems will be provided at operating areas more prone to spillage.

In the event of a spill or incident, the vessels' and construction firms' plans will be used to contain and/or stop an incident in compliance with requirements of the Project's OSRP. As such, these plans will be checked and reviewed by the Proponent to make sure that they are in accordance with regulatory and Project requirements and that a spill plan is in place.

12.11 Conclusion

As described above, construction-period impacts from the Project will be spatially constrained and temporary. Appropriate construction management and mitigation measures will avoid and minimize impacts related to air quality, noise, water quality, erosion, and sedimentation. These construction-period impacts from the Project would be comparable for the Preferred Route and Notice Alternative since the same construction methodologies and mitigation measures would be used for construction along either route.

Section 13.0

Proposed Section 61 Findings and Mitigation

13.0 PROPOSED SECTION 61 FINDINGS AND MITIGATION

This section includes proposed Section 61 Findings for State Agencies as well as a summary discussion of mitigation commitments.

13.1 Proposed Section 61 Findings

In accordance with M.G.L. c. 30, Section 61 and 301 CMR 11.12(5), any State Agency that takes Action on a project for which the Secretary required an EIR shall determine whether the project is likely, directly, or indirectly, to cause Damage to the Environment and shall make a finding describing the Damage to the Environment and confirming that all feasible measures have been taken to avoid or minimize the Damage to the Environment.

Contents of Section 61 Findings (301 CMR 11.12(5)(a)): In all cases, the Agency shall base its Section 61 Findings on the EIR, including all studies, analyses and assessments contained therein regarding environmental and public health impacts and effects on Environmental Justice Populations, and shall specify in detail: all feasible measures to be taken by the Proponent or any other Agency or Person to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable; if applicable, any and all actions to reduce the potential for unfair or inequitable effects upon an Environmental Justice Population; an Agency or Person responsible for funding and implementing mitigation measures, if not the Proponent; and the anticipated implementation schedule that will ensure that mitigation measures shall be implemented prior to or when appropriate in relation to environmental impacts. In accordance with M.G.L. c. 30, § 61, the reasonably foreseeable climate change impacts of a project, including its additional GHG emissions, and effects, such as predicted sea level rise, are within the subject matter of any required Permit, Land Transfer or Financial Assistance.

Section 61 Findings and Agency Action (301 CMR 11.12(5)(b): Provided that mitigation measures are specified as conditions to or restrictions on the Agency Action, the Agency shall:

1. make its Section 61 Findings part of the Permit, contract, or other document allowing or approving the Agency Action, which may include additional conditions to or restrictions on the Project in accordance with other applicable statutes and regulations; or

2. refer in its Section 61 Findings to applicable sections of the relevant Permit, contract, or other document approving or allowing the Agency Action.

Subject Matter Jurisdiction Limitations (301 CMR 11.12(5)(c)): In the case of a Project undertaken by a Person that requires one or more Permits or a Land Transfer but does not seek the provision of Financial Assistance, any Participating Agency shall limit its Section 61 Findings, or any mitigation measures specified as conditions to or restrictions on the Agency Action, to those aspects of the Project that are within the subject matter of any required Permit or within the area subject to a Land Transfer.

State Agencies that will be required to make Section 61 Findings for the Project prior to issuing permits for, funding, or otherwise implementing the Project include or may include the Agencies identified in Table 1-1.

Depending on agency procedures, as described above, the various Section 61 Findings may be part of permits or agency actions or may be stand-alone documents. Moreover, agencies will generally limit Section 61 Findings to impacts and mitigation within the scope of the subject matter of their permits.

The Proposed Section 61 Findings below and the subsequent sections contain commitments the Proponent has made as a basis for respective agency Section 61 Findings. See also the Summary of Impacts and Mitigation Measures, Table 13-1.

13.1.1 Massachusetts Department of Environmental Protection

Project Name:	New England Wind 2 Connector
Project Location:	Barnstable, Edgartown, Nantucket, and Mashpee
Project Proponent:	Commonwealth Wind, LLC
EEA Number:	16611
Date Noticed in Monitor:	

These Findings for the New England Wind 2 Connector (EEA #16611) have been prepared in accordance with the provisions of M.G.L. c. 30, Section 61 and 301 CMR 11.00. On December 9, 2022, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the preparation of a mandatory Environmental Impact Report (EIR) is required.

The NE Wind 2 Connector will enable the delivery of approximately 1,200 megawatts (MW) of offshore wind energy generated by Commonwealth Wind to the ISO-New England electrical grid. This will be accomplished with offshore and onshore export cables, a new onshore substation located off Oak Street in West Barnstable, and an interconnection at the existing West Barnstable Substation. The offshore portion of the proposed Project is proposed to pass through state waters in the towns of Barnstable, Edgartown, Nantucket, and Mashpee. The onshore portion of the Project would be in the Town of Barnstable, with the onshore export cables installed primarily within existing Town of Barnstable roadway layouts from the existing paved parking lot at the landfall site to the proposed new onshore substation and from the proposed new onshore substation to the existing West Barnstable Substation interconnection point. The purpose of the Project is to connect Commonwealth Wind's proposed offshore wind energy generation facility in federal waters to the regional electric grid.

As this Project is currently described, the following permits will be required from the Department:

- Chapter 91 License;
- Section 401 Water Quality Certification; and

- If there are appeals from a local conservation commission's Order of Conditions under the state Wetlands Protection Act, a Superseding Order of Conditions.

Based upon its review of the MEPA documents, the request for authorization submitted to date, and the Department's regulations, the Department finds that the terms and conditions to be incorporated into the authorization required for this Project will constitute all feasible measures to avoid damage to the environment, including consideration of the potential effects of climate change, and will minimize and mitigate such damage to the maximum extent practicable for those impacts subject to the Department's authority (see the appended Mitigation Table). Implementation of the mitigation measures will occur in accordance with the terms and conditions set forth in the authorization.

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Department of Environmental Protection

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By

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[Date]

13.1.2 Massachusetts Department of Transportation

Project Name:	New England Wind 2 Connector
Project Location:	Barnstable, Edgartown, Mashpee, and Nantucket
Project Proponent:	Commonwealth Wind, LLC
EEA Number:	16611
Date Noticed in Monitor:	

These Findings for the New England Wind 2 Connector (EEA #16611) have been prepared in accordance with the provisions of M.G.L. c. 30, Section 61 and 301 CMR 11.00. On December 9, 2022, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the preparation of a mandatory Environmental Impact Report (EIR) is required.

The NE Wind 2 Connector will enable the delivery of approximately 1,200 megawatts (MW) of offshore wind energy generated by Commonwealth Wind to the ISO-New England electrical grid. This will be accomplished with offshore and onshore export cables, a new onshore substation located off Oak Street in West Barnstable, and an interconnection at the existing West Barnstable Substation. The offshore portion of the proposed Project is proposed to pass through state waters in the towns of Barnstable, Edgartown, Nantucket, and Mashpee. The onshore portion of the Project would be in the Town of Barnstable, with the onshore export cables installed primarily within existing Town of Barnstable roadway layouts from the existing paved parking lot at the landfall site to the proposed new onshore substation and from the proposed new onshore substation to the existing West Barnstable Substation interconnection point. The purpose of the Project is to connect Commonwealth Wind's proposed offshore wind energy generation facility in federal waters to the regional electric grid.

As this Project is currently described, the following permits will be required from the Department:

- Non-Vehicular Access Permit

Based upon its review of the MEPA documents, the permit applications submitted to date, and the Department's regulations, the Department finds that the terms and conditions to be incorporated into the permit required for this Project will constitute all feasible measures to avoid damage to the environment, including consideration of the potential effects of climate change, and will minimize and mitigate such damage to the maximum extent practicable for those impacts subject to the Department's authority (see the appended Mitigation Table). Implementation of the mitigation measures will occur in accordance with the terms and conditions set forth in the permit.

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Department of Transportation

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By

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[Date]

13.1.3 Massachusetts Department of Conservation and Recreation

Project Name:	New England Wind 2 Connector
Project Location:	Barnstable, Edgartown, Mashpee, and Nantucket
Project Proponent:	Commonwealth Wind, LLC
EEA Number:	16611
Date Noticed in Monitor:	

These Findings for the New England Wind 2 Connector (EEA #16611) have been prepared in accordance with the provisions of M.G.L. c. 30, Section 61 and 301 CMR 11.00. On December 9, 2022, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the preparation of a mandatory Environmental Impact Report (EIR) is required.

The NE Wind 2 Connector will enable the delivery of approximately 1,200 megawatts (MW) of offshore wind energy generated by Commonwealth Wind to the ISO-New England electrical grid. This will be accomplished with offshore and onshore export cables, a new onshore substation located off Oak Street in West Barnstable, and an interconnection at the existing West Barnstable Substation. The offshore portion of the proposed Project is proposed to pass through state waters in the towns of Barnstable, Edgartown, Nantucket, and Mashpee. The onshore portion of the Project would be in the Town of Barnstable, with the onshore export cables installed primarily within existing Town of Barnstable roadway layouts from the existing paved parking lot at the landfall site to the proposed new onshore substation and from the proposed new onshore substation to the existing West Barnstable Substation interconnection point. The purpose of the Project is to connect Commonwealth Wind's proposed offshore wind energy generation facility in federal waters to the regional electric grid.

As this Project is currently described, the following permits will be required from the Department of Conservation and Recreation (DCR):

- Construction and Access Permit

Based upon its review of the MEPA documents, the permit applications submitted to date, and the Department's regulations, the Department finds that the terms and conditions to be incorporated into the permit required for this Project will constitute all feasible measures to avoid damage to the environment, including consideration of the potential effects of climate change, and will minimize and mitigate such damage to the maximum extent practicable for those impacts subject to the Department's authority (see the appended Mitigation Table). Implementation of the mitigation measures will occur in accordance with the terms and conditions set forth in the permit.

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Department of Conservation and Recreation

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By

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[Date]

13.2 Table of Mitigation Commitments

Table 13-1 summarizes potential Project impacts and related mitigation measures.

Table 13-1 Summary of Impacts and Mitigation Measures

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Wetlands and Waterways	Temporary impacts to wetland resource areas are described in Section 5.0 of this DEIR. The preferred onshore transmission route will temporarily impact LSCSF and barrier beach (see Table 5-6). The transition from offshore to onshore will temporarily impact Land Under the Ocean (LUO), barrier beach, and LSCSF (see Table 5-4). The offshore export cables will temporarily impact LUO and land containing shellfish from trenching for cable installation, plus additional temporary impacts from cable installation tool skids, dredging of sand waves, anchoring, grounding, and cable protection. See Table 5-1. Areas requiring cable protection, if any, will be the only locations where post-installation conditions at the seafloor may permanently differ from existing conditions; however, such cable protection would only be expected within hard bottom areas, and the cable protection itself would function as hard bottom. Estimated cable protection impact calculations are presented in Table 5-1.	For the onshore portion of the Project, given that the affected inland wetland resource areas are primarily previously disturbed, and that impacts will be temporary, mitigation is limited to construction-period measures such as erosion and sediment controls as well as post-construction (i.e., restoring existing parking lot surface, road surfaces, and road shoulders to pre-construction conditions). Use of trenchless crossing techniques (e.g., HDD) will avoid and minimize impacts to wetland resource areas. For offshore areas, the Proponent has selected installation techniques that will minimize the level of seafloor disturbance during installation of the export cables. Moreover, the alignment of the OECC is the product of an extensive consideration of alternatives and is itself intended to avoid and minimize potential impacts to sensitive resources, including SSU areas and Land Containing Shellfish. Impacts will be avoided and minimized by allowing the contractor to micro-site the cable inside the OECC such that localized areas of hard bottom or boulders, for example, may be avoided. The Proponent will seek to minimize the amount of sand wave dredging necessary, only performing the work where it is needed to ensure sufficient cable burial within the stable seabed. Similarly, the Proponent will seek to avoid and/or minimize the use of cable protection, thus minimizing potential impacts. As discussed in Section 5.1, mitigation measures (e.g., remedial burial or cable protection), must be considered in the event that the required burial depth cannot be achieved. Installation of cable protection is considered a last resort. To maximize the probability of achieving sufficient burial depth, anchoring may occur along the entire length of the cable installation. The Proponent will pay an Ocean Development Mitigation Fee, to be defined in the Secretary's Certificate on the FEIR, based on the Project footprint and characteristics of its impacts. In addition, the Proponent will implement a Benthic Habitat Monitoring Plan, assembled for all of New England Wind (of which the NE Wind 2 Connector is a part) to assess and document benthic recovery after construction.	During construction. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Wetlands and Waterways (Continued)		As described in Section 3.5, the proposed Project will occur over flowed tidelands, and as such is subject to review under MGL Chapter 91 (Waterways) and its associated regulations (310 CMR 9.00). Compliance with Chapter 91 standards is demonstrated in Section 3.5.2. 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."*	
Noise	The proposed onshore substation will contain sound-producing electrical equipment (see Section 11.0). The onshore substation will comply with the MassDEP noise policy.	The Proponent will procure low-noise equipment for use at the substation to limit sound level impacts in residential areas in the vicinity of the substation. Where available and with respect to that equipment most likely to contribute to noise, the Proponent expects to procure quieted equipment with approximately 10 dBA or greater reductions from standard sound levels for comparable equipment. These commitments will increase the cost of the substation and the associated equipment. Noise control features will be advanced as the substation design is refined.	During operation. Cost included in overall Project costs.
Historic and Archaeological Resources	Onshore, the Proponent through its consultant, the Public Archaeology Laboratory, Inc. (PAL), undertook archaeological surveys and physical and visual assessments to identify potential impacts to existing historic resources, including above-ground historic resources and recorded archaeological sites, within and near the landfall site, the onshore routing alternatives, and the proposed onshore substation site.	Review by the MHC has already commenced through the filing of a PNF and ENF. Reconnaissance-level and intensive surveys have been completed to determine the presence of historic and archaeological resources along the onshore components of the Project. Further consultation will be undertaken with the MHC pursuant to Chapter 254 (State Register Review) and with Tribal THPO staff to identify the need for additional field surveys and to identify any avoidance and mitigation measures to be incorporated into the Project related to cultural resources. Potential effects, if any, to cultural resources will be addressed with the MHC and the THPO(s) through the federal Section 106 and the State Register Review processes.	During construction. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Historic and Archaeological Resources (Continued)	Based on the assessment performed by PAL, portions of the onshore transmission and grid interconnection cable routes have been assigned moderate to high sensitivity for unrecorded archaeological resources. See Section 9.1 for further details. At the substation site, PAL performed an intensive (locational) archaeological survey on three (Parcels 3, 4, and 5) of the four parcels proposed for development of the new onshore substation. Based on the results of the survey, the proposed onshore substation will not impact any potentially significant archaeological resources, and no additional archaeological investigations are recommended. Offshore, marine archaeological resource assessments (MARAs) were completed for New England Wind (of which NE Wind 2 Connector is a part). On behalf of the Proponent, SEARCH, Inc. (SEARCH) and Gray & Pape, Inc. (G&P) completed MARAs of geophysical and geotechnical survey data collected for the Project. Archaeological investigations of the OECC (within the Nantucket Sound TCP) have recovered no pre-Contact Native American cultural materials to date..	In addition to complying with M.G.L. Chapter 9, Sections 26-27C as amended by Chapter 254 of the Acts of 1988 (implemented by 950 CMR 71.00 and known as "Register Review") and other applicable local and state historic preservation regulations, the Project is subject to federal review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the National Environmental Policy Act (NEPA). The Bureau of Ocean Energy Management (BOEM) is the lead agency for federal compliance and has sought public comment and input through the Notice of Intent regarding the identification of historic properties or potential impacts on historic properties from activities associated with approval of the Construction and Operations Plan (COP) for New England Wind (of which Commonwealth Wind is a part). A draft Historic Property Treatment Plan (HPTP) has been developed in accordance with Section 106 and Section 110(f) review (36 CFR 800) of New England Wind to address mitigation for submerged ancient landforms that cannot be avoided. Consultations are ongoing among BOEM, Native American tribes, and other parties as part of the Section 106 process. See Section 9.2 for further details. Any unanticipated discoveries of cultural resources would be managed in accordance with an unanticipated discoveries plan that is being developed through the NEPA process, with MBUAR and MHC participating.	During construction. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Historic and Archaeological Resources (Continued)	However, geoarchaeological analysis of geophysical and geotechnical data indicate there are ancient stream channel, lake, pond, and estuarine landscape features within the Project area that may have the potential to contain archaeological materials. See Section 9.2 for further details		
Water Quality	The Project is not expected to result in any significant impacts to water quality. During offshore cable installation, short-term increases in suspended sediments are expected. Sediment dispersion modeling has shown these suspended sediments will stay relatively close to the cable alignment and will settle from the water column within a short duration of time. See Sections 6.1 and 6.2 for additional detail.	The onshore Project elements are essentially a civil construction project predominantly located along roadways and existing ROWs that involves standard inert materials such as concrete, PVC conduit, and solid dielectric cable. The proposed cables will not contain any liquids, oils, or other substances that could leak out of the cables. The onshore substation design includes extensive containment measures. None of the substation equipment will contain polychlorinated biphenyls (PCBs). The Proponent will provide full-volume (110%) containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable). Additionally, sumps for other lower-volume fluid-filled equipment will be implemented. 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. For major substation components using dielectric fluid identified above, in anticipation of an extreme rain event, the Proponent will 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 is a common drain system that routes each individual containment area through an oil-absorbing inhibition device to an oil/water separator before draining to the infiltration basin. During onshore construction, a Spill Prevention, Control, and Countermeasures (SPCC) Plan will address actions used to prevent spills in addition to specifying actions that will be taken should any spills occur, including emergency notification procedures. The contractor's environmental compliance manager will be responsible for ensuring that the contractor implements and maintains spill control measures.	During operation. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
		• Although located in federal waters, as described in Section 7.1.4 of the DEIR, the Proponent and the other leaseholders for the MA/RI WEA adopted uniform spacing of wind turbine generators across their seven lease areas on a one-nautical-mile by one-nautical-mile east-west/north-south grid. This uniform grid proposal was developed in response to concerns raised by the fishing industry and was subsequently studied and endorsed by the USCG. The leaseholders have also been cooperating with respect to fisheries studies across the area. • The Proponent employs a variety of outreach and engagement approaches to communicate and maintain relationships with fisheries stakeholders, as detailed in Section 7.1.3. These include informal conversations with existing contacts, expanding the Proponent's network of Fisheries Representatives, attending fishing industry trade events and recreational fishing shows, presenting at commercial and recreational fishing group meetings, and working with the various associations and organizations that represent fishing interests. The Proponent understands that some fishermen do not feel adequately represented by fishing organizations, or Fisheries Representatives, and therefore prefer to share information and concerns individually and through different channels of communication. The Proponent is committed to recognizing that individual concerns are just as important as group concerns and will continue efforts to respect anonymity. The Proponent's fisheries communication plan is a living document which will evolve over time, but the framework remains consistent. The final elements of the outreach and engagement approaches will be determined in permitting. As described in Section 7.1.3, the Proponent has been and will continue to distribute Notices to Mariners to inform recreational and commercial vessels of their intended operations related to both the offshore lease area in federal waters as well as the OECC. Local port communities and media will be notified	

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Rare Species, Fisheries, and Wildlife (Continued)		and kept informed as the construction and installation process progresses. The Proponent is currently providing and will continue to provide portable digital media with electronic charts depicting locations of Project-related work to provide fishermen with accurate and precise information on work within the offshore Project area. The Proponent's website will be updated regularly to provide information on the construction zone, scheduled activities, and specific offshore wind energy generation facility information. See Section 7.0 for additional details on rare species, fisheries, birds, and marine resources.	
Air	The NE Wind 2 Connector will have significant air quality and greenhouse gas emission benefits by enabling delivery of approximately 1,200 MW of carbon-free energy to the ISO-NE electrical grid, advancing GHG emission reduction goals and improving air quality by displacing fossil-fueled electric generation.	The Project is projected to avoid approximately 2.35 million tons of CO_{2e} emissions annually, or the equivalent of taking approximately 460,000 cars off the road. The Project is also projected to reduce NO_x and SO_2 emissions significantly as shown in Table 10-1. Based on NPCC New England 2018 air emissions data from eGRID2018, the energy delivered by NE Wind 2 Connector could displace up to 8% of CO_{2e} emissions, 6% of NO_x emissions, and 9% of SO_2 emissions produced by New England's electric grid annually. While the Project will provide a net air quality benefit to the New England region by displacing fossil-fueled electric generation and avoiding their associated emissions, there will be emissions from vessels, vehicles, and equipment used during the construction and operation of the Project. As described further in Section 12.8 of this DEIR, the Project will employ several best practices and design features to reduce emissions of GHGs and criteria pollutants during the construction and operational periods. These include limiting vehicle idling time, requiring contracted vessels to use good combustion practices and operate their engines in the most efficient configuration, using low-sulfur fuels, and using engines in compliance with applicable air quality regulatory standards, among others (see Section 12.8) The Proponent will file a self-certification attesting to the construction or implementation of all GHG emissions reduction mitigation measures or their equivalent, as adopted by the Proponent, with the MEPA Office.	During operation. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Construction	Temporary impacts on traffic, air quality, noise.	During construction, traffic will be managed in accordance with Traffic Management Plans (TMPs). 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. Draft TMPs for the onshore export cable route are included in Attachment C1. Fixed gear fishermen have suggested the use of consistent transit lanes for construction-related vessels during construction to facilitate avoidance of conflicts and minimize or eliminate loss of gear. The Proponent will implement such an approach with the Marine Coordinator and Fisheries Liaison. Specific construction-period air quality mitigation measures expected to be required include: • For on-ROW construction, use of appropriately designed track out pads to prevent off-site migration of soils; • Mechanical street sweeping of construction areas and surrounding streets and sidewalks as necessary; • Removal of soil and construction waste in covered or enclosed trailers; • Wetting and/or covering exposed soils and stockpiles to prevent dust generation; • Minimizing stockpiling of materials on site; • Turning off construction equipment when not in use and minimizing idling times;	During construction. Cost included in overall Project costs.
	Temporary impacts on traffic, air quality, noise. The Project will have no long-term impact on drainage or water quality, and construction is designed to avoid any impact to existing drainage systems. Post-construction, the Project will not generate nitrogen or hazardous liquids and will have no impacts to water quality.	• Minimizing the storage of construction waste on site; • Minimizing the duration that soils are left exposed; and • Use of marine vessels that will be certified by the manufacturer to comply with applicable marine engine emission standards. During construction and installation of the proposed duct bank within local roadways, the proposed 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 should it not be required for backfilling the trench. The soil will not be stockpiled along the edge of the roadway, thus reducing the size of the required work area, and reducing the potential for sedimentation and nuisance dust.	During construction. Cost included in overall Project costs.

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Construction (Continued)		Expected noise mitigation measures include: • Minimizing the amount of work conducted outside of typical construction hours; • Ensuring that appropriate mufflers are installed and maintained on construction equipment; • Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance; • Requiring muffling enclosures on continuously operating equipment such as air compressors and welding generators; • Turning off construction equipment when not in use and minimizing idling times; and • Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical.	
		Blasting is not anticipated, nor is construction expected to result in noticeable vibrations. Nearly all vehicle fueling and all major equipment maintenance will be performed off-site at commercial service stations or a contractor's yard. A few pieces of large, less mobile equipment (e.g., excavators, paving equipment) will be refueled as necessary on-site. Any such field refueling will not be performed within 100 feet of wetlands, waterways, or within 100 feet of known private or community potable wells, or within a Town water supply Zone I area. The fuel transfer operation will be conducted by a competent person knowledgeable about the equipment, the location, and with the use of the work zone spill kit. Proper spill containment gear and absorption materials will be maintained 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. During construction, equipment will be inspected for incidental leaks (e.g., hydraulic fluid, diesel fuel,	

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Construction (Continued)		gasoline, anti-freeze) prior to site access and daily at the commencement of each work shift. The Proponent will require its contractor to document the daily inspections as part of the approved means and methods. Small pieces of powered equipment such as generators and pavement saws will be placed in containment bins or on absorbent blankets or pads to contain any accidental fuel spills or leaks. In addition, under no circumstances shall fuel or oils of any kind be stored or brought into any duct bank vault, nor shall there be any re-fueling of equipment either inside a vault or within 100 feet of any vault. 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 erosion and sediment control measures. 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 and maintaining erosion and sediment control measures during construction; • Establishing vegetation where required as soon as possible following final grading; and • Inspecting the construction route and maintaining erosion and sediment controls as necessary until final stabilization is achieved and final inspections completed. The Proponent will develop and maintain a Stormwater Pollution Prevention Plan (SWPPP) for the NE Wind 2 Connector 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 EPA National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities. It will be the responsibility of the contractor to implement	

Table 13-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	Impact	Mitigation Measure	Schedule and Cost
Construction (Continued)		and maintain erosion and sediment control measures during construction, and such measures will be overseen by the contractor's environmental compliance manager. Erosion and sedimentation controls were described in Section 12.5.2.	
Environmental Justice	At the time the ENF was filed, no EJ Populations were located within a one-mile radius of the NE Wind 2 Connector. However, one census tract located within one mile of the Project is a Linguistic Isolation Area based on languages other than English being spoken by more than 5% of the population who otherwise do not have proficiency in English. See Section 3.3 for additional detail. EJ population groups are mapped in the vicinity of a number of ports considered for construction and installation support activities and operations and maintenance. The Project itself does not include any port development; rather, the Proponent will utilize existing or planned port facilities being developed by others for marine industrial uses. Only negligible impacts are anticipated from the O&M facilities, which will provide employment opportunities within the Onshore Development Region. The long-term effects will include increased jobs and direct and indirect economic opportunities, which are expected to benefit area EJ communities.	The NE Wind 2 Connector is consistent with the Commonwealth's EJ Policy and applicable MEPA Protocols in that its impacts to all populations, including EJ populations, will be minimized and public participation will meet or exceed the requirements of the EJ Policy. Although the Project does not exceed any ENF thresholds for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal, the Project has made a diligent effort to enhance public participation opportunities for all members of the public, including those with limited English proficiency. Impact-producing factors for EJ communities associated with construction and installation include workforce initiatives and community and environmental benefits. These initiatives and benefits are described in detail in Section 1.9. During construction and installation, the Proponent anticipates directly hiring a workforce spanning a diverse range of professions for fabrication, construction, and/or assembly of components at locations selected to support of the proposed development. EJ communities are located in the vicinity of many of the ports in the Onshore Development Region. This increase in job opportunities, as well as the related growth in local businesses serving this rapidly emerging industry, are expected to benefit area EJ communities. One purpose of the EJ Policy is to promote climate change resiliency and minimize potential effects from climate change (pages 4 and 5 of the Policy). The Project will transmit approximately 1,200 MW of renewable, emissions-free energy into the ISO-NE electrical grid, advancing greenhouse gas reduction goals and improving air quality. See Section 3.3 for additional information.	

Section 14.0

Response to Comments

14.0 RESPONSE TO COMMENTS

This DEIR is structured in response to the Secretary's Certificate on the ENF. A copy of the Certificate is included in this section.

This section responds to comment letters received on the ENF submitted on September 30, 2022. Each comment letter has been assigned an abbreviation, listed below in Table 14-1. The comment letters are reprinted in this section, and specific comments within each letter are annotated in the margin with this abbreviation and a sequential numbering. Following the letter is a listing of the comments accompanied by a response to each. In addition to constructive comments from the state resource agencies and the Cape Cod Commission, the Project is pleased to have received supportive comments from the state delegation (Senator Cyr and State Representatives), Cape Cod Chamber of Commerce, Cape Cod Technology Council, Vineyard Power Cooperative, Cape Cod Climate Change Collaboration, and several individuals.

All ENF commenters listed in Table 14-1 are included in the Circulation List provided as Attachment B.

Table 14-1 Secretary's Certificate and Comment Letters on the ENF

Commenter	Abbreviation
EEA Secretary's Certificate on the ENF	MEPA
Massachusetts Department of Environmental Protection, Southeast Regional Office (SERO)	DEP
Massachusetts Office of Coastal Zone Management	CZM
Massachusetts Division of Marine Fisheries	DMF
Massachusetts Division of Fisheries and Wildlife, Natural Heritage & Endangered Species Program	NHESP
Massachusetts Board of Underwater Archaeological Resources	MBUAR
Massachusetts Department of Conservation and Recreation	DCR
Cape Cod Commission	CCC
Town of Barnstable, Charles S. McLaughlin, Jr. Senior Counsel (October 19, 2022)	TOB1
Town of Barnstable, Charles S. McLaughlin, Jr. Senior Counsel (November 28, 2022)	TOB2
Cape Cod Chamber of Commerce, Paul Niedzwiecki	CCPN
State Senator Julian Cyr and State Representatives Moran, Peake, Whelan, Diggs, Vieira, Xiarhos, and Fernandes	JCSR
Osterville Village Association and Osterville Business and Professional Association	OVA
Environmental League of Massachusetts+	ELM
Association to Preserve Cape Cod	APCC
Cape Cod Technology Council, Robbin Orbison, President	CCTC
Vineyard Power Cooperative, Richard Andre, President	VPC
Cape Cod Climate Change Collaboration	5C

Table 14-1 Secretary's Certificate and Comment Letters on the ENF (Continued)

Commenter	Abbreviation
Susanne H. Conley, on behalf of the group Save Greater Dowses Beach	SGDB
Susanne H. Conley	CONL
Sally Edmonds	EDM
Lauren Howard	HOW
Stephen Fratalia	FRA
Jane E. Hattemer-Stringer	STR
Carole Maguire	MAG
James Paterson	JPAT
Patricia Harnois	HAR
John Hauser	HAU
Mary-Gaines Standish	STA
Scott McLane	MCL
Paul Richards	RIC
Stephen Waller	WAL
Gerdy Family	GER
Maria and Greg Gerdy	MGG
Maria Gerdy and Family (November 27, 2022)	MGF1
Maria Gerdy and Family (November 29, 2022)	MGF2
Debbie Barlow	BARL
Mary M MacMillan	MAC
Susan O'Brien McLean	OMC
Jack R. Cohen	JCOH
Carol Zais	ZAI
Don and Karen Megathlin	MEG
Edward McCormack	MCC
Hector Guenther	HGUE
Joseph J. Conway, M.D. and Patricia A. Conway, R.N	CONW
Peter Hansen	HAN
Tom and Terry McElligott	MCE
Wendy Cohen	WCOH
Marie C Taylor	TAY
Stacey Guenther	SGUE
Conor Paterson	CPAT
Jerome Miranowski	MIR
Jerome Vigil, PhD.	VIG
Brian and Cindy Dacey	DAC
Catherine Bean	BEA

Table 14-1 Secretary's Certificate and Comment Letters on the ENF (Continued)

Commenter	Abbreviation
Peggy Rowland	ROW
Claire O'Connor	OCO
Daphne Northrop	NOR
Martha Curley	CUR
John Crow, Osterville Village Association	CROW
Stacey Guenther	SGUE2

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December 9, 2022

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: New England Wind 2 Connector
PROJECT MUNICIPALITY	: Barnstable, Edgartown, Mashpee and Nantucket
PROJECT WATERSHED	: Cape and Islands
EEA NUMBER	: 16611
PROJECT PROPONENT	: Commonwealth Wind, LLC
DATE NOTICED IN MONITOR	: October 7, 2022

Pursuant to the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62I) and Section 11.03 of the MEPA Regulations (301 CMR 11.00), I hereby determine that this project **requires** the preparation of a mandatory Environmental Impact Report (EIR). This Certificate includes a Scope for the Draft EIR (DEIR).

The project is a component of a 1,232-megawatt (MW) wind energy generating facility known as Commonwealth Wind (CW) to be constructed approximately 20 miles south of Martha's Vineyard. The generating facility will occupy an approximately 54,857 to 74,873 acre of Lease Area OCS-A 0534. Lease Area OCS-A 0534 originally constituted the southern part of the larger Lease Area OCS-A 0501, which was awarded through a competitive lease sale conducted by the federal Bureau of Ocean Energy Management (BOEM). A second wind farm project with a generating capacity of approximately 800 MW is proposed in Lease Area OCS-A 0534 by Park City Wind LLC. The Park City Wind (PCW) project was procured by Connecticut, and includes transmission infrastructure known as New England Wind 1 Connector (NEW1C), which completed MEPA in January 2022 (EEA# 16231). The PWC and CW projects are being reviewed by BOEM as Phases 1 and 2, respectively, of a larger project, known as the New

England Wind project. which covers the entire Lease Area OCS-A 0534.[1] A third generating facility is proposed by Vineyard Wind 1 LLC in the remaining Lease Area OCS-A 501; components of the transmission infrastructure associated with the Vineyard Wind (VW) project, known as the Vineyard Wind Connector 1 (VWC1) completed MEPA review in 2019 (EEA #15787). As described below, an offshore cable route corridor established for the VWC1 project has been generally adopted by the NEW1C and NEW2C projects. All three projects are being undertaken by affiliates of Avangrid Renewables, which has full ownership of Lease Area OCS-A 0534 and holds an option to gain operational control over VW once it reaches commercial operation.[2]

The CW project is being developed in response to a solicitation for a 1,600 MW of offshore wind energy generation overseen by the Massachusetts Department of Energy Resources (DOER) and private Electric Distribution Companies (EDCs).[3] The solicitation was issued to help ensure diversified sources of electricity and meet required greenhouse gas (GHG) reductions in accordance with 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). The CW project, one of two winning bids submitted in response to the solicitation, will provide approximately 1,200 MW under long-term contracts with the EDCs and potentially 32 MW will be contracted separately with municipal light providers (MLPs) or other users in Massachusetts. According to the ENF, the CW project will result in avoided emissions of 2.35 million tons per year (tpy) of carbon dioxide (CO_2e), 1,255 tpy of nitrogen oxides (NOx) and 66 tpy of sulfur dioxide (SO_2).

Major elements of the CW project include a wind turbine array with 64 to 88 wind turbine generators (WTG) spaced approximately 1.15 miles apart; up to three offshore electrical service platforms (ESPs); inter-array cable connections between WTGs and ESPs; offshore export cables; onshore export cables; and an onshore substation. The offshore export cables will follow an approximately 47.2-mile long route from the WTG array to the landfall site at Dowses Beach in Barnstable. The components of the project located within Massachusetts state waters are known as the New England 2 Connector (NEW2C), which is the project name used for purposes of state permitting within the Commonwealth.

Project Description

Project components include three 275-kilovolt (kV) offshore export cables, each of which will be up to 23 miles long, an approximately 6.7-mile long underground concrete duct bank within which the onshore export cables be placed and a new electrical substation.

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-formerly-vineyard-wind-south#:~:text=In%20October%202021%2C%20the%20project,project%20changed%20to%20Commonwealth%20Wind.

[2] https://www.vineyardwind.com/press-releases/2021/9/21/avangrid-renewables-and-copenhagen-infrastructure-partnersannounce-strategic-transaction-to-advance-offshore-wind-development

[3] The remaining approximately 400 MW in this solicitation was awarded to the Mayflower Wind Project (EEA# 16507 and 16596).

Offshore Export Cable

Each offshore export cable will include a three-core 275-kV high voltage alternating current (HVAC) cable bundled with one or more fiber optic cables. The offshore export cables will be installed within an Offshore Export Cable Corridor (OECC) which extends from the proposed wind farm location approximately 20 miles south of Martha's Vineyard, through Muskeget Channel and Nantucket Sound, to Dowses Beach. Except for the northernmost 1.5 miles (488 acres) of the OECC between Centerville Harbor and Dowses Beach, the OECC was identified based on marine surveys evaluated through the review and permitting of the VWC1 and NEW1C projects, which will also be located within the OECC. The ENF included a description of the benthic and pelagic conditions within the new section (approximately 488 acres) of the OECC. The ENF identified a supplemental offshore cable route, the Western Muskeget Variant, within which one or two of the cables may be placed if conditions within the Muskeget Channel section of the OECC do not allow for placement of all three offshore export cables associated with the NEW2C project (in addition to the total of four cables proposed for the VWC1 and NEW1C projects). The OECC ranges in width from 3,100 ft to 5,500 ft, with a typical width of 3,500 ft. The three cables will be installed approximately 164 ft to 328 ft apart from one another and from any cables associated with the VWC1 and NEW1C cables. The cables will be buried approximately five to eight feet (1.5 to 2.5 meters) below the seafloor using a trenching tool or, if necessary, by dredging a deeper trench to ensure adequate burial depth. Where burial is not possible due to subsurface conditions, the cables will be laid on the ocean floor and covered with armoring.

Landfall

The three offshore export cables will be transitioned from the offshore environment to landfall at Dowses Beach through approximately one mile long underground conduits installed using Horizontal Directional Drilling (HDD). The landward end of each of the three conduits will be located within an underground vault in the Dowses Beach parking lot, where the three conductors in each cable (a total of nine conductors in the three cables) will be separated and installed in separate conduits within a buried concrete duct bank.

Onshore Route

The underground duct bank carrying the conductors will follow an approximately 6.7-mile long route from the Dowses Beach parking lot to the site of a proposed substation off Oak Street in West Barnstable. The proposed onshore route follows the Dowses Beach parking lot and driveway to East Bay Road, then proceeds 0.2 miles south on East Bay Road, 0.9 miles northwest on Wianno Avenue, 1.1 miles north on Main Street, 1.9 miles north on Osterville-West Barnstable Road, 0.9 miles northeast on Old Falmouth Road, 0.2 miles east on Old Stage Road, 1.0 miles northeast on Oak Street and 0.2 miles west on Service Road. The final 0.1 mile section of duct bank will be installed below Route 6 using a trenchless crossing technique known as pipe packing to the proposed substation site north of Route 6, south of an existing Eversource transmission right-of-way (ROW) #342 and west of Oak Street. The ENF also identified an alternate route (referred to in the ENF as the "Noticed Alternative" or "Old Mill Road Alternative") and a route variation involving a section of Main Street east of Wianno Avenue and west of East Bay Road ("Main Street Variation").

Substation

The proposed substation will be constructed on an approximately 12.4-acre portion of a 15.2-acre site located north of Route 6 and west of Oak Street. The substation will include equipment that will step up the 275-kV voltage of the proposed onshore export cables to 345-kV. The power will be conveyed from the proposed substation to the existing West Barnstable Substation through cables installed in a 0.4- to 0.5-mile long duct bank. The electricity will then be delivered to the grid.

Project Site

The OECC extends from the southern portion of Nantucket Sound between Martha's Vineyard and Nantucket, enters an area in Nantucket Sound that is outside of state waters, then reenters state waters south of Barnstable. All sections of the cable route in state waters lie within the Cape and Islands Ocean Sanctuary (CIOS) and the Massachusetts Ocean Management Plan (OMP) planning area.

The substation is proposed on a forested 15.2-acre site off Oak Street. The site is bordered to the south by Route 6 and the Department of Conservation and Recreation's (DCR's) West Barnstable Fire Tower, to the west by undeveloped land, to the east by a single-family home and undeveloped land and to the north by the Town's Spruce Pond Conservation Area. Eversource's ROW #342 is located within the Spruce Pond Conservation Area. The substation site is zoned for residential use and located within an Aquifer Protection Overlay District. Oak Street is approximately 0.25 miles east of the site. The West Barnstable Substation is bordered to the south by Route 6, to the east by undeveloped land, to the north by the Oak Street Substation and to the west by undeveloped land and Oak Street.

According to the Natural Heritage and Endangered Species Program (NHESP), the project will be located within areas of Priority and Estimated Habitat for rare species. The offshore cable route passes through habitat of Roseate Tern (*Sterna dougallii*)[4], Common Tern (*Sterna hirundo*), Least Tern (*Sternula antillarum*) and Piping Plover (*Charadrius melodus*).[5] The Noticed Alternative onshore cable route passes through Priority Habitat for the Water Willow Stem Borer moth (*Papaipema sulphurate*). Northern Right Whale (*Eubalaena glacialis*), Humpback Whale (*Megaptera novaeangliae*), marine birds such as Long-tailed Duck, Northern Gannet, Razorbill, Wilson's Storm Petrel, fulmars, loons, scoters, and shearwaters, and Loggerhead (*Caretta caretta*) and Leatherback (*Dermochelys coriacea*) sea turtles have been observed throughout Nantucket Sound.

The Massachusetts Division of Marine Fisheries (DMF) has indicated that Nantucket Sound, through which the OECC passes, includes areas of commercial and recreational fishing and habitat for a variety of invertebrate and finfish species, including channeled whelk (*Busycotypus canaliculatus*), knobbed whelk (*Busycon carica*), longfin squid (*Doryteuthis pealeii*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), scup (*Stenotomus chrysops*), surf clam (*Spisula solidissima*), sea scallop (*Argopecten*

[4] Species also federally protected pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11).
[5] Ibid.

irradians), quahog (*Mercenaria mercenaria*), horseshoe crabs (*Limulus polyphemus*), and blue mussel (*Mytilus edulis*). Blue mussel and kelp (*Saccharina latissima*) aquaculture operations are also located within Horseshoe Shoals (a subtidal area of Nantucket Sound). Waters offshore of Dowses Beach and east of Edgartown contain mapped eelgrass (*Zostera marina*) habitat.

As shown on the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer, Dowses Beach, including the parking lot and driveway, are located in a coastal flood zone with a velocity hazard (VE zone) with a base flood elevation (BFE) of 15 ft NAVD 88. Sections of East Bay Road adjacent to Dowses Beach and at the intersection of East Bay Road and Main Street are located within a zone with a 1% annual chance of flooding (AE Zone) with a BFE of 12 ft NAVD 88 and a section of Bumps River Road is within an AE Zone with a BFE of 10 ft NAVD 88.

The Massachusetts Board of Underwater Archaeological Resources (BUAR) has identified Nantucket Sound as an area of high sensitivity that is rich in submerged ancient Native American cultural resources and shipwrecks. The onshore export cable will pass by and through historical and archaeological resources and areas included in the Massachusetts Historical Commission (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory) and State and National Registers of Historic Places.

The project is not located within an Environmental Justice (EJ) Designated Geographic Area (DGA) as defined in 301 CMR 11.02 because there are no EJ populations within one mile of the project site. Project components are within five miles of one EJ population designated as Minority located in Mashpee; five EJ populations designated as Minority and four EJ populations designated as Minority and Income in Barnstable; and one EJ population designated as Minority and one EJ population designated as Income located in Yarmouth. As noted below, port facilities and future operations and maintenance (O&M) areas that will support project implementation are located near EJ populations. The DEIR should provide details about the nature and scope of these activities so as to determine whether analysis of impacts on those EJ neighborhoods should be included as part of the review of this project. **MEPA 01**

Environmental Impacts and Mitigation

Potential environmental impacts of onshore components of the project include alteration of 15.2 acres of land, creation of 1.2 acres of impervious area, and alteration of 19,682 sf of Land Subject to Coastal Storm Flowage (LSCSF) and 11,336 sf of Riverfront Area. Potential environmental impacts of offshore components within Commonwealth waters include alteration of 183 acres of Land Under the Ocean (LUO) and 7.1 acres of Land Containing Shellfish (LCS), and dredging of up to 91,500 cubic yards (cy) of sediment in connection with installation of the offshore export cables. Both onshore and offshore components of the project will be located in rare species habitat and in areas containing cultural, historic and archaeological resources.

The ENF briefly reviewed potential measures that may be implemented to minimize environmental impacts during the construction period. The Scope below includes additional analyses and information that must be provided in the DEIR to assess the project's environmental impacts and identify measures to avoid, minimize and mitigate impacts.

Permitting and Jurisdiction

The project is undergoing 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 the alteration of ten or more acres of any other wetlands (LUO) and involves 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 ROW. It also exceeds ENF thresholds at 301 CMR 11.03(1)(b)(3) (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); 301 CMR 11.03(1)(b)(5) (release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes; 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); 301 CMR 11.03(3)(b)(3) (dredging of 10,000 or more cy of material) and 301 CMR 11.03(7)(b)(4) (construction of electric transmission lines with a capacity of 69 or more kV that are over one mile in length). The project may meet or exceed additional ENF review thresholds at 301 CMR 11.03(2)(b)(2) (disturbance of greater than two acres of designated priority habitat that results in a take of a state-listed rare species) and 301 CMR 11.03(3)(b)(1)(a) (alteration of coastal dune, barrier beach or coastal bank).

The project will require a Section 401 Water Quality Certification (WQC) and a Chapter 91 (c. 91) License from the Massachusetts Department of Environmental Protection (MassDEP); approval under MGL Chapter 164 Section 69J from the Energy Facility Siting Board (EFSB); approval under MGL Chapter 164 Section 72 and a Chapter 40A Section 3 Zoning Exemption from the Department of Public Utilities (DPU); an Access Permit from the Massachusetts Department of Transportation (MassDOT); a Field Investigation Permit from MHC; a Special Use Permit from BUAR; and Federal Consistency Review by the Massachusetts Office of Coastal Zone Management (CZM). It may require a Conservation and Management Permit (CMP) from NHESP. The Project is subject to reviews under the OMP, Ocean Sanctuaries Act and the MEPA Greenhouse Gas (GHG) Emissions Policy (the Policy), and requires Article 97 legislation.

The project requires Orders of Conditions from conservation commissions in Barnstable, Edgartown, Yarmouth, Nantucket and Mashpee (and in the case of an appeal, Superseding Orders of Conditions MassDEP). It requires Development of Regional Impact (DRI) review from the Cape Cod Commission (CCC) and Martha's Vineyard Commission (MVC).

The project must undergo environmental assessments as part of approval of lease terms from BOEM,[6] and requires an Individual Permit from the Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (Section 10); a Letter of Authorization or Incidental Harassment Authorization from the National

[6] During its review, BOEM must comply with its obligations under the National Environmental Policy Act (NEPA), the 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). BOEM will coordinate/consult with other Federal agencies including NMFS, United States Fish and Wildlife Service (USFW), EPA, and USGC). BOEM will also coordinate with the State pursuant to the Coastal Zone Management Act (CZMA).

Marine Fisheries Service (NMFS); Private Aids to Navigation authorization from the U.S. Coast Guard (USCG); a No Hazard Determination from the Federal Aviation Administration (FAA); consultation with MHC in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and M.G.L. Chapter 9, Sections 26-27C; and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit and Outer Continental Shelf Air Permit from the U.S. Environmental Protection Agency (EPA).

Because the Proponent is not seeking Financial Assistance, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required Permits or within the area subject to a Land Transfer that are likely, directly or indirectly, to cause Damage to the Environment. The subject matter of the EFSB/DPU approvals, OMP review and the c. 91 License are sufficiently broad such that MEPA jurisdiction is functionally equivalent to full scope jurisdiction and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment.

Review of the ENF

The ENF provided a project description and conceptual plans of the offshore export cable route, onshore export cable route alternatives and the proposed substation. It identified the project's potential impacts on land, wetland resources, and benthic conditions in Nantucket Sound, as well as temporary impacts associated with the construction period. The ENF identified potential measures to avoid, minimize and mitigate impacts. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the ENF contained an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool"),[7] together with information on climate resilience strategies to be undertaken by the project. The DEIR should provide a more detailed description of the project's impacts and mitigation measures, as set forth in the Scope below.

Many commenters questioned the need for the offshore export cables to make landfall at Dowses Beach and expressed concern about potential impacts of the project on recreational and environmental resources at the site. The DEIR should provide greater detail on the nature, extent and duration of proposed activities and structures, including long-term maintenance of project components. It should describe all measures that could be implemented by the Proponent to avoid and minimize environmental impacts, and identify mitigation measures. **MEPA 02**

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent will avoid, minimize and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design. **MEPA 03**

[7] https://resilientma.org/rmat_home/designstandards/

<u>Project Description and Permitting</u>

The DEIR should include plans and a detailed description of existing conditions, including site topography, soil conditions, and infrastructure. It should describe the project and identify any changes to the project since the filing of the ENF. It should include updated site plans for existing and post-development conditions at a legible scale. The plans should depict existing and proposed conditions for all project elements, including the export cable, HDD, and land-based facilities. Plans should be provided at a legible scale and clearly identify buildings, impervious areas, and boundaries of tidelands, wetland resource areas, drinking water supply protection zones, rare species habitat, and information required in the OMP and the Scope below. The DEIR should provide detailed descriptions of proposed construction activities, associated with offshore cable installation, HDD, onshore cable installation and substation construction, describe associated environmental impacts and identify measures to minimize and mitigate any impacts that cannot be avoided. The DEIR should provide plans detailing conditions within the OECC using Coastal and Marine Ecological Classification Standard (CMECS) categories displayed at a suitable scale. It should describe offshore and onshore cable routes, offshore and onshore cable installation methods, and decommissioning activities, and associated impacts and proposed mitigation measures. The DEIR should describe the design of the substation, interconnection to the transmission system and stormwater management measures. The DEIR should identify and describe measures to avoid, minimize and mitigate the project's impacts.

MEPA 04

MEPA 05

The VWC1 project has completed permitting, and has begun installation of offshore export cables. The analyses described below should be informed by actual conditions and performance of construction techniques for the VWC1 project. It should compare preliminary observations regarding offshore conditions, the effectiveness of construction techniques, unanticipated obstacles, duration of activities, and other factors, in comparison to expectations and estimates identified during environmental reviews of the VWC1 project.

MEPA 06

While the project referenced as NEW2C consists of activities in state waters, it is integrally related to the larger offshore wind development occurring beyond state waters that may have significant impacts on important resources and activities in the Commonwealth, such as commercial fisheries, navigation and rare species. To support meaningful agency and public review of the project and assessment of alternatives to avoid, minimize and mitigate impacts in state waters, the DEIR should include contextual and background information related to project elements in both federal and state waters, including efforts made to avoid, minimize and mitigate impacts both for the project as a whole and cumulatively across all related projects being undertaken by the Proponent and by other proponents in a similar time frame and geographical area within the Commonwealth. Information that is or will become available through federal processes should be disclosed through the MEPA review process as it becomes available, to the extent it is relevant to areas of MEPA jurisdiction, as background and context to inform the state MEPA review and to assist CZM in its Federal Consistency Review of the project. Specific topics and information from federal reviews that are required to inform this review are itemized in greater detail below.

MEPA 07

The DEIR should include plans and a detailed description of existing conditions, including site topography, soil conditions, and infrastructure. It should describe the project and identify any changes to the project since the filing of the ENF. It should include updated site plans for existing and post-development conditions at a legible scale. The plans should depict

existing and proposed conditions for all project elements, including the export cable, HDD, and land-based facilities. Plans should be provided at a legible scale and clearly identify buildings, impervious areas, and boundaries of tidelands, wetland resource areas, drinking water supply protection zones, rare species habitat, and information required in the OMP and the Scope below. The DEIR should provide plans detailing conditions within the OECC using Coastal and Marine Ecological Classification Standard (CMECS) categories displayed at a suitable scale; offshore and onshore cable routes; detailed description of offshore and onshore cable installation methods and associated impacts and proposed mitigation measures; design of the substation and interconnection to the transmission system; and stormwater management measures. The DEIR should identify and describe measures to avoid, minimize and mitigate the project's impacts.

The DEIR should identify and describe state, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these **MEPA 08** pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. Pursuant to the Coastal Zone Management Act, CZM's federal consistency authority extends to activities that have reasonably foreseeable effects on any coastal use or resources resulting from a federal agency activity or federal license or permit activity. Renewable energy leases and related authorizations by BOEM are listed federal actions of the state's approved Coastal Management Program. CZM's federal consistency review will be completed through the federal BOEM renewable energy program and National Environmental Policy Act (NEPA) filings; however, as requested by CZM, the DEIR should describe activities in adjacent federal waters to the extent practicable as well as potential effects on state resources and uses to allow **MEPA 09** for a more complete assessment of the entire project through this MEPA process. It should include a description of existing conditions and plans for existing and post-development conditions for all project elements, including the WTGs, ESPs, submarine cable, onshore cable, HDD, and land-based facilities. It should clearly describe selected methods of cable installation and the route segments where each method will be used. The DEIR should include a project **MEPA 10** schedule, describe construction sequencing and describe project phasing.

<u>Alternatives Analysis</u>

The ENF included an analysis of a No Build Alternative, offshore transmission options and alternative cable landing sites, offshore export onshore export cable routes and construction methods. The project is being developed in response to a solicitation for offshore wind energy as a source of electricity for Massachusetts. Therefore, the No Build Alternative, or generation of electricity by means other than offshore wind, would not be consistent with the legislative mandate that required the solicitation and was not reviewed in detail.

Offshore Transmission Options

The OECC was established as the proposed cable route between projects proposed in Lease Areas OCS-A 0501 and OCS-A 0534 and the south shore of Cape Cod during MEPA review of both the VWC1 and NEW1C projects. Comments from Agencies concur with the routing of the VWC2 cables through the OECC and did not recommend that alternate offshore routes be evaluated in the DEIR. However, many commenters questioned why Dowses Beach was selected as the landfall site. The DEIR should include a summary of the alternatives analysis **MEPA 11** provided during previous MEPA reviews of cable routes extending from the OCS-A 0501 and

OCS-A 0534 Lease Areas, including, as discussed below, alternative landfall locations, and document the rationale for the selection of the OECC as the Preferred Alternative for the offshore export cable route**.** Given the common ownership and interrelationship among the three projects originating from OCS-A 0501 and OCS-A 0534, the DEIR should include a conceptual discussion and accounting of the cumulative impacts of VWC1, NEW1C and NEW2C with respect to the expected total temporary (e.g., dredged areas) and permanent (e.g., cable protection) impacts to the underwater environment across the three construction windows. Consistent with prior reviews, the DEIR should discuss alternatives with respect to construction phasing and schedule and demonstrate that the chosen schedule maximizes opportunities to minimize impacts associated with repeated dredging along the same OECC corridor. The DEIR should discuss whether efforts were made to coordinate construction timing with third party proponents, such as Mayflower Wind, that are also proposing a transmission corridor in proximity to the OECC. The DEIR should include an evaluation of potential construction methods that could minimize cumulative impacts from VWC1, NEW1C and NEW2C and other offshore wind generating facilities by coordinating cable siting and laying, both by the Proponent independently and by the Proponent and other offshore wind development anticipated to occur in a similar geographical area.

MEPA 12

MEPA 13

The ENF reviewed an alternative that would make use of high voltage direct current (HVDC) technology to deliver electricity. The HVDC Alternative would deliver electricity from the offshore wind generating facility to the electrical grid using HVDC technology, which has been successfully used for long-distance power transmission. This alternative could minimize impacts to the seafloor by installing two cables rather than three and the two cables could potentially be installed within the same trench. However, The HVDC Alternative would have significant impacts associated with the construction of a large converter station (in addition to a substation) on land to convert the power from DC to AC. According to the ENF, the manufacturing capacity for HVDC cables is limited and requires significant lead time that would cause a delay in project commencement. The use of HVAC cables is the Preferred Alternative because they are less costly and more readily available than HVDC cables, do not require a converter station and can adequately convey electricity across the distance between the generating facility and interconnection.

The Shared Transmission Alternative would minimize impacts by combining the offshore transmission systems of two or more offshore wind generating facilities into one system. According to the ENF, the Shared Transmission Alternative is not feasible because the Independent System Operator-New England (ISO-NE) has established a Normal Design Contingency for planning purposes which limits the amount of electricity from a single transmission source to 1,200 MW. As a result, a shared transmission system that could accommodate more than the 1,200 MW proposed by the project would require at least two sets of offshore export cable pairs that would interconnect at two separate points of interconnection involving two separate landfall locations. Therefore, if the project shared a transmission line with another offshore wind generating facility, the number of landfall locations would not be reduced. In addition, the ENF asserts that a shared transmission system would add complexity and delay to each project. The ENF also referenced a 2019 study by the Department of Energy Resources (DOER) which concluded that shared transmission should be considered in connection with future solicitations for offshore wind energy, and that solicitations for a shared transmission only system would have to precede the awarding of contracts for additional offshore wind generating facilities. The DEIR should provide a thorough analysis of the use of shared transmission **MEPA 14** infrastructure that could be utilized for electricity generated from Lease Areas OCS-A-0501 and OCS-A-0534, including VWC1, NEW1C and NEW2C. The analysis should compare environmental impacts of a shared option to three separate generator lead lines, as currently proposed for these three projects and review the logistical, operational, financial and engineering feasibility of shared transmission for this and other related projects.

Onshore Cable Route

The ENF identified two onshore export cable route alternatives between the landfall site and the location of the proposed substation, a variation of the onshore routes and three potential routes between the proposed substation and the West Barnstable Substation. It reviewed alternative construction methods for crossing a culvert under the Dowses Beach driveway and Route 6.

Both of the routes from the Dowses Beach landfall site to the proposed substation follow existing roads and ROWs. The cable routing in the Preferred Alternative is 6.7 miles long and follows a generally direct route north to the proposed substation site using East Bay Road, Wianno Avenue, Main Street, Osterville-West Barnstable Road, Old Falmouth Road, Old Stage Road, Oak Street and Service Road, then under Route 6 to the proposed substation site. As described below, this alternative would have temporary impacts on wetland resource areas associated with Dowses Beach, East Bay and stream crossings on Old Falmouth Road and Oak Street.

The second alternative, identified as the Noticed Alternative, is a 6.6-mile long route that follows East Bay Road in a northwesterly direction for 0.7 miles, crosses Main Street, follows Old Mill Road, Bumps River Road and Five Corners Road in a northeasterly direction for 1.7 miles, turns northwest on Lumbert Mill Road for a distance of 1.5 miles to Osterville-West Barnstable Road, from which point it follows the Preferred Alternative route for 2.5 miles to the proposed substation site. In addition to wetland resource areas associated with Dowses Beach and East Bay, the Notice Alternative crosses the Bumps River on Bumps River Road and streams on Lumbert Mill Road, Old Falmouth Road and Oak Street. A portion of the Noticed Alternative is located within Priority habitat of the Water Willow Stem Borer moth. The Main Street Variation provides a link between the Preferred Alternative and Noticed Alternative along a 0.3 mile section of Main Street. According to the ENF, the Main Street Variation would be used if Wianno Road, rather than East Bay Road, were used in the Noticed Alternative.

According to the ENF, both the Preferred Alternative and Noticed Alternative routes are feasible from a cost and engineering perspective. The Preferred Alternative passes through a section of Osterville with more businesses and historic properties, whereas the Noticed Alternative route passes through more residential areas. The Noticed Alternative route is generally closer to the coastline and would be more susceptible to flooding and storm damage under future climate conditions. The Preferred Alternative was selected because it coincides with the route of the Town's planned sewer construction project and would allow for construction activity to be coordinated to minimize impacts by constructing the two projects simultaneously.

I note the concern of many commenters regarding the impacts of Preferred Alternative onshore route through Osterville's commercial and historic districts. The DEIR should provide a detailed description of construction activities through these areas, including duration, timing and MEPA 15 potential relocation of other utilities. It should identify potential impacts of the onshore export cable during the construction and operation phases of the project and describe mitigation measures. The DEIR should provide a detailed analysis of the comparative impacts of the Preferred Alternative route and the Noticed Alternative route. The DEIR should discuss alternative onshore cable routes in the context of the analyses of alternative landfall and substation locations. **MEPA 16** **MEPA 17**

Landfall Location

I note that in the DEIR for the NEW1C project, Dowses Beach was rated as a "Less Preferable" location while several other sites were deemed "Promising." The DEIR should provide a comprehensive analysis of all landfall locations evaluated prior to the selection of Dowses Beach. For the "Promising" sites, the DEIR should describe existing conditions and uses of each alternative location, provide conceptual-level plans of landfall alternatives showing how construction staging areas and permanent structures could be accommodated at each site, potential onshore cable routes to the proposed substation or alternative substation locations, and a comparison of impacts associated with each alternative. The DEIR should compare the environmental impacts associated with each landfall site and discuss the reasons for selecting Dowses Beach. The DEIR should evaluate the feasibility of installing conduits of sufficient size at the Craigville Beach location for the NEW1C project to accommodate landfall of the offshore export cables for the NEW2C project. It should identify potential impacts to groundwater, including public water supplies, from project components and identify mitigation measures. **MEPA 18** **MEPA 19** **MEPA 20** **MEPA 21**

Substation

According to the ENF, the Proponent evaluated potential locations for the proposed substation using a set of screening criteria which included the size of the parcel, proximity to the West Barnstable Substation and landfall location, environmental characteristics, accessibility and cost and availability of the parcel. The DEIR should provide an analysis of alternative substation locations, including at least one location not located above the aquifer. The analysis should estimate the potential environmental impacts of each alternative, quantitatively to the extent possible. It should make note of any implications for onshore routing of the export cables and landfall locations. **MEPA 22**

Environmental Justice

Effective January 1, 2022, all new projects in a Designated Geographic Area (DGA, as defined in 301 CMR 11.02, as amended) around EJ populations are subject to new requirements imposed by the Chapter 8 of the Acts of 2021: *An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy* (the "Climate Roadmap Map") and amended MEPA regulations at 301 CMR 11.00.[8] Two related MEPA protocols—the MEPA Public Involvement Protocol for Environmental Justice Populations (the "MEPA EJ Public Involvement Protocol") and MEPA Interim Protocol for Analysis of project Impacts on Environmental Justice Populations (the "MEPA Interim Protocol for Analysis of EJ Impacts")—are also in effect for new projects filed

[8] MEPA regulations have been amended to implement Sections 55-60 of the Climate Roadmap Act, and took effect on December 24, 2021. More information is available at https://www.mass.gov/service-details/information-about-upcoming-regulatory-updates.

on or after January 1, 2022.[9] Under the new regulations and protocols, all projects located in a DGA around one or more EJ populations must take steps to enhance public involvement opportunities for EJ populations, and must submit analysis of impacts to such EJ populations in the form of an EIR.

As noted above, the project site is not located within one mile of any EJ populations; therefore, the project is not subject to the EJ outreach and analysis procedures listed above. The EEA EJ Maps Viewer identifies one census tract within a mile of the project in which Portuguese or Portuguese Creole is spoken by 7.1% of residents in the census tract who also identify as not speaking English very well. According to the ENF, the Proponent consulted with the Barnstable Public School District regarding languages spoken by students. Based on this consultation, the Proponent prepared project summaries in Brazilian Portuguese and Spanish as part of its public engagement effort. The project summaries were distributed in advance of the filing of the ENF to an EJ Reference List provided by the MEPA Office that included regional and statewide community-based organizations (CBOs) and tribes/indigenous organizations and to additional CBOs identified by the Proponent. According to the ENF, the Proponent has partnered with the Vineyard Power Cooperative to inform the public and key stakeholders about federal and state renewable energy goals and regulatory processes. The Proponent's outreach efforts have included consultation with stakeholders and community events, including dozens of public information sessions on Cape Cod, Martha's Vineyard and Nantucket.

According to the ENF, construction of the offshore wind farm will require port facilities for laydown space and wind turbine assembly in Salem, MA, New Bedford, MA, Bridgeport, CT and/or New London, CT. According to the ENF, the Proponent intends to lease space from a proposed offshore wind port facility in Salem, which is currently undergoing separate MEPA review (EEA# 16618, Salem Wind Port). The proponent of the Salem Wind Port filed an Expanded ENF (EENF) which reviewed potential environmental impacts, including impacts on EJ populations within the vicinity of the proposed wind port, associated with proposed dredging, construction of infrastructure improvements and operation of the facility. A Certificate on the EENF was issued on November 30, 2022. The Certificate included a Scope for additional analysis that will be provided in a Single EIR. According to the ENF, the Proponent will also require the use of a long-term operations and maintenance (O&M) facility once the wind farm is operational. Potential locations for the O&M facility include Bridgeport, CT, Vineyard Haven, MA, New Bedford, MA and other locations in southeastern Massachusetts.

The DEIR should describe all anticipated work activities at any port facilities and O&M facilities in Massachusetts that will be used to support implementation of the project, including during construction and post-construction operations. The DEIR should discuss whether any new construction or expansion of buildings, docks or infrastructure, or dredging will be required at locations other than the Salem Wind Port, and indicate whether the Proponent or third parties will engage in such activities. If the former, the DEIR should consider all related port and O&M activities as part of the project and provide analysis consistent with the remainder of the Scope. If activities will be conducted by third parties, the DEIR should discuss why those activities should be considered severable from the remainder of this project, and describe the status of any design or permitting of such work activities, whether those other activities are likely to undergo MEPA review, and the mechanism through which the Proponent intends to make use of those **MEPA 23**

[9] Available at https://www.mass.gov/service-details/eea-policies-and-guidance.

facilities (through long term leases or other legal arrangements). The DEIR should include a conceptual discussion of the nature of anticipated impacts associated with activities at these off-site locations, including anticipated truck and marine vessel traffic, air emissions associated with any industrial or manufacturing processes, and impacts associated with construction period activity. The DEIR should provide a description of the EJ populations and their characteristics within a 1-mile radius of any identified port or O&M facilities.

Ocean Management Plan

The project is subject to review under the OMP. The first OMP was developed in 2009 pursuant to the Oceans Act (Chapter 114 of the Acts of 2008), and subsequently updated in 2015 and most recently in 2021. The OMP identifies and maps important ecological resources that are key components of the state's estuarine and marine ecosystems— defined as "special, sensitive or unique resources" (SSU)—and identifies key areas of water-dependent uses including commercial and recreational fishing and navigation. The OMP contains siting and management standards applicable to specific ocean-based activities to protect SSU resources and water-dependent uses. For cable projects, the OMP identifies the applicable SSUs as core habitat areas for the North Atlantic Right Whale, Fin Whale and Humpback Whale, intertidal flats, eelgrass and areas of hard/complex seafloor. Hard/complex benthic conditions include: exposed bedrock or concentrations of boulder, cobble or similar hard bottom; morphologically rugged seafloor conditions characterized by high variability in bathymetric aspect and gradient, such as sand waves; or artificial reefs, wrecks or functionally equivalent structures that provide a substrate for hard bottom biological communities.

Siting Standards

The siting standards of the OMP and its implementing regulations (301 CMR 28.00) presume that a project alternative located outside mapped SSU resources is a less environmentally damaging practicable alternative than a project located within a mapped SSU resource. The OMP management standards require a demonstration that the project has undertaken all practicable measures to avoid damage to SSUs; and a demonstration that the public benefits of the project outweigh the public detriments to the SSU resource. The DEIR should demonstrate that the project will comply with the management standards by identifying the project purpose and constraints, reviewing alternatives that would avoid SSUs, providing sufficient details of existing and proposed conditions along the proposed cable route, documenting the impacts of the project and mitigation measures to minimize impacts, and addressing its public benefits. **MEPA 24**

The ENF provided maps of benthic conditions within the OECC prepared based on surveys conducted for the review and permitting of the VW1 and NEW1C projects. The surveys were conducted using video, multi-beam and side-scan sonar, bathymetry and sediment grabs. Mapped benthic conditions condition were presented using both the Coastal and Marine Ecological Classification Standard (CMECS) and the Auster habitat classification method, which was used to describe conditions for the VW1 and NEW1C reviews. According to the results of seafloor mapping, and consistent with maps of SSUs provided in the OMP, the OECC includes areas of hard/complex benthic conditions, as well as extensive areas of soft sediment comprised of sand and mud. For each routing variation, the DEIR should quantify the acreage of seafloor and hard/complex seafloor disturbance associated with the plow or other cable-installation **MEPA 25** device, direct impacts from plow skids; vessel impacts, including anchors, jack-up supports and grounding; and long-term cable protection. As requested by CZM, this analysis should be prepared using the Proponent's seafloor mapping and OMP maps of SSUs. Based on this analysis, the DEIR should document how the Proponent will use all practicable measures to avoid disturbing hard/complex seafloor, that no Less Damaging Environmentally Practicable Alternative to the proposed project exists, that the project will cause no significant alteration of SSU resources, and that the public benefits of the project outweigh its detriments.

The OMP includes mapped areas of commercial and recreational fishing and navigation in Nantucket Sound that could be affected by the project. The DEIR should describe activities that could be affected by the installation of the cable and survey activities, including restrictions on navigation, fishing and the placement of fixed or mobile fishing gear. The DEIR should include a Fisheries Communications Plan for alerting mariners of the location and timing of project activities in Nantucket Sound. The Proponent should also coordinate with municipal shellfish constables and aquaculture grant owners to ensure the Project avoids interference with shellfish relay or aquaculture operations. **MEPA 26**

Ocean Development Mitigation Fee

The Oceans Act established an Ocean Development Mitigation Fee to be assessed for offshore development projects. The purpose of the fee is to compensate the Commonwealth for unavoidable impacts to ocean resources and the broad public interests and rights in the lands, waters and resources of the OMP areas and to support the planning, management, restoration, or enhancement of marine habitat, resources and uses. The fee will be established through the MEPA review of the project's impacts with input from State Agencies and the public. The OMP contains language and guidance as to the process and framework for determining the fee. The information and analysis contained in the DEIR, as well as consultation with agencies and input from public comment, will help to inform the Secretary's determination of the mitigation. If the project is permitted, the fee must be deposited in the Oceans and Waterways Trust. According to the ENF, benefits of the project include generating renewable energy, stabilizing electricity costs, improving the reliability of the electrical grid in Southeastern Massachusetts, and providing economic and employment benefits to the region. The DEIR should demonstrate that the public benefits of the proposed total project outweigh the public detriments to OMP resources as required by 301 CMR 28.00. **MEPA 27**

Wetlands and Water Quality

As described below, project activities that may impact wetlands include the installation of the offshore export cables, the transition of the cables from the offshore environment to land and construction of the duct bank for the onshore export cables. The DEIR should identify areas of eelgrass in or near areas where project activities are proposed, including the waters off Barnstable and Edgartown, and describe potential impacts from cable laying, offshore dredging and sediment dispersion and HDD operations. The DEIR should provide updated estimates, if necessary, of impacts to wetland resource areas based on any changes to the design of the project or delineation of wetland resource areas. It should provide the data and analysis identified below and review how the project will satisfy the requirements of the Wetlands Regulations (310 CMR 10.00), WQC Regulations (314 CMR 9.00) and the Waterways Regulations (310 CMR 9.00). **MEPA 28** **MEPA 29**

Offshore Export Cable Installation

According to the ENF, each offshore export cable will be installed using a tool that simultaneous lays and buries the cable, such as jet plow, or mechanical plow, primarily in soft sediments using a trenching tool. The trenching tool will be mounted on skids and pulled along the bottom by a cable laying vessel. This installation technique will create a 3.3-ft wide trench in which the cable will be buried to a depth of five to eight feet and covered with sediment. In addition to the direct impacts from the trench, the plow skids will directly impact an area of seafloor up to approximately 10 ft wide centered on the trench. In areas where mobile sand waves are present on the ocean floor and cables must be buried deeper than eight feet, either a trailing suction hopper dredge (TSHD) or jetting by controlled flow excavation will be used to dredge a trench with 3:1 (horizontal:vertical) slopes and a bottom width of 50 ft to adequately bury the cables. Dredged sand from these areas will be deposited within the OECC in areas with similar sandy benthic conditions. Where subsurface conditions prevent burial of the cable, it will be placed on the seafloor and covered with protective armoring, which may include rock, gabion rock bags, concrete mattresses or half-shell pipes. According to the ENF, cable protection will be used if the cable is buried less than five feet deep in areas where there is a high risk of damage to the cable from anchor strikes, which is the case in the majority of the OECC, and if the cable is buried less than three feet in any other areas. Cable protection will also be required where the cables cross other cables or pipelines or where a cable joint requires protection. Additional impacts to LUO will occur where vessel anchors or jack-up supports are placed on the seafloor or where vessels come into direct contact with the seafloor under low tide conditions in shallow waters.

Installation of the offshore export cables will impact between 180 acres and 183 acres of LUO, depending on whether any cables are placed within the Western Muskeget Variant route. The seafloor impacts for each activity and routing variation are shown in Table 1.

Table 1. Summary of offshore cable seafloor impacts (acres).

Activity	3 Cables in OECC	2 Cables in OECC + 1 Cable in Western Muskeget Variant	1 Cable in OECC + 2 Cables in Western Muskeget Variant
Cable protection	29.4	32.5	35.6
Cable installation	110	107	104
Additional dredging	27	30	33
Vessel impacts	27	27	26
Total	180	182	183

The DEIR should describe each of the cable installation methods that may be used, identify the conditions along the cable routes under which it may be used, its direct impacts on the seafloor and indirect impacts such as turbidity and sediment dispersion. It should compare the relative impacts of each method and include a commitment to use the least impactful methods or, if the least impactful methods are not feasible under some or all conditions, provide a discussion of why that is the case and additional mitigation measures that will be implemented. In particular, the use of a TSHD for dredging of sand waves will require disposal of dredged material within the OECC that will cause a sediment plume extending beyond the immediate MEPA 30 work area. The DEIR should describe why a TSHD may be used rather than controlled flow excavation, review the results of sediment dispersion modelling and identify potential impacts and mitigation measures from sediment disposal.

The DEIR should explain how the burial depth and sediment cover of the cables will be verified and describe any additional burial or cable protection measures that may be necessary if **MEPA 31** the cable has not been adequately buried. It should detail procedures, such as a second plow pass or hand jetting. that may be used to achieve adequate burial depth and avoid armoring. It should describe the dimensions and physical characteristics, including habitat value, and installation methods of any armoring that may be required as a last resort. The DEIR should detail the data that will be used, and how it will be collected, to determine high and low-risk vessel traffic areas. **MEPA 32** These risk areas should be represented on maps depicting the proposed cable routes. The Proponent should consult with CZM, DMF and local stakeholders such as the harbormaster(s) to determine the appropriate criteria for delineating areas of high risk from anchor strikes. The DEIR should identify any infrastructure crossings that may be necessary and the proposed method of cable protection. It should describe any unique impacts that may result from infrastructure crossings, including any increased potential for cables to become unearthed and potential increased impacts from electromagnetic fields and heat.

The DEIR should describe expected transit and work speed of the cable lay vessels, the number and type of support vessels and whether the cable laying vessel will use dynamic **MEPA 33** positioning or kedging during the cable installation process; the use of dynamically positioned vessels is encouraged as a means of minimizing benthic impacts associated with anchors and anchor lines The DEIR should identify potential mitigation measures appropriate for each **MEPA 34** construction method and for any permanent impacts, such as habitat conversion from armoring.

The DEIR should describe a comprehensive post-construction monitoring plan developed in consultation with State Agencies. The monitoring plan should establish a robust pre-construction baseline for potentially impacted biota and habitat; evaluate Total Suspended Solids (TSS) dispersion during construction; measure changes in seafloor topography and disturbance of seafloor habitats, including eelgrass; evaluate the adequate burial of the cables in the near and **MEPA 35** long term; estimate recovery times of resources; colonization of invasive species in disturbed areas; and outline adequate methods and metrics to detect differences in biological or geological parameters within the construction corridor. The DEIR should describe how the post-construction monitoring plan will address these and other relevant factors to protect water resources and species habitat. To the extent the monitoring plan will be modeled on the plan completed for previously-approved cable installation projects (such as VWC1 or NEW1C), a copy of the approved post-construction monitoring plan should be submitted with the DEIR. The DEIR should include a description of how the components of the plan will be adapted for the NEW2C project, including any provisions to account for potential interference in the monitoring program by activities associated with other transmission projects.

Landfall

Installation of the offshore export cables by trenching will cease in waters approximately 1,500 ft from the shoreline at the proposed Dowses Beach landfall site. At this location, a below-ground conduit will be installed between the end of the offshore trench and the landfall site in the beach parking lot using HDD to avoid direct impacts to rare species habitat and wetland resource areas, including Coastal Beach, Coastal Dune and LSCSF. Each cable will be pulled through the conduit to one of three underground transition vaults, where the nine individual single-core cables (three from each offshore export cable) will be placed within its own conduit in a duct bank and routed to the proposed substation.

The DEIR should detail HDD operations and describe impacts associated with the transition between construction techniques, such as potential release of drilling fluid in wetland resource areas or rare species habitat. It should provide a contingency plan describing measures to minimize and contain turbidity and sedimentation should HDD drilling slurry be released into the environment. The DEIR should detail the duration of HDD activities, restrictions on the use of the beach, fishing pier and parking lot and identify potential mitigation measures. **MEPA 36**

Onshore Export Cable Installation

The duct bank carrying the onshore export cables will follow a 6.7-mile long route north from Dowses Beach to the site of the proposed substation. It will impact 19,682 sf (0.45 acres) of LSCSF in a 1,514 lf section of the route at Dowses Beach and East Bay Road and 11,336 sf (0.26 acres) of Riverfront Area in two sections (872 lf total) of the route on Old Falmouth Road and Oak Street. According to the ENF, the duct bank will be installed within the Dowses Beach driveway over the culvert connecting East Bay on either side of the road without impacting wetland resources areas.

As noted by MassDEP and CZM, Dowses Beach is a barrier beach consisting of resource areas defined as Coastal Beaches and Coastal Dune. The DEIR should include a delineation of resource areas at Dowses Beach and at stream crossings along the duct bank route and identify any impacts associated with the project, including impacts associated with future maintenance and repair activities. The DEIR should include a map of all wetland resource areas that will be impacted by construction, staging and future maintenance and repair activities, identify mitigation measures to minimize impacts and describe how affected areas will be restored. **MEPA 37**

Chapter 91 / Waterways

Sections of the export cables in, under or over the flowed tidelands of Nantucket Sound, as well as associated dredging for installation of the cables, will be subject to licensing under c. 91 and the Waterways Regulations. The DEIR should clearly delineate the landward extent of c. 91 jurisdiction, including any filled tidelands along the shoreline and any filled or flowed tidelands along the onshore export cable route. **MEPA 38** According to MassDEP, the project is a water-dependent industrial use pursuant to 310 CMR 9.12(2)(b)(10) because it is an infrastructure facility that will be used to deliver electricity to the public from an offshore facility located outside the Commonwealth. The DEIR should include a draft Navigation Plan that will be implemented during construction, and subsequent maintenance, repair and decommissioning activities, to minimize conflicts with commercial and recreational vessels. **MEPA 39** The DEIR should discuss the project's consistency with the applicable c. 91 regulations. **MEPA 40**

<u>Marine Fisheries</u>

As noted above, Nantucket Sound provides habitat for numerous shellfish and finfish important ecologically and commercially, including channeled whelk, knobbed whelk, longfin squid, summer flounder, windowpane flounder, scup, surf clam, sea scallop, quahog, horseshoe crabs and blue mussel. The DEIR should include sufficient information about existing conditions along and adjacent to the proposed cable route to determine potential impacts to marine species and their habitat. It should assess the impacts of the cable on commercial and recreational fishing activities, including impacts that will accrue during the installation of the cable. According to DMF, installation of the offshore export cable will likely impact sessile marine resources such as shellfish, whelks and quid eggs; therefore, the DEIR should document the distribution of these vulnerable species using up-to-date trawl survey data and other available data, and identify mitigation measures to minimize impacts. **MEPA 41**

The DEIR should review impacts associated with the operation and maintenance of the cable, including cable repair or monitoring activities, placement or maintenance of protective covering, and decommissioning. It should include an analysis of potential impacts associated with electromagnetic fields and heat and identify mitigation measures and a monitoring procedure. It should address establishment of time of year (TOY) restrictions and other mitigation measures to minimize impacts to species and habitats and continue to work with DMF to develop cable installation methods that minimize impacts to the squid fishery in state waters. **MEPA 42** **MEPA 43** **MEPA 44**

The DEIR should provide an analysis of the project's impacts to commercial and recreational fishing activity. It should provide background and contextual information from federal review processes to inform this state review. It should provide information on efforts made to address and mitigate impacts to commercial and recreational fisheries through federal review processes, including a description of outreach conducted with Massachusetts fishermen and other Massachusetts stakeholders and mitigation approaches that have been adopted or are being considered. The DEIR should describe the planned timing of cable-laying activities with regards to co-occurring marine resources and stakeholders and identify potential prohibition or relocation of fishing (fixed or mobile gear) for any length of time as a result of survey, installation, or repair procedures. The size, length, and potential economic impact of closures should be included in the description. The DEIR should provide an analysis of the predicted economic exposure to Massachusetts fishermen from the construction, operation, and decommissioning of the OECC in Massachusetts waters and propose a financial mitigation package to compensate fishers for lost revenue. The Proponent should consult with CZM and DMF prior to completing this analysis. **MEPA 45**

Rare Species

According to NHESP, Massachusetts is a globally significant nesting, feeding, staging and overwintering area for numerous migratory birds. The state's natural resources support almost 40 percent of the Atlantic coast breeding population of Piping Plover and approximately 50 percent of the North American Roseate Tern population, as well as significant nesting colonies of Common and Least terns. State-listed species of terns forage in waters surrounding Massachusetts, including areas in or near the OECC and proposed wind farm location outside of state waters. In addition, Dowses Beach is mapped as Priority Habitat for Piping Plover and Least Tern.

The DEIR should assess the direct and indirect impacts of the project on state-listed and migratory birds in the project area and identify mitigation measures as described below. As requested by NHESP, the DEIR should include site-specific details regarding construction and **MEPA 46** restoration timelines and the nature of the project's temporary and permanent impacts on rare species habitat on Dowses Beach. In addition, it should provide a proposed a Piping Plover Protection Plan so that NHESP can assess whether the project can avoid both temporary and permanent impacts to state-listed plovers and terns and their habitats. The DEIR should provide additional details regarding potential impacts to rare species habitat along the Old Mill Road Alternative onshore export so that NHESP can determine whether the activity may qualify for an exemption from the Massachusetts Endangered Species Act (MESA) regulations applicable to projects located entirely within public roadway layouts.

In connection with the Vineyard Wind and Park City Wind projects, a framework was developed for a post-construction monitoring program for offshore birds and bats that includes acoustic monitoring, deployment of up to 150 tags per year for three years and installation of tagging receivers to detect tagged Roseate Terns, Common Terns and other migratory birds, count surveys at the wind turbines and preparation of annual monitoring reports. As noted in the FEIR Certificate for the NEW1C project, the bid for the Commonwealth Wind project in the Massachusetts Section 83C III solicitation for offshore wind energy generation that was accepted by the Commonwealth on December 17, 2021 included a commitment to implement a conservation program to research and address impacts of offshore wind development on coastal waterbird populations. The program will include research, conservation, and habitat restoration measures for avian populations that nest, forage, or migrate through offshore wind project areas. Potential conservation measures identified by NHESP to mitigate impacts to avian species include support for ongoing tern colony and plover monitoring and management and the restoration and enhancement of critical nesting habitats. The Proponent should coordinate with the NHESP and other state agencies to develop the specifics of the program including partners, funding, timing, and specific projects and provide additional details of its proposed mitigation program in the DEIR. The development of the coastal waterbird conservation program will also be reviewed as part of CZM's ongoing federal consistency review process. I note that prior reviews of affiliated projects for Vineyard Wind and Park City Wind concluded without a clear commitment for mitigation in relation to avian impacts. In light of the explicit commitments made as part of the Section 83C III solicitation, it is my expectation that the details of this mitigation will be fully described in future filings for this project. **MEPA 47**

Substation and Interconnection

A new substation is required to step up the 275-kV voltage of the onshore export cable to 345 kV so it can be interconnected to the electrical transmission system. The substation will be constructed on a 15.2-acre parcel located off Oak Street and north of Route 6. The site is located within an Aquifer Protection Overlay District but not within a Zone II Wellhead Protection Area for a public water supply. Construction of the substation will alter approximately 12.4 acres of undeveloped land at the site and add 1.2 acres of impervious area. The ENF included a plan showing the layout of the proposed substation, which will include transformers, switchgear and a control room inside two metal enclosures and associated equipment and wiring. It will be enclosed by a perimeter fence and include a driveway connection to the road providing access to DCR's fire tower. The substation will be designed as a gas-insulated substation (GIS), which uses sulfur hexafluoride (SF_6), a potent greenhouse gas, to insulate electrical equipment.

To minimize potential impacts to groundwater, the substation will have a containment system designed to contain 110 percent of the volume of dielectric fluid anticipated to be used within the transformers and other equipment. The substation will also be designed with additional containment volume to accommodate additional flow from precipitation under an extreme rain event. The Proponent will develop and implement a construction-period Spill Prevention, Control and Countermeasures Plan (SPCC) to minimize the potential for a release of fuel or other contaminants that could impact water quality. The site will include a stormwater management system designed to meet the requirements of the Massachusetts Stormwater Management Standards (SMS)./ The stormwater management system will include the use of Best Management Practices (BMP) and Low Impact Design (LID) measures such as perforated underdrains, a riprap-lined swale, two attenuation/detention basins, a hydrodynamic separator, a sediment forebay and an infiltration basin to remove pollutants and maintain predevelopment peak discharge rates.

The DEIR should provide additional details on the design of the proposed substation, including buffers, noise abatement features and the stormwater management system. It should describe proposed modifications to the West Barnstable Substation, and clarify the responsible parties for implementing these modifications. The DEIR should evaluate the feasibility of constructing an air-insulated (AIS) substation to avoid the use of SF_6 gas for insulating the substation. It should discuss compliance with MassDEP's regulations capping emissions from SF_6 gas at 310 CMR 7.72. It should describe how groundwater will be protected from potential contaminants, including provision of full containment of all fluids within substation equipment. The DEIR should describe project activities within the Route 6 ROW, identify the need for road closures or other impacts to traffic on Route 6 and review any requirements that MassDOT may impose on construction of the project. MEPA 48 MEPA 49 MEPA 50 MEPA 51

According to DCR, the Barnstable Fire Tower is staffed during the fire season, from March through October, and tower operators work to detect wildland fires in the Upper Cape region. The operators of the Barnstable Fire Tower play a key role in facilitating communications between regional fire towers and municipal fire departments. The DEIR should describe potential impacts to the fire station from the construction and operation of the substation. It should demonstrate that the substation will not restrict access to the fire tower, obstruct views from the tower or adversely affect radio communications from the fire tower. The DEIR should provide details regarding the Proponent's rights to use the fire tower access road and, if such rights exist, include a plan for the use of the access road, both during and after construction. The Proponent should consult with DCR regarding the potential need for a Construction and Access Permit for use of the fire tower access road. MEPA 52

Cultural Resources

Both offshore and onshore components of the Project are located in areas with significant cultural resources associated with ancient and historic period Native American activities and colonial settlement. In addition to the high density of shipwrecks, coastal waters affected by the project may include submerged ancient Native American cultural resources. According to BUAR, a marine archaeological reconnaissance survey of the state waters portion of the OECC for the VWC1 project determined that the offshore component of the waters within and in the vicinity of the OECC possessed a high density of post-contact period shipwrecks and contained numerous areas of submerged paleolandscapes with archaeological sensitivity for potentially containing submerged Native American archaeological deposits. Therefore, the project area may be archaeologically sensitive for both pre- and post-contact period (principally shipwrecks) underwater archaeological resources.

According to BUAR, the NEW2C cable route may be generally archaeologically sensitive for both pre-contact period and post-contact period (principally shipwrecks) underwater archaeological resources because it will be primarily located within the same OECC as the VWC1 cables and because of Nantucket Sound's status as a National Register of Historic Places-eligible Traditional Cultural Property (TCP) considered significant for the region's Wampanoag Tribes.

Underwater archaeological resource identification surveys, site examinations, responses to unanticipated discoveries, and any mitigation activities conducted for the project within the Commonwealth's waters must conform to the MBUAR statute and regulations and published Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources and Policy Guidance for the Discovery of Unanticipated Archaeological Resources and be conducted under an MBUAR Special Use Permit. The Proponent should consult with BUAR to develop a project-specific proposal for complete marine archaeological identification survey coverage for the entire state waters portion of the NEW2C cable route's area of potential effect. The DEIR should provide a discussion of any surveys or analyses that will be undertaken and include a plan consistent with the BUAR's Policy Guidance for the Discovery of Unanticipated Archaeological Resources. The DEIR should report on any consultation conducted with MHC regarding historical and archaeological resources. **MEPA 53**

Article 97 and Conservation Land

According to the ENF, the project landfall site at Dowses Beach, including the beach, parking area and driveway, and land located on two of the alternative routes between the proposed substation and the West Barnstable Substation, are protected by Article 97. The DEIR should clearly identify all project activities and structures located on or under Article 97-protected land and provide plans of the affected parcels. It should identify whether any maintenance easements will be required on protected land, and describe potential maintenance and repair activities. **MEPA 54**

A change in use of Article 97 land requires a 2/3 vote of the legislature and compliance with the Executive Office of Energy and Environmental Affairs (EEA) Article 97 Land Disposition Policy (Article 97 Policy). A primary goal of the Policy is to ensure no net loss of Article 97 lands under the ownership and control of the Commonwealth. Allowances are made within the Policy for exceptional dispositions. If the project requires conversion of Article 97 land, the DEIR should include an analysis of the six criteria identified in the Article 97 Policy for determining when "exceptional circumstances" exist such that a disposition of Article 97 land may be appropriate: **MEPA 55**

- The Proponent of the disposition must conduct an analysis of alternatives, commensurate with the type and size of the proposed disposition, that achieve the purpose of the disposition without the use of Article 97 land, such as the use of other land available within the appropriate market area;

- The disposition of the subject parcel and its proposed use may not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation);
- Real estate of equal or greater value, and of significantly greater resource value is granted to the disposing agency;
- The minimum necessary area of Article 97 should be included in the disposition and the existing resources continue to be protected to the maximum extent possible;
- The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EEA and its appropriate department or division; and,
- The disposition is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests to the Commonwealth.

As noted above, many commenters object to the use of Dowses Beach as the landfall location. The DEIR should provide a detailed description of proposed construction activities, permanent structures and long-term maintenance and repair activities. It should describe any temporary and permanent impacts to public use of any land protected by Article 97, including affected areas and duration of impacts. It should identify mitigation measures to minimize disruption of the public's use of the beach. **MEPA 56**

Climate Change

Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and direct Executive Branch agencies to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The urgent need to address climate change was again recognized by Governor Baker and the Massachusetts Legislature with the recent passage of St. 2021, c. 8, An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy, which sets a goal of Net Zero emissions by 2050. I note that the MEPA statute directs all Agencies to consider reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise, when issuing permits, licenses and other administrative approvals and decisions. M.G.L. c. 30, § 61.

Greenhouse Gas (GHG) Emissions

This Project is subject to review under the May 5, 2010 MEPA GHG Policy because it exceeds thresholds for a mandatory EIR. The DEIR should identify features of the transmission **MEPA 57** line and substation that will minimize line losses, such as the use of premium efficiency substation transformers and other components. The DEIR should identify mitigation **MEPA 58** commitments to reduce construction period carbon dioxide (CO_2) emissions and identify construction practices and/or design features that will minimize the leakage of SF_6 gas, a potent GHG. As noted, the DEIR should include a review of potential benefits associated with **MEPA 59** constructing an AIS substation to avoid the need for SF_6. The DEIR should discuss compliance with 310 CMR 7.72. The DEIR should discuss and quantify the GHG emissions benefits that **MEPA 60** will accrue to the regional grid from construction of the project (including the offshore wind generator) through the displacement of fossil fuel sources, including, to the extent feasible, a quantification of benefits accruing to the Commonwealth.

Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool"),[10] to assess the climate risks of the project. The output report attached to the ENF identified a useful life of the project as 33 years which would appear to be too short for a critical infrastructure project of this size. Based on the output report attached to the ENF, the onshore export cables have a high exposure rating based on the project's location for sea level rise/storm surge, extreme precipitation (urban flooding) and extreme heat, and the substation has a high exposure rating based on the project's location for sea level rise/storm surge, extreme precipitation (urban flooding and riverine flooding) and extreme heat. Based on the 33-year useful life and the self-assessed criticality identified for the proposed substation, the MA Resilience Design Tool recommends a planning horizon of 2050 and a return period associated with a 200-year (0.5 percent chance) storm event for designing the substation relative to sea level rise/storm surge and a 50-year (2 percent chance) storm event for extreme precipitation. For the onshore cables, the Tool recommends a planning horizon of 2050 and a return period associated with a 100-year (1 percent chance) storm event for designing the cables relative to sea level rise/storm surge and a 25-year (4 percent chance) storm event for extreme precipitation. The recommendations for onshore cables appear to be based on a "Moderate" criticality assessment, as compared to "High" criticality for the substation. Given the importance of this project to support energy needs for the region and support renewable energy targets, a consistent approach of evaluating all project components as "High" criticality assets appears more appropriate. A longer planning horizon of 40 to 60 years is also recommended, and longer for any underground infrastructure that is unlikely to be relocated.[11]

The Dowses Beach landfall location and the onshore export cable route across the causeway are low-lying, with low-lying beach and dune systems located seaward of the parking lot and driveway. As a result, the landing location and cable routes are vulnerable to erosion and overwash in moderate to major coastal storms. The DEIR should further describe the vulnerabilities of the proposed project and how the project was designed to minimize and reduce risk from coastal effects. **MEPA 61**

According to the ENF, the Massachusetts Shoreline Change data was reviewed and applied to the proposed project. However, as noted by CZM, shoreline change data is not a useful data source for quantifying the vulnerability of the project shoreline to coastal erosion in moderate to major coastal storms due to the infrequency of these storm events in this area. The primary vulnerability of south-facing shorelines in Massachusetts is to hurricanes. Since the shoreline change data set averages change over a long time horizon and the major hurricanes that cause changes to the shoreline occur once every 75-100 years, the actual effects of these infrequent but impactful storms may be artificially reduced.

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[10] https://resilientma.org/rmat_home/designstandards/
[11] See https://eea-nescaum-dataservices-assets-prd.s3.amazonaws.com/cms/GUIDELINES/V1.2_SECTION_2.pdf (at p. 12).

As critical infrastructure, the proposed energy-producing facility should be designed, at minimum, to continue operating through a moderate to a major hurricane (i.e., the current 500-year storm). As noted, the Resilience Design Tool recommends planning for a 200-year storm event under future climate conditions. As requested by CZM, the DEIR should include an analysis of likely nearshore, beach, and dune erosion at the preferred landing site to ensure the cables and associated infrastructure maintain adequate burial depth over the design life of the project; potential impacts to the cable route as a result of erosion and storm surge; potential effects of back-to-back storms, such as Hurricanes Carol and Edna in 1954; and the extent of future flood zones including sea level rise using best available information as provided through the Massachusetts Coast Flood Risk Model (MC-FRM) in 2030, 2050, and 2070. Although the outputs from the MA Resilience Design Standards Tool delineate the potential extent of flood zones with sea level rise, the outputs do not account for the effects of erosion or other landform change. These should be evaluated by the Proponent separately. The MA Resilience Design Tool output report included in the ENF was run in prior to the most recent version of the Tool, which now provides flood depths and water surface elevations for the scenario years for this project. Based on the outcome of the analysis described above, the DEIR should include an analysis of whether alternative designs, locations and/or mitigation may be necessary to ensure the proposed infrastructure continues to operate for the life of the project. **MEPA 62**

The DEIR should discuss how the project will incorporate comprehensive resiliency planning, given the location of onshore infrastructure directly on the coastline and the potential effects of increased intensity storm and heat events in other areas. The DEIR should identify, in particular, the planning horizon and recurrence intervals used to design the project, and should address 50-year, 100-year and 200-year storm scenarios in 2050 and 2070 to the extent data are available. The numeric values now available through the MA Resilience Design Tool can be consulted as a resource. The DEIR should describe how particular project components have taken into account climate change data and projections in their design, and should specifically address the sizing of the stormwater management system, conduit burial depths, and elevation of above ground infrastructure such as the substation relative to the storm scenarios referenced above. **MEPA 63**

As noted above, the Proponent will design the containment system at the proposed substation with sufficient capacity to contain dielectric fluid mixed with precipitation from an extreme storm event. The DEIR should review the climate change assumptions used to size the containment and stormwater management systems at the proposed substation and evaluate the need for upgrades to the West Barnstable Substation. It should clearly identify the recurrence interval and planning horizon used to inform design, and how climate change data and projections have been incorporated into these design parameters. The DEIR should discuss whether other onshore components away from the coast will be vulnerable to climate change and intense storm or heat events, and, if so, what efforts were made to design those components to maximize climate resiliency. **MEPA 64**

Construction Period

The project must comply with MassDEP's Solid Waste and Air Pollution Control regulations. The DEIR should discuss the use of alternative types of equipment for the construction of all, or part, of the project that may serve to reduce land alteration and the clearing required to accommodate construction access. The DEIR should describe potential construction **MEPA 65** period impacts (including but not limited to traffic management, materials management, parking, air quality and noise impacts) and outline feasible measures that can be implemented to eliminate or minimize these impacts in a draft Construction Management Plan (CMP). The draft CMP should identify construction access and truck traffic routes, staging areas, and how passive recreation use located adjacent to or along portions of the corridor will be safely maintained or impacted throughout the construction period. MEPA 66

I encourage the Proponent to adopt measures to reduce air quality impacts from certain categories of construction vehicles. The DEIR should provide information on the emission controls that will be used for all on-site construction vehicles and should provide a discussion on using construction equipment with engines manufactured to Tier 4 federal emission standards or best available control technology (BACT). I remind the Proponent that EPA has mandated that Ultra Low Sulfur Diesel (ULSD) fuel be used in all off-road construction equipment. The DEIR should confirm that the project will require its construction contractors to use ULSD fuel in off-road equipment and indicate whether it will incorporate additional measures to minimize construction-period emissions. The DEIR should address how the project will support compliance with the Massachusetts Idling regulation at 310 CMR 7.11. MEPA 67

The Proponent is advised that excavating, removing, and/or disposing of contaminated soil, pumping of contaminated groundwater, or working in contaminated media must be done under the provisions of M.G.L. c. 21E and the Occupational Safety and Health Act (OSHA). If oil and/or hazardous material are identified during the implementation of the project, notification pursuant to the MCP must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained for this project given the potential impact of MCP-regulated sites on the proposed construction activities. The LSP may evaluate whether risk reduction measures are necessary to mitigate the presence of contamination. The DEIR should include a Spills Contingency Plan that identifies procedures for the containment and cleanup of any releases of hazardous materials. MEPA 68 MEPA 69

Mitigation and Draft Section 61 Findings

The DEIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase. MEPA 70

To ensure that all GHG emissions reduction measures adopted by the Proponent as the Preferred Alternative are actually constructed or performed by the Proponent, the Proponent MEPA 71 must provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. The commitment to provide this self-certification in the manner outlined above shall be incorporated into the draft Section 61 Findings included in the DEIR.

Responses to Comments

The DEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the ENF that specifically address each issue raised in the comment letter; references to a chapter or sections of the DEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended to, and shall not be construed to, enlarge the Scope of the DEIR beyond what has been expressly identified in this certificate. **MEPA 72**

Circulation

The Proponent should circulate the DEIR to each Person or Agency who previously commented on the ENF, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Per 301 CMR 11.16(5), the Proponent may circulate copies of the EIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent should send correspondence accompanying the digital copy or identifying the web address of the online version of the DEIR indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. If submitted in hard copy, the DEIR submitted to the MEPA office should include a digital copy of the complete document. A copy of the DEIR should be made available for review at the Osterville, Edgartown, Mashpee and Nantucket public Libraries. **MEPA 73**

December 9, 2022
Date

Bethany A. Card
Bethany A. Card

Comments received:

01/29/2022	Cape Cod Chamber of Commerce
10/13/2022	Susanne H. Conley
10/14/2022	Sally Edmonds
10/17/2022	Lauren Howard
10/19/2022	Town of Barnstable
10/27/2022	Association to Preserve Cape Cod
11/08/2022	Stephen Fratalia
11/17/2022	Jane E. Hattemer-Stringer
11/18/2022	Carole Maguire

11/18/2022	James Paterson
11/18/2022	Patricia Harnois
11/19/2022	John Hauser
11/19/2022	Mary-Gaines Standish
11/19/2022	Scott McLane
11/20/2022	Paul Richards
11/20/2022	Stephen Waller
11/20/2022	The Gerdy Family
11/22/2022	Debbie Barlow
11/22/2022	Martha Curley
11/22/2022	Mary M. McMillan
11/23/2022	Massachusetts Department of Environmental Protection (MassDEP)/Southeast Regional Office (SERO)
11/23/2022	Susanne Conley on behalf of Save Greater Dowses Beach
11/25/2022	Susan O'Brien McLean
11/26/2022	Jack R. Cohen
11/26/2022	Maria and Greg Gerdy
11/27/2022	Maria Gerdy and Family
11/28/2022	Brian and Cindy Dacey
11/28/2022	Carol Zais
11/28/2022	Division of Marine Fisheries (DMF)
11/28/2022	Don and Karen Megathlin
11/28/2022	Edward McCormack
11/28/2022	Hector Guenther
11/28/2022	Joseph J. Conway and Patricia A. Conway
11/28/2022	Peter Hansen
11/28/2022	Senator Julian Cyr, Cape and Islands District Senator Susan L. Moran, Plymouth and Barnstable District Representative Sarah K. Peake, 4th Barnstable District Representative Timothy R. Whelan, 1st Barnstable District Representative Kip Diggs, 2nd Barnstable District Representative David T. Vieira, 3rd Barnstable District Representative Steven Xiarhos, 5th Barnstable District Representative Dylan Fernandes, Barnstable, Dukes and Nantucket District
11/28/2022	Tom and Terry McElligot
11/28/2022	Town of Barnstable
11/28/2022	Vineyard Power
11/28/2022	Wendy Cohen
11/29/2022	Cape Cod Technology Council
11/29/2022	Catherine Bean
11/29/2022	Cape Cod Commission
11/29/2022	Claire O'Connor
11/29/2022	Daphne Northrup
11/29/2022	Department of Conservation and Recreation (DCR)
11/29/2022	Environmental League of Massachusetts and 15 co-signers
11/29/2022	Maria Gerdy and Family
11/29/2022	Marie C. Taylor
11/29/2022	Osterville Village Association/Osterville Business and Professional Association

11/29/2022	Peggy Rowland
11/29/2022	Stacey Guenther
11/30/2022	Conor Paterson
11/30/2022	Massachusetts Office of Coastal Zone Management (CZM)
11/30/2022	Jerome Miranowski
11/30/2022	Jerome Vigil
11/30/2022	Natural Heritage and Endangered Species Program (NHESP)
12/05/2022	Board of Underwater Archaeological Resources (BUAR)
12/06/2022	Cape Cod Climate Change Collaborative
12/06/2022	John Crow
12/06/2022	Stacey Guenther

SECRETARY'S CERTIFICATE ON THE ENF

MEPA 01 **As noted below, port facilities and future operations and maintenance (O&M) areas that will support project implementation are located near EJ populations. The DEIR should provide details about the nature and scope of these activities so as to determine whether analysis of impacts on those EJ neighborhoods should be included as part of the review of this project.**

Section 1.3.4 describes support facilities (e.g., ports), and the EJ consistency discussion in Section 3.3.2 includes a discussion of these support facilities.

MEPA 02 **Many commenters questioned the need for the offshore export cables to make landfall at Dowses Beach and expressed concern about potential impacts of the project on recreational and environmental resources at the site. The DEIR should provide greater detail on the nature, extent and duration of proposed activities and structures, including long-term maintenance of project components. It should describe all measures that could be implemented by the Proponent to avoid and minimize environmental impacts, and identify mitigation measures.**

An extensive alternatives analysis is provided in Section 4. As discussed in Sections 1.4.3, 5.2, and 12.2, proposed construction at the landfall site will be restricted to portions of the existing paved parking lot. HDD activities will occur over two successive winter construction seasons, which will enable the Proponent to maintain public access to the beach and fishing pier (see Attachment P). Additional construction activity (for cable pull-in) is proposed during a third winter construction season. Under the preferred approach where the duct bank will be installed along the causeway, access to the parking lot will be maintained with the exception of a 6- to 8-week period when the duct bank will be installed along the paved causeway (see Section 2.3.5.1).

MEPA 03 **The DEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent will avoid, minimize and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design.**

A detailed Project description is provided in Section 2.0, and the Project overview in Section 1.0 includes a description of activities proposed in federal waters for context. The Project description includes detailed mapping of the expanded OECC (see also Attachments H1 and H2), and conceptual engineering plans for the Project are provided as Attachment C. Additional Project graphics are provided in Attachment A. Changes to the Project since the ENF was filed in September 2022 are described in Section 1.5.

The balance of the DEIR characterizes existing environmental conditions, potential Project-related impacts, and measures intended to avoid, minimize, and mitigate those impacts. The Proponent believes the relatively minor temporary impacts of Project construction have been minimized through the use of a paved parking lot to stage HDD work, carefully sited buried transmission, time-of-year restrictions, coordination with municipal infrastructure construction, and proven traffic, erosion control, and stormwater mitigation measures (see Section 12 for construction-period considerations). Consideration of Project impacts, to the extent they are unavoidable, should be balanced with the Project's crucial benefits towards meeting the New England region's climate change imperatives. The approximately 1,200 MW of offshore wind energy that the NE Wind 2 Connector will deliver to New England's electrical grid is projected to avoid approximately 2.35 million tons of CO_2e emissions annually, or the equivalent of taking approximately 460,000 cars off the road.[1] Near-term progress at this scale is essential if the region is to achieve its ambitious de-carbonization goals and meet emission reduction commitments.

MEPA 04 **The DEIR should include plans and a detailed description of existing conditions, including site topography, soil conditions, and infrastructure. It should describe the project and identify any changes to the project since the filing of the ENF. It should include updated site plans for existing and post-development conditions at a legible scale. The plans should depict existing and proposed conditions for all project elements, including the export cable, HDD, and land-based facilities. Plans should be provided at a legible scale and clearly identify buildings, impervious areas, and boundaries of tidelands, wetland resource areas, drinking water supply protection zones, rare species habitat, and information required in the OMP and the Scope below.**

This DEIR contains extensive graphics illustrating the proposed Project and resource areas along the offshore and onshore export cable routes as well as proposed substation site (Attachment A); engineering plans for the onshore duct bank along the Preferred Route are provided in Attachment C. The only new impervious area for the Project will be on the proposed substation site (see Section 2.4). A draft Stormwater Management Plan for the proposed substation is provided in Attachment F. Changes/refinements to the Project since the filing of the ENF are identified in Section 1.5. Wetland resource areas are depicted on Figure 5-1, water supply resources are shown on Figure 6-1, and rare species habitat is shown on Figure 7-4. Consistency with the OMP is discussed in Section 3.4.

MEPA 05 **The DEIR should provide detailed descriptions of proposed construction activities associated with offshore cable installation, HDD, onshore cable installation and substation construction, describe associated environmental impacts and identify measures to minimize and mitigate any impacts that cannot be avoided. The DEIR**

[1] Based on a typical passenger vehicle emitting about 4.6 metric tons (~5.1 US tons) of carbon dioxide per year. See: https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle.

should provide plans detailing conditions within the OECC using Coastal and Marine Ecological Classification Standard (CMECS) categories displayed at a suitable scale. It should describe offshore and onshore cable routes, offshore and onshore cable installation methods, and decommissioning activities, and associated impacts and proposed mitigation measures. The DEIR should describe the design of the substation, interconnection to the transmission system and stormwater management measures. The DEIR should identify and describe measures to avoid, minimize and mitigate the project's impacts.

Section 12.0 provides detailed descriptions of construction techniques and methodologies, and Section 13.2 summarizes impacts and mitigation measures. The plans included in Attachment A as well as the OECC plan sets provided as Attachment H illustrate conditions within the original and expanded OECC. As discussed in Section 2.1.3, marine surveys have been completed within the OECC expansion areas and the Proponent has developed classifications using the Auster system previously used in the Ocean Management Plan (OMP). The new data/classifications have been added to the extensive OECC map sets developed during MEPA's review of the Vineyard Wind Connector 1 and NE Wind 1 Connector, and the revised map set is provided as Attachment H1. This treatment of the OECC expansion area data, including data from the OECC spur to the landfall site, allows for a consistent look at the entire corridor using the classification system employed in the underlying OMP. In addition to this revised map set, Attachment H2 provides a map set showing OECC conditions using the CMECS classification. Offshore wetlands are discussed in Section 5.1, and decommissioning is described in Section 2.8. The proposed substation is addressed in Section 2.4, while the interconnection at the West Barnstable Substation is described in Section 2.6.

MEPA 06 **The VWC1 project has completed permitting, and has begun installation of offshore export cables. The analyses described below should be informed by actual conditions and performance of construction techniques for the VWC1 project. It should compare preliminary observations regarding offshore conditions, the effectiveness of construction techniques, unanticipated obstacles, duration of activities, and other factors, in comparison to expectations and estimates identified during environmental reviews of the VWC1 project.**

The installation of the Vineyard Wind Connector cables began in Fall 2022 and has proceeded in accordance with all applicable permits and regulatory requirements. The Vineyard Wind cables are not yet fully installed, and construction activities are not complete. To date, site conditions and the performance of construction techniques for that Project have generally been as expected. In one instance, an approximately 300-foot (90-meter) section of offshore export cable did not reach sufficient cable burial depth during installation, resulting in the need for cable protection. Vineyard Wind is proposing placement of ECOncrete mattresses as the most appropriate cable protection method for that situation. ECOncrete mattresses are the most protective and environmentally sensitive option. Based on this experience, for NE Wind 2 Connector the Proponent has also identified concrete mattresses, and ECOncrete mattresses specifically, as the preferred method of cable protection, should such protection be necessary, given the ecological benefits and relatively small footprint relative to other cable protection options (see Section 5.1.3).

MEPA 07 **While the project referenced as NEW2C consists of activities in state waters, it is integrally related to the larger offshore wind development occurring beyond state waters that may have significant impacts on important resources and activities in the Commonwealth, such as commercial fisheries, navigation and rare species. To support meaningful agency and public review of the project and assessment of alternatives to avoid, minimize and mitigate impacts in state waters, the DEIR should include contextual and background information related to project elements in both federal and state waters, including efforts made to avoid, minimize and mitigate impacts both for the project as a whole and cumulatively across all related projects being undertaken by the Proponent and by other proponents in a similar time frame and geographical area within the Commonwealth. Information that is or will become available through federal processes should be disclosed through the MEPA review process as it becomes available, to the extent it is relevant to areas of MEPA jurisdiction, as background and context to inform the state MEPA review and to assist CZM in its Federal Consistency Review of the project. Specific topics and information from federal reviews that are required to inform this review are itemized in greater detail below.**

Although this DEIR focuses on the NE Wind 2 Connector, which is that portion of the Commonwealth Wind project located within state jurisdiction, the Proponent has included additional information about activities in federal waters pertaining to Commonwealth Wind for context and background, as well as information about potential other wind developments south of Massachusetts (see Sections 1.2 and 1.3).

Section 5.6 discusses potential cumulative impacts from the three projects to be located within the common OECC.

Section 1.2 provides background regarding the offshore wind industry in Massachusetts, while Section 1.3.1 describes elements of the Commonwealth Wind project. The Proponent submitted a Federal CZM Consistency Statement for both phases of New England Wind (i.e., Park City Wind and Commonwealth Wind) on September 14, 2022. A public notice indicating that the project is undergoing federal consistency review was published in the Environmental Monitor on September 23, 2022. The federal review process includes CZM as an active participant. CZM and the Proponent are currently working together to ensure the agency receives the information it needs to address Project consistency.

MEPA 08 **The DEIR should identify and describe state, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards.**

Permitting and regulatory approvals are identified in Section 1.7. The EFSB review has been initiated. At the conclusion of the MEPA review, the regional review applications will be submitted (Cape Cod Commission, Martha's Vineyard Commission). Local conservation commission filings will follow the applicable regional approvals. State permits (401 Water Quality Certificate, Chapter 91 License) will follow MEPA. The federal BOEM review of Commonwealth Wind will proceed in parallel with the state reviews of the NE Wind 2 Connector.

Consistency with state and regional policies and plans is described in Section 3.0.

MEPA 09 **Pursuant to the Coastal Zone Management Act, CZM's federal consistency authority extends to activities that have reasonably foreseeable effects on any coastal use or resources resulting from a federal agency activity or federal license or permit activity. Renewable energy leases and related authorizations by BOEM are listed federal actions of the state's approved Coastal Management Program. CZM's federal consistency review will be completed through the federal BOEM renewable energy program and National Environmental Policy Act (NEPA) filings; however, as requested by CZM, the DEIR should describe activities in adjacent federal waters to the extent practicable as well as potential effects on state resources and uses to allow for a more complete assessment of the entire project through this MEPA process. It should include a description of existing conditions and plans for existing and post-development conditions for all project elements, including the WTGs, ESPs, submarine cable, onshore cable, HDD, and land-based facilities. It should clearly describe selected methods of cable installation and the route segments where each method will be used.**

While this DEIR focuses on state-jurisdictional elements of the Commonwealth Wind project, which collectively form the NE Wind 2 Connector, a discussion of activities in federal waters is provided in Section 1.4.1 for background and context and impacts from cable installation in federal waters of the OECC are also provided for context. Furthermore, the discussion of the OECC provided in Section 2.1.3 describes conditions in state and federal waters of the OECC for additional background. Section 1.3.1 provides background on offshore wind lease areas.

The Proponent has met with the Massachusetts CZM Office on several occasions during Project development and as part of informing the Ocean Team of ongoing activities. The Proponent submitted a Federal CZM Consistency Statement for both phases of New England Wind (i.e., Park City Wind and Commonwealth Wind) on September 14, 2022. A public notice indicating that the project is undergoing federal consistency review was published in the Environmental Monitor on September 23, 2022. The federal review process includes CZM as an active participant. CZM and the Proponent are currently working together to ensure the agency receives the information it needs to address Project consistency. A description of the federal review process is provided in Sections 1.3.1 and 1.4.1.

MEPA 10 **The DEIR should include a project schedule, describe construction sequencing and describe project phasing.**

The Project schedule is described in Section 1.6, and the construction schedule is described in Section 12.7.

MEPA 11 **However, many commenters questioned why Dowses Beach was selected as the landfall site. The DEIR should include a summary of the alternatives analysis provided during previous MEPA reviews of cable routes extending from the OCS-A 0501 and OCS-A 0534 Lease Areas, including, as discussed below, alternative landfall locations, and document the rationale for the selection of the OECC as the Preferred Alternative for the offshore export cable route.**

The Project is a product of an extensive alternatives analysis, which is described in detail in Section 4.0. This alternatives analysis considered various interconnection points as well as alternative landfall sites, onshore routes, and substation sites. For a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this Analysis. Furthermore, Section 2.1.3 describes the OECC and why use of this common corridor for the NE Wind 2 Connector is the preferred approach. The Massachusetts OMP encourages the use of common corridors for infrastructure such as offshore cables: "the intent of the ocean plan is to minimize the cumulative impact of future development by requiring that linear infrastructure be co-located within common or adjacent corridors to the maximum extent practicable, with allowances for sufficient space between projects for necessary operations and maintenance" (p35-36). The proposed project, by utilizing a common corridor that has been evaluated by multiple regulatory bodies as a favorable route that avoids and minimizes impacts, is consistent with this approach.

MEPA 12 **Given the common ownership and interrelationship among the three projects originating from OCS-A 0501 and OCS-A 0534, the DEIR should include a conceptual discussion and accounting of the cumulative impacts of VWC1, NEW1C and NEW2C with**

respect to the expected total temporary (e.g., dredged areas) and permanent (e.g., cable protection) impacts to the underwater environment across the three construction windows.

Cumulative impacts from Vineyard Wind Connector, NE Wind 1 Connector, and NE Wind 2 Connector are discussed Section 5.6.

MEPA 13 **Consistent with prior reviews, the DEIR should discuss alternatives with respect to construction phasing and schedule and demonstrate that the chosen schedule maximizes opportunities to minimize impacts associated with repeated dredging along the same OECC corridor. The DEIR should discuss whether efforts were made to coordinate construction timing with third party proponents, such as Mayflower Wind, that are also proposing a transmission corridor in proximity to the OECC. The DEIR should include an evaluation of potential construction methods that could minimize cumulative impacts from VWC1, NEW1C and NEW2C and other offshore wind generating facilities by coordinating cable siting and laying, both by the Proponent independently and by the Proponent and other offshore wind development anticipated to occur in a similar geographical area.**

The Project schedule is described in Section 1.6. In addition, cumulative impacts are discussed in Section 5.6 and the discussion also addresses the challenges of coordinating construction schedules across multiple projects (as well as how coordinating those schedules, if possible, would be unlikely to reduce impacts).

MEPA 14 **The DEIR should provide a thorough analysis of the use of shared transmission infrastructure that could be utilized for electricity generated from Lease Areas OCS-A-0501 and OCS-A-0534, including VWC1, NEW1C and NEW2C. The analysis should compare environmental impacts of a shared option to three separate generator lead lines, as currently proposed for these three projects and review the logistical, operational, financial and engineering feasibility of shared transmission for this and other related projects.**

Section 4.2.3 compares the generator lead line approach to shared transmission alternatives. A shared transmission approach would involve a large injection of power into the electrical grid system, and would require a point of interconnection sufficiently robust to accommodate such an injection. A transmission-only competitive solicitation that would encourage developers to build shared transmission infrastructure and associated grid upgrades (presumably at expense to the ratepayers) has not occurred in Massachusetts to date.

MEPA 15 **I note the concern of many commenters regarding the impacts of Preferred Alternative onshore route through Osterville's commercial and historic districts. The DEIR should provide a detailed description of construction activities through these areas, including**

duration, timing and potential relocation of other utilities. It should identify potential impacts of the onshore export cable during the construction and operation phases of the project and describe mitigation measures.

Onshore cable installation, including construction methods in these areas, is described in detail in Section 12.3. Further, historic resources along the onshore duct bank route are described in Section 9.1.2.

MEPA 16 **The DEIR should provide a detailed analysis of the comparative impacts of the Preferred Alternative route and the Noticed Alternative route.**

Section 4.5 contains a detailed routing evaluation and comparison of the Preferred and Noticed Alternative onshore transmission routes. Section 4.7 includes an evaluation and comparison of the Preferred and Noticed Alternative grid interconnection routes.

MEPA 17 **The DEIR should discuss alternative onshore cable routes in the context of the analyses of alternative landfall and substation locations.**

An extensive alternatives analysis is provided in Section 4.0, including specific discussion of onshore transmission routes in Section 4.5. It is crucial to note that for a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this Analysis.

MEPA 18 **I note that in the DEIR for the NEW1C project, Dowses Beach was rated as a "Less Preferable" location while several other sites were deemed "Promising." The DEIR should provide a comprehensive analysis of all landfall locations evaluated prior to the selection of Dowses Beach.**

An extensive alternatives analysis is presented in Section 4.0, with Section 4.4 specifically focused on landfall sites. The initial array of landfall sites presented in Section 4.4 was also considered for the Vineyard Wind Connector and NE Wind 1 Connector, and in some cases the grading changed from project to project due to new information, including information from additional engineering investigations (as was the case for the preferred landfall site). It is crucial to note that for a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this Analysis. The preliminary landfall site evaluation provided in Table 4-3 provides an early assessment of potential landfall site options, which ultimately must be evaluated in light of the selected interconnection point and the desire to utilize a common OECC consistent with guidance from the Massachusetts OMP. With respect to the evaluation of the paved parking lot at Dowses Beach as an alternative for the NE Wind 1 Connector, it is important to note that the Proponent determined that there were two superior sites: Covell's Beach and Craigville Public Beach. Both of those landfall sites are being utilized for Vineyard Wind Connector and NE Wind 1 Connector, respectively, and as such are not available for the NE Wind 2 Connector, as explained in detail in Section 4.0.

MEPA 19 **For the "Promising" sites, the DEIR should describe existing conditions and uses of each alternative location, provide conceptual-level plans of landfall alternatives showing how construction staging areas and permanent structures could be accommodated at each site.**

Table 4-3 identifies the landfall sites identified as potentially promising during an early screening analysis for the NE Wind 2 Connector, and they are shown on Figure 4-2. However, it is crucial to note that for a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this Analysis. As a result, once it was determined that the West Barnstable Substation was the most suitable interconnection point for the Project, the analysis of landfall sites focused on a smaller area of the south Barnstable coast. Within that area, the paved parking lot selected as the preferred landfall site was the most promising landfall site for the Project.

MEPA 20 **Describe potential onshore cable routes to the proposed substation or alternative substation locations, and a comparison of impacts associated with each alternative.**

Alternative onshore routes are described in Section 4.5.

MEPA 21 **The DEIR should compare the environmental impacts associated with each landfall site and discuss the reasons for selecting Dowses Beach. The DEIR should evaluate the feasibility of installing conduits of sufficient size at the Craigville Beach location for the NEW1C project to accommodate landfall of the offshore export cables for the NEW2C project. It should identify potential impacts to groundwater, including public water supplies, from project components and identify mitigation measures.**

An evaluation of the landfall sites considered for the Project is provided in Section 4.4, and the analysis demonstrates why the paved parking lot at Dowses Beach has been selected as the preferred landfall site. That evaluation describes technical and environmental considerations associated with the various landfall sites initially identified. The analysis includes an assessment of Craigville Public Beach, where the NE Wind 1 Connector cables come ashore, and concludes that it cannot also be used for Commonwealth Wind. Potential impacts to groundwater, including public water supplies, are discussed in Section 6.0.

MEPA 22 **The DEIR should provide an analysis of alternative substation locations, including at least one location not located above the aquifer. The analysis should estimate the potential environmental impacts of each alternative, quantitatively to the extent possible. It should make note of any implications for onshore routing of the export cables and landfall locations.**

The alternatives analysis provided in Section 4 includes a discussion of alternative substation sites (see Section 4.6). As described in Section 4.6.1, the proposed onshore substation site is located within a Potential Public Water Supply Area mapped by the CCC, but outside of any Freshwater Recharge Area, Zone I and II Wellhead Protection Areas, and Barnstable Groundwater Protection Overlay District (see Figure 4-13). As further described in Section 4.6, all of the potential substation sites identified were located within some water supply resource areas. None of the substation equipment will contain polychlorinated biphenyls (PCBs). The Proponent will provide full-volume (110%) containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable), a design standard that was specifically negotiated with the town for use in the NE Wind 1 Connector project (I.e., Park City Wind).

MEPA 23 **The DEIR should describe all anticipated work activities at any port facilities and O&M facilities in Massachusetts that will be used to support implementation of the project, including during construction and post-construction operations. The DEIR should discuss whether any new construction or expansion of buildings, docks or infrastructure, or dredging will be required at locations other than the Salem Wind Port, and indicate whether the Proponent or third parties will engage in such activities. If the former, the DEIR should consider all related port and O&M activities as part of the project and provide analysis consistent with the remainder of the Scope. If activities will be conducted by third parties, the DEIR should discuss why those activities should be considered severable from the remainder of this project, and describe the status of any design or permitting of such work activities, whether those other activities are likely to undergo MEPA review, and the mechanism through which the Proponent intends to make use of those facilities (through long term leases or other legal arrangements). The DEIR should include a conceptual discussion of the nature of anticipated impacts associated with activities at these offsite locations, including anticipated truck and**

marine vessel traffic, air emissions associated with any industrial or manufacturing processes, and impacts associated with construction period activity. The DEIR should provide a description of the EJ populations and their characteristics within a 1-mile radius of any identified port or O&M facilities.

Project support facilities are discussed in Section 1.3.4. The Proponent does not have any plans to develop port or O&M facilities, but rather will use existing facilities or facilities planned by third parties to accommodate marine industrial uses unrelated to development of the proposed Project. The Proponent presently expects to make use of facilities pursuant to contractual arrangements with the owners and/or operators of those facilities consistent with the requirements of those third parties and standard industry practices. Where a third party has plans to modify a facility to accommodate marine industrial uses, including offshore wind, the facility will be developed as a separate project undergoing separate permitting as necessary, including MEPA review where applicable. The Proponent will not control the design or permitting of third-party projects to improve their facilities. No port development will occur specifically to accommodate the proposed Project, and it is reasonable to expect that any port facility ultimately selected for use by the Project could be used by multiple entities associated with other marine industrial activities or other offshore wind projects. Project-related activities at a given port will depend on the final Commonwealth Wind construction logistics plan and schedule, the independent decisions of local suppliers, considerations such as available infrastructure, the needs of other existing and future port users, and supply chain availability. EJ communities near potential ports and O&M facilities are discussed in Section 3.3.2.

Construction-period air emissions are discussed in Section 10.2, including consideration of vessel and vehicle emissions.

MEPA 24 **The DEIR should demonstrate that the project will comply with the [OMP] management standards by identifying the project purpose and constraints, reviewing alternatives that would avoid SSUs, providing sufficient details of existing and proposed conditions along the proposed cable route, documenting the impacts of the project and mitigation measures to minimize impacts, and addressing its public benefits.**

Consistency with the Massachusetts OMP is described in Section 3.4.

MEPA 25 **For each routing variation, the DEIR should quantify the acreage of seafloor and hard/complex seafloor disturbance associated with the plow or other cable-installation device, direct impacts from plow skids; vessel impacts, including anchors, jack-up supports and grounding; and long-term cable protection. As requested by CZM, this analysis should be prepared using the Proponent's seafloor mapping and OMP maps of SSUs. Based on this analysis, the DEIR should document how the Proponent will use all practicable measures to avoid disturbing hard/complex seafloor, that no Less Damaging**

Environmentally Practicable Alternative to the proposed project exists, that the project will cause no significant alteration of SSU resources, and that the public benefits of the project outweigh its detriments.

Consistency with the Massachusetts OMP is described in Section 3.4, and the OECC itself is described in detail in Section 2.3. Table 5-2 presents the total estimated lengths and direct trenching impacts from cables passing through hard bottom or complex bottom for all three scenarios involving the primary OECC and the Western Muskeget Variant. Attachment H1 depicts hard bottom and complex bottom (i.e., sand wave) delineations within the OECC based on marine survey results. The Project's numerous benefits are described in Section 1.9, and a Public Benefits Determination is discussed in Section 3.5.

MEPA 26 **The OMP includes mapped areas of commercial and recreational fishing and navigation in Nantucket Sound that could be affected by the project. The DEIR should describe activities that could be affected by the installation of the cable and survey activities, including restrictions on navigation, fishing and the placement of fixed or mobile fishing gear. The DEIR should include a Fisheries Communications Plan for alerting mariners of the location and timing of project activities in Nantucket Sound. The Proponent should also coordinate with municipal shellfish constables and aquaculture grant owners to ensure the Project avoids interference with shellfish relay or aquaculture operations.**

Fish and fisheries resources are discussed in Section 7.1 and Navigation and vessel traffic are discussed in Section 6.3. The most recent version of the Fisheries Communication Plan is included as Attachment J. The Proponent will coordinate with municipal shellfish constables and aquaculture grant owners about Project activities.

MEPA 27 **The Oceans Act established an Ocean Development Mitigation Fee to be assessed for offshore development projects. The purpose of the fee is to compensate the Commonwealth for unavoidable impacts to ocean resources and the broad public interests and rights in the lands, waters and resources of the OMP areas and to support the planning, management, restoration, or enhancement of marine habitat, resources and uses. The fee will be established through the MEPA review of the project's impacts with input from State Agencies and the public. The OMP contains language and guidance as to the process and framework for determining the fee. The information and analysis contained in the DEIR, as well as consultation with agencies and input from public comment, will help to inform the Secretary's determination of the mitigation. If the project is permitted, the fee must be deposited in the Oceans and Waterways Trust. According to the ENF, benefits of the project include generating renewable energy, stabilizing electricity costs, improving the reliability of the electrical grid in Southeastern Massachusetts, and providing economic and employment benefits to the region. The DEIR should demonstrate that the public benefits of the proposed total project outweigh the public detriments to OMP resources as required by 301 CMR 28.00.**

The Ocean Development Mitigation Fee is discussed in Section 3.4.6.

MEPA 28 **The DEIR should identify areas of eelgrass in or near areas where project activities are proposed, including the waters off Barnstable and Edgartown, and describe potential impacts from cable laying, offshore dredging and sediment dispersion and HDD operations.**

As described in Section 2.1.3, marine surveys have shown there are no eelgrass beds within the OECC. Sediment dispersion is discussed in Section 6.2.1, and since sediment will largely remain quite close to installation activities, no impacts to eelgrass beds outside the OECC are anticipated. Potential impacts from cable laying and sand wave dredging are presented in Section 5.1. HDD is discussed in Section 12.2.

MEPA 29 **The DEIR should provide updated estimates, if necessary, of impacts to wetland resource areas based on any changes to the design of the project or delineation of wetland resource areas. It should provide the data and analysis identified below and review how the project will satisfy the requirements of the Wetlands Regulations (310 CMR 10.00), WQC Regulations (314 CMR 9.00) and the Waterways Regulations (310 CMR 9.00).**

Wetland resources are discussed in Section 5, including compliance with WPA performance standards and bylaws. Compliance with Chapter 91 standards is discussed in Section 3.5.2. Conformance with Water Quality Certification (WQC) criteria is discussed in Section 3.8.

MEPA 30 **The DEIR should describe each of the cable installation methods that may be used, identify the conditions along the cable routes under which it may be used, its direct impacts on the seafloor and indirect impacts such as turbidity and sediment dispersion. It should compare the relative impacts of each method and include a commitment to use the least impactful methods or, if the least impactful methods are not feasible under some or all conditions, provide a discussion of why that is the case and additional mitigation measures that will be implemented. In particular, the use of a TSHD for dredging of sand waves will require disposal of dredged material within the OECC that will cause a sediment plume extending beyond the immediate work area. The DEIR should describe why a TSHD may be used rather than controlled flow excavation, review the results of sediment dispersion modelling and identify potential impacts and mitigation measures from sediment disposal.**

Section 12.1 provides a detailed description of offshore cable installation methodologies and how those methodologies will be used to maximize the likelihood of adequate cable burial while avoiding and minimizing impacts. Cable installation methods and associated impacts are also described in Section 5.1, while sand wave dredging methodologies and impacts are specifically discussed in Section 5.1.4 and 12.1.2.

Sediment dispersion modeling results are presented in Section 6.2.1, and the technical report was provided as Attachment I to the ENF.

MEPA 31 **The DEIR should explain how the burial depth and sediment cover of the cables will be verified and describe any additional burial or cable protection measures that may be necessary if the cable has not been adequately buried. It should detail procedures, such as a second plow pass or hand jetting, that may be used to achieve adequate burial depth and avoid armoring. It should describe the dimensions and physical characteristics, including habitat value, and installation methods of any armoring that may be required as a last resort.**

Offshore export cable installation is described in Sections 5.1 and 12.1. Cable protection and its methodologies are specifically discussed in Section 5.1.3.

MEPA 32 **The DEIR should detail the data that will be used, and how it will be collected, to determine high and low-risk vessel traffic areas. These risk areas should be represented on maps depicting the proposed cable routes. The Proponent should consult with CZM, DMF and local stakeholders such as the harbormaster(s) to determine the appropriate criteria for delineating areas of high risk from anchor strikes. The DEIR should identify any infrastructure crossings that may be necessary and the proposed method of cable protection. It should describe any unique impacts that may result from infrastructure crossings, including any increased potential for cables to become unearthed and potential increased impacts from electromagnetic fields and heat.**

Navigation and vessel traffic are discussed in Section 6.3. Under existing plans, no offshore infrastructure crossings are proposed.

MEPA 33 **The DEIR should describe expected transit and work speed of the cable lay vessels, the number and type of support vessels and whether the cable laying vessel will use dynamic positioning or kedging during the cable installation process; the use of dynamically positioned vessels is encouraged as a means of minimizing benthic impacts associated with anchors and anchor lines.**

Section 12.1 contains a detailed description of offshore cable installation methodologies, which includes a discussion of installation speed, potential use of DP vessels, potential impacts, and how the proposed methods are intended to achieve adequate cable burial while avoiding and minimizing impacts. Anchoring is more specifically described in Section 5.1.2.

MEPA 34 **The DEIR should identify potential mitigation measures appropriate for each construction method and for any permanent impacts, such as habitat conversion from armoring.**

Section 12.1 contains a detailed description of offshore cable installation methodologies, and Section 5.1 presents potential offshore wetlands impacts. The only permanent impact (from cable protection) is described in Section 5.1.3, although it is worth noting that this impact is expected to be limited to hard bottom and that the proposed cable protection would be designed to function as hard bottom.

MEPA 35 **The DEIR should describe a comprehensive post-construction monitoring plan developed in consultation with State Agencies. The monitoring plan should establish a robust preconstruction baseline for potentially impacted biota and habitat; evaluate Total Suspended Solids (TSS) dispersion during construction; measure changes in seafloor topography and disturbance of seafloor habitats, including eelgrass; evaluate the adequate burial of the cables in the near and long term; estimate recovery times of resources; colonization of invasive species in disturbed areas; and outline adequate methods and metrics to detect differences in biological or geological parameters within the construction corridor. The DEIR should describe how the postconstruction monitoring plan will address these and other relevant factors to protect water resources and species habitat. To the extent the monitoring plan will be modeled on the plan completed for previously-approved cable installation projects (such as VWC1 or NEW1C), a copy of the approved post-construction monitoring plan should be submitted with the DEIR. The DEIR should include a description of how the components of the plan will be adapted for the NEW2C project, including any provisions to account for potential interference in the monitoring program by activities associated with other transmission projects.**

The development of post-construction monitoring/survey plans for NE Wind 2 Connector is discussed in Section 12.1.6. A copy of the Draft New England Wind Benthic Habitat Monitoring Plan is included in Attachment L.

MEPA 36 **The DEIR should detail HDD operations and describe impacts associated with the transition between construction techniques, such as potential release of drilling fluid in wetland resource areas or rare species habitat. It should provide a contingency plan describing measures to minimize and contain turbidity and sedimentation should HDD drilling slurry be released into the environment. The DEIR should detail the duration of HDD activities, restrictions on the use of the beach, fishing pier and parking lot and identify potential mitigation measures.**

Section 12.2 contains a detailed description of the HDD construction technique, while Section 12.2.2 (Management of Drilling Fluids) functions as an HDD contingency plan. The estimated duration of the HDD operation is described in Table 12-1, while HDD construction schedule considerations such as public access are discussed in Section 12.2.3.

MEPA 37 **As noted by MassDEP and CZM, Dowses Beach is a barrier beach consisting of resource areas defined as Coastal Beaches and Coastal Dune. The DEIR should include a delineation of resource areas at Dowses Beach and at stream crossings along the duct bank route and identify any impacts associated with the project, including impacts associated with future maintenance and repair activities. The DEIR should include a map of all wetland resource areas that will be impacted by construction, staging and future maintenance and repair activities, identify mitigation measures to minimize impacts and describe how affected areas will be restored.**

Wetland resource areas are described in detail in Section 5 and are shown on the map set provided as Figure 5-1. Please also see the response to CZM 11, with specific regard to the wetland resource areas present at the landfall site. Absent unforeseen circumstances, no wetland resource areas are expected to be impacted during Project maintenance activities, since if maintenance is required then manholes located in the paved parking lot will provide access to the buried transition joint bays and splice vaults. The offshore export cables will not require any regular maintenance.

MEPA 38 **The DEIR should clearly delineate the landward extent of c. 91 jurisdiction, including any filled tidelands along the shoreline and any filled or flowed tidelands along the onshore export cable route.**

Section 3.5 discusses Chapter 91 regulatory compliance and includes a delineation of Chapter 91 jurisdiction.

MEPA 39 **The DEIR should include a draft Navigation Plan that will be implemented during construction, and subsequent maintenance, repair and decommissioning activities, to minimize conflicts with commercial and recreational vessels.**

Navigation and vessel traffic is described in Section 6.3. As described in that section, the Proponent has been actively engaged with fisheries stakeholders for the past several years and has developed a Fisheries Communication Plan, which will continue to be refined. As described in the Fisheries Communication Plan, Fisheries Liaisons, Fisheries Representatives, and Onboard Fisheries Liaisons employed by the Proponent will ensure effective communication and coordination between NE Wind 2 Connector and fishermen. The Fisheries Communications Plan is provided in Attachment J.

MEPA 40 **The DEIR should discuss the project's consistency with the applicable c. 91 regulations.**

Project consistency with Chapter 91 regulations, as well as a delineation of Chapter 91 jurisdiction, is described in Section 3.5.

MEPA 41 **The DEIR should include sufficient information about existing conditions along and adjacent to the proposed cable route to determine potential impacts to marine species and their habitat. It should assess the impacts of the cable on commercial and**

recreational fishing activities, including impacts that will accrue during the installation of the cable. According to DMF, installation of the offshore export cable will likely impact sessile marine resources such as shellfish, whelks and quid eggs; therefore, the DEIR should document the distribution of these vulnerable species using up-to-date trawl survey data and other available data, and identify mitigation measures to minimize impacts.

Fish and fisheries resources are discussed in Section 7.1, including potential impacts from cable installation, distribution of vulnerable species in state waters, and mitigation measures.

MEPA 42 **The DEIR should review impacts associated with the operation and maintenance of the cable, including cable repair or monitoring activities, placement or maintenance of protective covering, and decommissioning.**

Section 5.1 provides a detailed review of the anticipated impacts associated with cable installation. As described in Sections 6.2 and 8, impacts from cable operation are anticipated to be negligible. Should a cable repair be necessary, some temporary impact to the seafloor would be required to collect the damaged section of cable, bring the damaged section/cable ends aboard a repair vessel, complete a repair splice, and then lower and re-bury the repaired cable. Specific quantification of bottom disturbance from a theoretical cable repair has not been calculated, but the associated bottom disturbance would likely be similar to laying several hundred feet of cable. Decommissioning is described in Section 2.8, and removal of the offshore cables, if necessary, will be permitted at the time of that activity.

MEPA 43 **It should include an analysis of potential impacts associated with electromagnetic fields and heat and identify mitigation measures and a monitoring procedure.**

An EMF analysis is provided in Section 8. Regarding heat, there will be several layers of separation between the duct bank and ground surface. Heat from the conductor will be dissipated by the cable insulation, cable jacket, thermal concrete duct bank, thermal backfill, and soil. The ground/road surface temperature will tend to equal the ambient temperature. At the design operation for a full load, the temperature of the conductor at the center of each onshore export cable is comparable to hot coffee in a mug. Multiple utilities can and frequently do safely coexist within a single roadway corridor. The Proponent will coordinate with other utilities including National Grid, Town of Barnstable, and COMM water to ensure safety; for water lines, this may include relocating or upgrading infrastructure at the Project's expense, as needed. The offshore/onshore cable system will be monitored through the entire cable route utilizing a Distributed Temperature Sensing (DTS) system, which monitors the conductor temperature by means of optical fibers installed within the cables. As part of the DTS system it is required to include a load prediction software for dynamic rating of the cable during operation, allowing real time cable conductor temperature monitoring, hot spot detection, and estimation of current rating.

MEPA 44 **It should address establishment of time of year (TOY) restrictions and other mitigation measures to minimize impacts to species and habitats and continue to work with DMF to develop cable installation methods that minimize impacts to the squid fishery in state waters.**

The Project's schedule, including TOY restrictions, is discussed in Section 1.6, and TOY restrictions are discussed in Section 12.7.2. At this stage, TOY restrictions have not been finalized for the Project and will be finalized during permitting. However, fishing vessels will not be precluded from operating in or transiting through the OECC other than the limited areas during installation where temporary safety buffer zones are established around construction and installation vessels. The project proponent will continue to work with DMF regarding the squid fishery, which is discussed in Section 7.

MEPA 45 **The DEIR should provide an analysis of the project's impacts to commercial and recreational fishing activity. It should provide background and contextual information from federal review processes to inform this state review. It should provide information on efforts made to address and mitigate impacts to commercial and recreational fisheries through federal review processes, including a description of outreach conducted with Massachusetts fishermen and other Massachusetts stakeholders and mitigation approaches that have been adopted or are being considered. The DEIR should describe the planned timing of cable-laying activities with regards to co-occurring marine resources and stakeholders and identify potential prohibition or relocation of fishing (fixed or mobile gear) for any length of time as a result of survey, installation, or repair procedures. The size, length, and potential economic impact of closures should be included in the description. The DEIR should provide an analysis of the predicted economic exposure to Massachusetts fishermen from the construction, operation, and decommissioning of the OECC in Massachusetts waters and propose a financial mitigation package to compensate fishers for lost revenue. The Proponent should consult with CZM and DMF prior to completing this analysis.**

Section 1.6 discusses the Project schedule, Section 7.1.2 provides an economic analysis of potential impacts on fisheries, and Section 7.1.4 describes fisheries mitigation. During construction and installation, fishing vessels will not be precluded from operating in or transiting through the OECC other than where temporary safety buffer zones are established around construction and installation vessels. The need for financial compensation to offset impacts on commercial fishing will be established through the Project's federal permitting process. Fisheries compensation and program design will be determined through the consistency review process conducted pursuant to the Coastal Zone Management Act and will include significant input from commercial fishermen, state agencies, and other stakeholders.

MEPA 46 **The DEIR should assess the direct and indirect impacts of the project on state-listed and migratory birds in the project area and identify mitigation measures as described below. As requested by NHESP, the DEIR should include site-specific details regarding construction and restoration timelines and the nature of the project's temporary and permanent impacts on rare species habitat on Dowses Beach. In addition, it should provide a proposed a Piping Plover Protection Plan so that NHESP can assess whether the project can avoid both temporary and permanent impacts to state-listed plovers and terns and their habitats. The DEIR should provide additional details regarding potential impacts to rare species habitat along the Old Mill Road Alternative onshore export so that NHESP can determine whether the activity may qualify for an exemption from the Massachusetts Endangered Species Act (MESA) regulations applicable to projects located entirely within public roadway layouts.**

Rare species and mapped habitat are discussed in Section 7.2. The Proponent has developed a draft Piping Plover and Least Tern Protection Plan (PP&LTPP, see Attachment I) for construction activities at the landfall site very similar to the Piping Plover Protection Plans that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector. The Proponent provided the Draft PP&LTPP to NHESP for review prior to the submission of the DEIR.

MEPA 47 **The Proponent should coordinate with the NHESP and other state agencies to develop the specifics of the program including partners, funding, timing, and specific projects and provide additional details of its proposed mitigation program in the DEIR. The development of the coastal waterbird conservation program will also be reviewed as part of CZM's ongoing federal consistency review process. I note that prior reviews of affiliated projects for Vineyard Wind and Park City Wind concluded without a clear commitment for mitigation in relation to avian impacts. In light of the explicit commitments made as part of the Section 83C III solicitation, it is my expectation that the details of this mitigation will be fully described in future filings for this project.**

Offshore avian resources are described in Section 7.3, and the Coastal Bird Conservation Program is described in Section 7.3.1.

MEPA 48 **The DEIR should provide additional details on the design of the proposed substation, including buffers, noise abatement features and the stormwater management system.**

The proposed substation design is described in Section 2.4. Substation plans include maintaining existing forested buffer around the majority of the substation (see Attachment C2). The substation stormwater management design is described in Section 2.4.3, and a draft Stormwater Management Report is included in Attachment F. Substation noise is discussed in Section 11.

MEPA 49 **It should describe proposed modifications to the West Barnstable Substation, and clarify the responsible parties for implementing these modifications.**

Modifications to the West Barnstable Substation are described in Section 2.6.

MEPA 50 **The DEIR should evaluate the feasibility of constructing an air-insulated (AIS) substation to avoid the use of SF6 gas for insulating the substation. It should discuss compliance with MassDEP's regulations capping emissions from SF6 gas at 310 CMR 7.72. It should describe how groundwater will be protected from potential contaminants, including provision of full containment of all fluids within substation equipment.**

The proposed substation is described in Section 2.4, with the proposed containment system described in detail in Section 2.4.2. Onshore water quality and water supply protection are discussed in Section 6.1. The use of SF_6 is discussed in Section 10.3.

MEPA 51 **The DEIR should describe project activities within the Route 6 ROW, identify the need for road closures or other impacts to traffic on Route 6 and review any requirements that MassDOT may impose on construction of the project.**

As currently envisioned, the only potential Project activities proposed to be performed within the Route 6 State Highway Layout are associated with the two microtunnels under Route 6. This trenchless crossing is described in detail in Section 2.3.6. The Proponent does not currently expect to pursue the grid interconnection route alternative that would utilize the Route 6 State Highway Layout.

MEPA 52 **The DEIR should describe potential impacts to the fire station from the construction and operation of the substation. It should demonstrate that the substation will not restrict access to the fire tower, obstruct views from the tower or adversely affect radio communications from the fire tower. The DEIR should provide details regarding the Proponent's rights to use the fire tower access road and, if such rights exist, include a plan for the use of the access road, both during and after construction. The Proponent should consult with DCR regarding the potential need for a Construction and Access Permit for use of the fire tower access road.**

The Proponent met with the Massachusetts Department of Conservation and Recreation (DCR) on March 24, 2023 to discuss the agency's comment letter on the ENF and proposed improvements to the Fire Tower Access Road. During that meeting, the potential need for a Construction and Access Permit was discussed; DCR has not determined whether such a permit is required.

The visual analysis provided in Attachment G provides graphics demonstrating that sight lines of the fire tower will not be impacted by the proposed substation. DCR raised concerns about the proposed substation potentially interfering with microwave links of the statewide 800 MHz trunked radio system at the Fire Tower, which is managed by the

Executive Office of Technology Services and Security. The substation components/structures will have top elevations at or near the fire tower base, and well below the fire tower observation level where the telecom equipment is mounted. Based on this, the Barnstable Country Sheriff's Department and State Police do not anticipate any interference issues.

DCR holds non-exclusive access rights over the Fire Tower Access Road. Therefore, the owners of the underlying parcels and their successors and assigns have the right to use the property for all purposes that are not inconsistent with DCR's rights. DCR indicated in an email dated November 15, 2022 that DCR's interests in the fire tower parcel and non-exclusive ROW do not appear to be affected by the proposed Project. The Proponent will continue discussions with DCR to confirm and document that the use of the Fire Tower Access Road is not inconsistent with DCR's rights and that any required approvals have been obtained.

The Proponent's rights to use the Fire Tower Access Road derive from the fact that it has option agreements on several of the underlying fee parcels that underlie the Fire Tower Access Road. The owners of those parcels have presumptive, non-exclusive rights to use the Fire Tower Access Roads.

MEPA 53 **The Proponent should consult with BUAR to develop a project-specific proposal for complete marine archaeological identification survey coverage for the entire state waters portion of the NEW2C cable route's area of potential effect. The DEIR should provide a discussion of any surveys or analyses that will be undertaken and include a plan consistent with the BUAR's Policy Guidance for the Discovery of Unanticipated Archaeological Resources. The DEIR should report on any consultation conducted with MHC regarding historical and archaeological resources.**

Marine archaeological resources and consultations are described in Section 9.2.

MEPA 54 **The DEIR should clearly identify all project activities and structures located on or under Article 97- protected land and provide plans of the affected parcels. It should identify whether any maintenance easements will be required on protected land, and describe potential maintenance and repair activities.**

Article 97-protected parcels are described in Section 2.7. Section 2.7 also identifies all Project activities and proposed structures to be located within Article 97-protected land and any easements that are anticipated to be required. The engineering plans included in Attachments C2, C3, and C4 identify the work areas and structures to be located within Article 97-protected lands.

MEPA 55 **If the project requires conversion of Article 97 land, the DEIR should include an analysis of the six criteria identified in the Article 97 Policy for determining when "exceptional circumstances" exist such that a disposition of Article 97 land may be appropriate:**

- **The Proponent of the disposition must conduct an analysis of alternatives, commensurate with the type and size of the proposed disposition, that achieve the purpose of the disposition without the use of Article 97 land, such as the use of other land available within the appropriate market area;**
- **The disposition of the subject parcel and its proposed use may not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation);**
- **Real estate of equal or greater value, and of significantly greater resource value is granted to the disposing agency;**
- **The minimum necessary area of Article 97 should be included in the disposition and the existing resources continue to be protected to the maximum extent possible;**
- **The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EEA and its appropriate department or division; and,**
- **The disposition is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests to the Commonwealth.**

Compliance with EEA's Article 97 Policy is discussed in Section 2.7.5.

MEPA 56 **As noted above, many commenters object to the use of Dowses Beach as the landfall location. The DEIR should provide a detailed description of proposed construction activities, permanent structures and long-term maintenance and repair activities. It should describe any temporary and permanent impacts to public use of any land protected by Article 97, including affected areas and duration of impacts. It should identify mitigation measures to minimize disruption of the public's use of the beach.**

The alternatives analysis provided in Section 4 demonstrates why the paved parking lot at Dowses Beach has been selected as the Project's landfall site. Section 12.2 provides a detailed description of the proposed HDD operations and other construction activities, including schedule, methodologies, duration of impact, and maintenance of public access. While construction-period activity will temporarily limit access to the paved parking lot at the landfall site, the Project will have no permanent impact on any uses at the landfall site, since all proposed infrastructure will be located underground. As described in Section 12.2.3, construction at the landfall site is anticipated to take place over three non-summer construction seasons, or as otherwise permitted by the Town and relevant agencies. To minimize any disturbance to area residents or visitors, the Proponent plans to maintain access to the parking lot and existing pier at the east end of the parking lot as much as possible, while keeping the safety of both construction crews and residents the top priority (see Attachment P). The Proponent anticipates this access will be maintained except for a single approximately 6- to 8-week period while the duct bank is installed within the causeway leading to the parking lot.

MEPA 57 **The DEIR should identify features of the transmission line and substation that will minimize line losses, such as the use of premium efficiency substation transformers and other components.**

Project routing has been designed with the most direct feasible offshore and onshore routes that also avoid and minimize impacts in order to limit line losses (see Section 4). In addition, the transmission cable was up-sized from 220 kV to 275 kV for the primary reason of minimizing losses. Generally, cables are not sized for maximum capacity but rather to minimize losses as much as possible. The substation equipment selection considers losses in the total cost of ownership of the transformer, which is a critical contributor to the total losses for Project. The control system of the proposed substation is designed to minimize STATCOM utilization in order reduce overall losses.

MEPA 58 **The DEIR should identify mitigation commitments to reduce construction period carbon dioxide (CO2) emissions and identify construction practices and/or design features that will minimize the leakage of SF6 gas, a potent GHG.**

Section 12.8 outlines commitments that will be implemented during Project construction to minimize air emissions from vessels, construction equipment, aircraft (e.g., helicopters), generators, and vehicles. Section 10.3 identifies the measures that will be implemented to minimize the leakage of sulfur hexafluoride (SF_6) gas from the onshore substation's gas-insulated switchgear (GIS).

MEPA 59 **As noted, the DEIR should include a review of potential benefits associated with constructing an AIS substation to avoid the need for SF6. The DEIR should discuss compliance with 310 CMR 7.72.**

As described in Section 2.4, the proposed substation design contains gas-insulated switchgear (GIS), allowing for a more compact or space-efficient design when compared to a traditional air-insulated switchgear (AIS). An AIS substation uses equipment spacing to allow ambient air to provide the required insulation; in contrast, GIS is enclosed within a structure that uses pressurized sulphur hexafluoride (SF_6) gas to insulate the equipment. An AIS substation inherently requires more space between equipment and would likely require more clearing, and was therefore dismissed, particularly due to the desire to maintain forested buffers. SF_6 management is discussed in Section 10.3, and as described therein little to no leakage of SF_6 is expected to occur from the substation's GIS equipment.

MEPA 60 **The DEIR should discuss and quantify the GHG emissions benefits that will accrue to the regional grid from construction of the project (including the offshore wind generator) through the displacement of fossil fuel sources, including, to the extent feasible, a quantification of benefits accruing to the Commonwealth.**

The Project has significant air quality and greenhouse gas emission benefits. The NE Wind 2 Connector will enable the delivery of more than 1,200 MW of carbon-free energy to the regional electric grid. Greenhouse gas emissions reductions as a result of the Project are discussed and quantified in Section 10.2.

MEPA 61 **The Dowses Beach landfall location and the onshore export cable route across the causeway are low-lying, with low-lying beach and dune systems located seaward of the parking lot and driveway. As a result, the landing location and cable routes are vulnerable to erosion and overwash in moderate to major coastal storms. The DEIR should further describe the vulnerabilities of the proposed project and how the project was designed to minimize and reduce risk from coastal effects.**

Section 10.1.3 summarizes a coastal erosion analysis performed for the landfall site and adjacent causeway to predict flooding and erosion resulting from sea level rise combined with major coastal storm events (see Attachment Q for the technical report). The discussion in Section 10.1 describes how coastal resiliency has been considered in the Project design and how that design may be modified in response to results of the coastal erosion analysis.

MEPA 62 **As requested by CZM, the DEIR should include an analysis of likely nearshore, beach, and dune erosion at the preferred landing site to ensure the cables and associated infrastructure maintain adequate burial depth over the design life of the project; potential impacts to the cable route as a result of erosion and storm surge; potential effects of back-to-back storms, such as Hurricanes Carol and Edna in 1954; and the extent of future flood zones including sea level rise using best available information as provided through the Massachusetts Coast Flood Risk Model (MC-FRM) in 2030, 2050, and 2070. Although the outputs from the MA Resilience Design Standards Tool delineate the potential extent of flood zones with sea level rise, the outputs do not account for the effects of erosion or other landform change. These should be evaluated by the Proponent separately. The MA Resilience Design Tool output report included in the ENF was run in prior to the most recent version of the Tool, which now provides flood depths and water surface elevations for the scenario years for this project. Based on the outcome of the analysis described above, the DEIR should include an analysis of whether alternative designs, locations and/or mitigation may be necessary to ensure the proposed infrastructure continues to operate for the life of the project.**

A coastal sediment transport modeling analysis was conducted to predict flooding and erosion at the proposed landfall site and to support an evaluation of whether the proposed Project infrastructure will remain adequately buried for the design life of the

Project. Section 10.1 summarizes the modeled nearshore, beach, and dune erosion resulting from 2030, 2050, and 2070 sea level rise predictions combined with 50-, 100-, and 200-year coastal storms (see Attachment Q for the technical report). The coastal erosion analysis included effects of back-to-back storms and used predicted sea level rise and wave parameter values from the MC-FRM in 2030, 2050, and 2070. As described in Section 10.1, Project engineers are designing the proposed duct bank, transition joint bays, and culvert crossing to withstand the forces in these modeled scenarios, and such design considerations may include using reinforced structural concrete, anchoring infrastructure in place, and/or lowering the infrastructure to below the modeled erosion depth. The Proponent will consult with state and federal agencies as well as the Town of Barnstable about the design measures that could be incorporated to ensure the Project infrastructure is resilient under these modeled conditions.

MEPA 63 **The DEIR should discuss how the project will incorporate comprehensive resiliency planning, given the location of onshore infrastructure directly on the coastline and the potential effects of increased intensity storm and heat events in other areas. The DEIR should identify, in particular, the planning horizon and recurrence intervals used to design the project, and should address 50-year, 100-year and 200-year storm scenarios in 2050 and 2070 to the extent data are available. The numeric values now available through the MA Resilience Design Tool can be consulted as a resource. The DEIR should describe how particular project components have taken into account climate change data and projections in their design, and should specifically address the sizing of the stormwater management system, conduit burial depths, and elevation of above ground infrastructure such as the substation relative to the storm scenarios referenced above.**

Section 10.1.3 provides a description of a coastal erosion analysis performed for the landfall site and adjacent causeway that models flooding and erosion due to 50-, 100-, and 200-year coastal storms occurring with predicted sea level rise in 2030, 2050, and 2070 (see Attachment Q for the technical report). The coastal erosion analysis was designed to support comprehensive resiliency planning. Climate change data and projections were integrated throughout the Project design and are described throughout the DEIR, with Section 10.1 focused on climate change resiliency and sustainability. Stormwater management at the substation site, which accounts for extreme precipitation events, is described in Section 2.4.3; the substation site will not be impacted by coastal flooding.

MEPA 64 **As noted above, the Proponent will design the containment system at the proposed substation with sufficient capacity to contain dielectric fluid mixed with precipitation from an extreme storm event. The DEIR should review the climate change assumptions used to size the containment and stormwater management systems at the proposed substation and evaluate the need for upgrades to the West Barnstable Substation. It should clearly identify the recurrence interval and planning horizon used to inform design, and how climate change data and projections have been incorporated into these**

design parameters. The DEIR should discuss whether other onshore components away from the coast will be vulnerable to climate change and intense storm or heat events, and, if so, what efforts were made to design those components to maximize climate resiliency.

The containment system for the proposed substation is described in Section 2.4.3. The assessments of sea level rise, shoreline change, and storm events contained within Section 10.1 demonstrate that the substation site is not vulnerable to flooding from coastal storms. Information regarding the necessary expansion of the West Barnstable Substation is presented in Section 2.6.

MEPA 65 **The project must comply with MassDEP's Solid Waste and Air Pollution Control regulations. The DEIR should discuss the use of alternative types of equipment for the construction of all, or part, of the project that may serve to reduce land alteration and the clearing required to accommodate construction access.**

As described in Section 12.3.7, the contractor will be encouraged to utilize advanced tree clearing measures, reducing the need for excessive clearing. These measures include utilizing survey equipment to locate the precise extent of clearing limits required in the Project plans. Trees will be cut using track-mounted bunchers, which will facilitate tree removal without impacting nearby trees.

MEPA 66 **The DEIR should describe potential construction period impacts (including but not limited to traffic management, materials management, parking, air quality and noise impacts) and outline feasible measures that can be implemented to eliminate or minimize these impacts in a draft Construction Management Plan (CMP). The draft CMP should identify construction access and truck traffic routes, staging areas, and how passive recreation use located adjacent to or along portions of the corridor will be safely maintained or impacted throughout the construction period.**

Section 12 describes construction-period considerations of traffic, soil management, air quality, noise, water quality, drainage, and water supply protection, erosion and sediment control, safety, and solid waste management. Furthermore, a Draft Construction Management Plan is provided in Attachment N.

MEPA 67 **I encourage the Proponent to adopt measures to reduce air quality impacts from certain categories of construction vehicles. The DEIR should provide information on the emission controls that will be used for all on-site construction vehicles and should provide a discussion on using construction equipment with engines manufactured to Tier 4 federal emission standards or best available control technology (BACT). I remind the Proponent that EPA has mandated that Ultra Low Sulfur Diesel (ULSD) fuel be used in all off-road construction equipment. The DEIR should confirm that the project will require its construction contractors to use ULSD fuel in offroad equipment and indicate**

whether it will incorporate additional measures to minimize construction-period emissions. The DEIR should address how the project will support compliance with the Massachusetts Idling regulation at 310 CMR 7.11.

Construction-period air quality considerations are described in Section 12.8.

MEPA 68 **If oil and/or hazardous material are identified during the implementation of the project, notification pursuant to the MCP must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained for this project given the potential impact of MCP-regulated sites on the proposed construction activities. The LSP may evaluate whether risk reduction measures are necessary to mitigate the presence of contamination.**

The Proponent acknowledges these requirements and will adhere to any requirements pursuant to the MCP.

MEPA 69 **The DEIR should include a Spills Contingency Plan that identifies procedures for the containment and cleanup of any releases of hazardous materials.**

A draft Spill Prevention Control and Countermeasure (SPCC) Plan, which will be overseen by the contractor's environmental compliance manager, is provided in Section 12.10.4.

MEPA 70 **The DEIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.**

Proposed Section 61 Findings are provided in Section 13, along with a summary discussion of proposed mitigation measures.

MEPA 71 **To ensure that all GHG emissions reduction measures adopted by the Proponent as the Preferred Alternative are actually constructed or performed by the Proponent, the Proponent must provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. The commitment to provide this self-certification in the manner outlined above shall be incorporated into the draft Section 61 Findings included in the DEIR.**

This self-certification is incorporated into the mitigation table provided as Table 13-1.

MEPA 72 **The DEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the ENF that specifically address each issue raised in the comment letter; references to a chapter or sections of the DEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended to, and shall not be construed to, enlarge the Scope of the DEIR beyond what has been expressly identified in this certificate.**

This section includes direct narrative responses to the MEPA Certificate and all comment letters received on the ENF.

MEPA 73 **The Proponent should circulate the DEIR to each Person or Agency who previously commented on the ENF, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Per 301 CMR 11.16(5), the Proponent may circulate copies of the EIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent should send correspondence accompanying the digital copy or identifying the web address of the online version of the DEIR indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. If submitted in hard copy, the DEIR submitted to the MEPA office should include a digital copy of the complete document. A copy of the DEIR should be made available for review at the Osterville, Edgartown, Mashpee and Nantucket public Libraries.**

The Circulation List provided as Attachment B complies with these circulation requirements.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Bethena A. Card
Secretary

Martin Suuberg
Commissioner

November 23, 2022

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

RE: ENF Review. EOEEA 16611
BARNSTABLE. New England Wind 2 Connector located with proposed 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

Dear Secretary Card,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Environmental Notification Form (ENF) for New England Wind 2 Connector located with proposed 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, Barnstable, Massachusetts (EOEEA #16611). The Project Proponent provides the following information for the Project.

The Vineyard Wind Connector 2 includes two three-core offshore export cables connecting the offshore electrical service platform (ESP) located in the SWDA to the landfall site onshore. The two offshore export cables will transition to six single-core onshore export cables in transition vaults/joint bays at the landfall site, then continue underground within a buried concrete duct bank. The route for this duct bank will predominantly follow existing public roadway layouts to a proposed onshore substation. The substation will step up voltage to enable the interconnection with the electrical grid at the existing Eversource 345-kilovolt (kV) West Barnstable Substation.

Offshore elements of Vineyard Wind Connector 2 will largely utilize the OECC developed for the Vineyard Wind Connector 1, which will transit through state and federal waters. Within Massachusetts waters, the

OECC will pass offshore through the towns of Edgartown, Nantucket, Barnstable, and possibly a corner of Mashpee before making landfall in Barnstable (see Figure 1-4 in Attachment B). The total length of the OECC from Park City Wind in the SWDA to the landfall site is approximately 63 miles (101 kilometers [km]), with approximately 23 miles (37 km) of the OECC located within state waters. Onshore Project elements will be located entirely within the Town of Barnstable.

Bureau of Water Resources Comments

Wetlands. The ENF indicates that the Notices of Intent will be submitted at some time in the future. The Project Proponent is advised to ensure that the resource areas are properly delineated and clearly depicted on the plans accompanying the NOIs. Proper resource area delineation at Dowses Beach (a barrier beach as defined in 310 CMR 10.29(2)) in Barnstable is critical in determining the Projects impacts to coastal resources found at that site. Pursuant to the Wetlands Protection Act Regulations, barrier beaches consist of coastal beaches and coastal dunes. Coastal Beaches consist of unconsolidated sediment subject to wave, tidal and coastal storm action that extends from the mean low water line landward to the dune line, coastal bank line or the seaward edge of existing human-made structures (310 CMR 10.27(2)). Coastal Dunes are any natural hill, mound or ridge of sediment that has been deposited by wind action or storm overwash that lies landward of a coastal beach (310 CMR 10.28(2)). The Surficial Geology data layer on MassMapper confirms the presence of an area of glacially deposited soils on Dowses Beach, a portion of which has been designated Coastal Bank on the plans accompanying the ENF. The NOI should include information that confirms the presence of glacially deposited sediments and an explanation as to the methodology used to delineate the coastal bank. DEP 01

Based on the information and plans provided in the ENF, the Wetlands Program believes that HDD Drill Path 1 would likely have the least potential for causing damage to the coastal resource areas located on Dowses Beach. The Wetlands Program would encourage the Project Proponent to develop that alternative. DEP 02

The Wetlands Program concurs with the Project Proponent's determination that the proposed Project could be reviewed as a Limited Project pursuant to 310 CMR 10.24(7)(b). As required by 310 CMR 10.24(9), the Notice of Intent should include an operation and maintenance plan to ensure that the infrastructure will continue to function as designed. Implementation of the operation and maintenance plan as approved by the issuing authority shall be a continuing condition that shall be set forth in the Order of Conditions and the Certificate of Compliance. DEP 03 Additionally, the Wetlands Program would suggest that the Project Proponent carefully review the Minor Exempt Activities provisions found in 310 CMR 10.02(2)(b)2.i. to determine if any of the work within the buffer zone or along Old Falmouth Road and Oak Street meets the criteria listed in that section of the Wetlands Protection Act Regulations. DEP 04

Waterways. Pursuant to the Waterways Regulations at 310 CMR 9.12(2)(b)10., the Project would be classified as a water-dependent-industrial use.

On March 10, 2020, the Department issued Chapter 91 License No. 15011 approving Vineyard Wind Connector 1. A second Project, New England Wind 1 Connector is currently under Chapter 91 review. The offshore components of this Project, New England Wind 2 Connector, are very similar to the prior projects as the export cables will be installed in the previously approved construction corridor with the exception that the preferred landfall will be at the Town owned Dowses Beach in Barnstable. Portions of the construction corridor will be widened to accommodate the additional cables. The DEIR should include more detailed information on the delineation of the expanded areas of the construction corridor. DEP 05

The proposed three (3) offshore export cables will require up to approximately 131,100 cubic yards of dredging within state waters in order to bury the cables approximately 5 feet below the sea floor. In addition to the Chapter 91 License required for the cables, a Chapter 91 Dredge Permit and 401 Water Quality Certification will be required to install the cables. The Proponent may choose to file a MassDEP BRP WW26 Combined Application for Chapter 91 and WQC. DEP 06

It appears that the noticed alternative onshore cable route along Five Corners Road may pass over a river/stream subject to Chapter 91 jurisdiction. However, assuming the stream is non-tidal, and the cables will be embedded in the soil beneath the stream, they would be exempt from licensing pursuant to the Waterways Regulations at 310 CMR 9.05(3)(g). In the preparation of the DEIR the Proponent is requested to identify any non-tidal rivers or streams that may be subject to Chapter 91 jurisdiction and confirm the construction methodology for these crossings. In addition, the alternative onshore cable route along East Bay Road crosses a small area of previously filled tidelands. The DEIR should address this area and the need for Chapter 91 licensing if the alternative onshore route is utilized. DEP 07

Waterways/Boston.

Dredging

Pursuant to 314 CMR 9, a 401 Water Quality Cert. should be filed for MassDEP to review and approve on the proposed Project. DEP 08

Long-Term Benthic Resource Monitoring

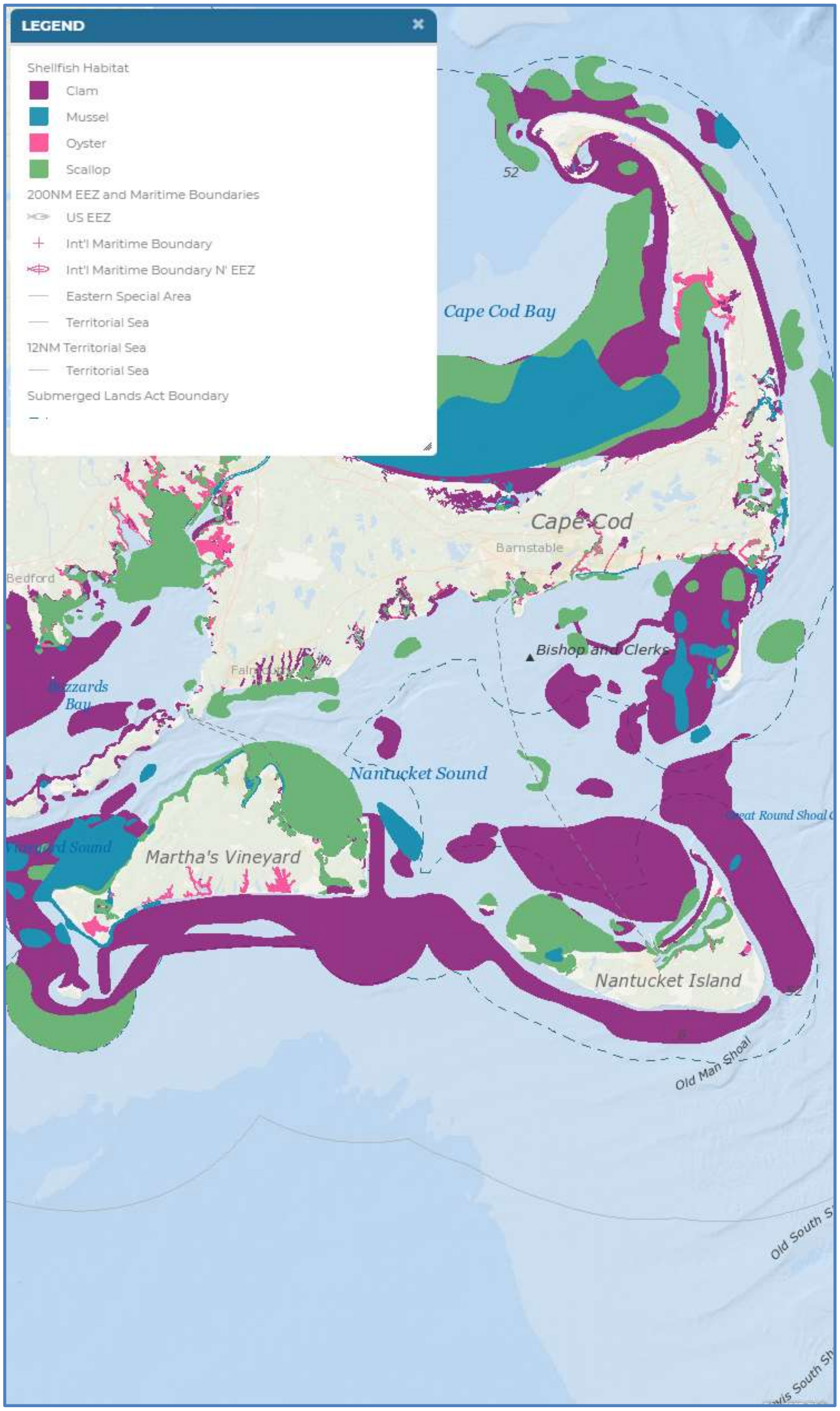
The proposed Project area is an area with highly valuable ecological service and economical values provided by mammals, turtles, sea birds, fish, eelgrass beds, coastal wetlands, shellfish habitat (Figure 1), calanus, shrimp, amphipods, crab, and sea stars. Trenching tool is the proposed as the major cable installation method. At the same time, dredging a deeper trench to ensure adequate burial depth is also proposed (i.e., dredging of up to 131,100 cubic yards) of sediment in connection with installation of the offshore export cables) and, where burial is not possible due to subsurface conditions, armoring may be needed to cover the cables laid on the ocean floor. Therefore, such construction and operations (e.g., dredging and armoring) will have direct impact to the benthic resources. As a result, benthic organisms in the dredging area will be impacted severely and the impact will be lasting for a long time.

MassDEP suggests the Proponent to develop a systematic survey using the Before-After Control-Impact (BACI) design. The survey should be conducted prior to the start of construction activities, and consistent post-construction monitoring protocol should be used for assessing 1) the impact to benthic habitat and benthic community, and 2) any recovery of benthos and how long it takes to recover, if there is any. In addition, more detailed information of the monitoring plan should be provided to MassDEP for review and approval. For example, how long and frequent the sampling events to monitor the benthos should be further refined in the monitoring plan and provided to stakeholders. DEP 09

Long-term Invasive Species Monitoring

The newly created habitats such as the armoring material may facilitate the establishment and spread of invasive species. Therefore, a systematic monitoring plan as part of long-term resource monitoring for potential marine invasive species colonization should be developed prior to commencement of the Project. DEP 10

Fig. 1 Benthic Shellfish Habitat: Coastal Martha's Vineyard, Nantucket Island, and Cape Cod



Stormwater Management/National Pollutants Discharge Elimination System (NPDES) Permit.
Construction General Permit
The Proponent has acknowledged the need for a Construction General Permit. The Proponent can access information regarding the NPDES Stormwater requirements and an application for the Construction General Permit by completing and submitting a Notice of Intent (NOI) to EPA via the

Stormwater Discharges from Construction Activities | National Pollutant Discharge Elimination System (NPDES) | US EPA.

The Proponent is advised to consult with Sania Kamran (Kamran.Sania@epa.gov, 617- 918-1522) for questions regarding EPA's NPDES Construction General Permit requirements.

In addition, the Proponent is reminded that local Planning Boards (and/or other local authorities) may require stormwater controls beyond that of the Wetlands Protection Act. These controls are usually created to keep stormwater onsite so as not to create nuisance conditions offsite. DEP 11

Bureau of Waste Site Cleanup (BWSC)

Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications that have occurred at or might impact the proposed Project area. A disposal site is a location where there has been a release to the environment of oil and/or hazardous material that is regulated under M.G.L. c. 21E, and the Massachusetts Contingency Plan [MCP – 310 CMR 40.0000].

The proposed Project involves 6.7 miles of offshore wind transmission line from Dowses Beach in Osterville to a substation on Oak Street in West Barnstable. Please be advised that there are many listed BWSC disposal sites located within and near the proposed Project area. Many of the sites have been closed under the MCP, but other disposal sites are open and require continued response actions under the MCP. A listing and discussion of each MCP site will not be presented here. The application adequately addressed potential MCP issues, including hiring a Licensed Site Professional and implementing a Utility-Related Abatement Measure if oil and/or hazardous materials are encountered within the rights-of-way.

Interested parties may view a map showing the location of BWSC disposal sites using the MassGIS data viewer at MassMapper. Under the Available Data Layers listed on the right sidebar, select "Regulated Areas", and then "DEP Tier Classified 21E Sites". MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: https://eeaonline.eea.state.ma.us/portal#!/search/wastesite

The Project Proponent is advised that if oil and/or hazardous material (OHM) are identified during the implementation of this project, notification to MassDEP may be required pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000). Any OHM encountered during this roadway Project could likely be addressed using the Utility-Related Abatement Measures provisions at 310 CMR 40.0460. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions and/or conduct response actions. The BWSC may be contacted for guidance if questions arise regarding cleanup. DEP 12

<u>Spills Prevention and Control</u>. The Project Proponent reports: "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.

The Project Proponent is reminded that a spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The contingency plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases. DEP 13

Bureau of Air and Waste (BAW) Comments

Air Quality. Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to: DEP 14

310 CMR 7.09 Dust, Odor, Construction, and Demolition
310 CMR 7.10 Noise

Massachusetts Air Quality and Substation Noise. The ENF is silent concerning noise levels at the proposed substation in West Barnstable and offers the following comments: MassDEP's noise policy establishes a 10 dB(A) increase in sound as the maximum sound impact which cannot be exceeded at the property line or the nearest receptor. Sound increases are evaluated in accordance with the MassDEP Noise Pollution Policy Interpretation. The Proponent is reminded that the 10 dB(A) is not a design standard but a performance standard. Sound impacts should be mitigated to extent practicable. DEP 15

Massachusetts Air Quality and Construction-Related Measures

The Project Proponent reports: "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)

MassDEP reminds the Project Proponent that all non-road diesel equipment rated 50 horsepower or greater should meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of 4 the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review. DEP 16

Massachusetts Air Quality and Idling Regulation

The ENF reports: "The Proponent will require contractors to turn off construction vehicles when not actively in us."

MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project DEP 17

(Section 7.11 of 310 CMR 7.00). Regarding construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is underway, MassDEP recommends that the Proponent install signs limiting idling to five minutes or less on-site.

Hazardous Waste Management. The Project Proponent is silent on its use of hazardous materials following the construction of its new substation. DEP 18

The Project Proponent is reminded that hazardous waste must be properly registered with the MassDEP in accordance with 310 CMR 30.000 for legally generating and managing regulated waste. The Proponent is advised to consult at this MassDEP website https://www.mass.gov/guides/hazardous-waste-generation-generators to determine if the Proponent qualifies as a generator of hazardous waste and/or waste oil.

Solid Waste Management. The Project Proponent reports: "Asphalt and possibly concrete waste generated during construction…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. Further stating that "Packing crates and wood from equipment shipments will be reused or recycled to the extent practicable or will be disposed of appropriately and "the majority of the proposed onshore substation parcels will be cleared for construction and operation. "

The Proponent is advised that any solid waste found or generated during construction must be disposed of at an appropriate MassDEP approved facility. DEP 19

1. *Compliance with Waste Ban Regulations*: Waste materials discovered during construction (e.g., metal, asphalt, brick, and concrete) shall be disposed, recycled, and/or otherwise handled in accordance with the Solid Waste Regulations including *310 CMR 19.017:* Waste Bans. Waste Ban regulations prohibit the disposal, transfer for disposal, or contracting for disposal of certain hazardous, recyclable, or compostable items at solid waste facilities in Massachusetts, including, but not limited to, metal, wood, asphalt pavement, brick, concrete, and clean gypsum wallboard. The goals of the waste bans are to: promote reuse, waste reduction, or recycling; reduce the adverse impacts of solid waste management on the environment; conserve capacity at existing solid waste disposal facilities; minimize the need for construction of new solid waste disposal facilities; and support the recycling industry by ensuring that large volumes of material are available on a consistent basis. Further guidance can be found at: https://www.mass.gov/guides/massdep-waste-disposal-bans.

   MassDEP recommends the Proponent consider source separation or separating different recyclable materials at the job site. Source separation may lead to higher recycling rates and lower recycling costs. Further guidance can be found at: https://recyclingworksma.com/construction-demolition-materials-guidance/ DEP 20

   For more information on how to prevent banned materials from entering the waste stream the Proponent should contact the RecyclingWorks in Massachusetts program at (888) 254-5525 or via email at info@recyclingworksma.com. RecyclingWorks in Massachusetts also provides a website that includes a searchable database of recycling service providers, available at http://www.recyclingworksma.com.

2. *Asphalt, brick, and concrete (ABC) rubble,* such as the rubble generated during construction must be handled in accordance with the Solid Waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The Proponent should refer to MassDEP's Information Sheet, entitled " Using or Processing Asphalt Pavement, Brick and Concrete Rubble, Updated February 27, 2017 ", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: https://www.mass.gov/files/documents/2018/03/19/abc-rubble.pdf. DEP 21

3. *Tree removal/land clearing/clean wood:* As defined in 310 CMR 16.02, clean wood means "discarded material consisting of trees, stumps and brush, including but limited to sawdust, chips, shavings, bark, and new or used lumber"…etc. Clean wood does not include wood from commingled construction and demolition waste, engineered wood products, and wood containing or likely to contain asbestos, chemical preservatives, or paints, stains or other coatings, or adhesives. The Proponent should be aware that wood is not allowed to be buried or disposed of at the Site pursuant to 310 CMR 16.00 & 310 CMR 19.000 unless otherwise approved by MassDEP. Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood DEP 22

If the Project Proponent has any questions regarding the Solid Waste Management Program comments above, please contact Elza Bystrom at Elza.Bystrom@mass.gov or Mark Dakers at Mark.Dakers@mass.gov or (508) 946-2847.

Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form" may indicate that this Project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. DEP 23

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this ENF. If you have any questions regarding these comments, please contact George Zoto at George.Zoto@mass.gov or Jonathan Hobill at Jonathan.Hobill@mass.gov.

Very truly yours,

Jonathan E. Hobill,
Regional Engineer,

EEA No. 16611 November 23, 2022

Bureau of Water Resources

JH/GZ

CC.: DEP/SERO

ATTN: Millie Garcia-Serrano, Regional Director
Gerard Martin, Deputy Regional Director, BWR
John Handrahan, Acting Deputy Regional Director, BWSC
Seth Pickering, Deputy Regional Director, BAW
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Daniel DiSalvio, Chief, Compliance and Enforcement, BAW
Thomas Cushing, Chief, Air Quality Permitting, BAW
Allen Hemberger, Site Management, BWSC

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

DEP 01 **The ENF indicates that the Notices of Intent will be submitted at some time in the future. The Project Proponent is advised to ensure that the resource areas are properly delineated and clearly depicted on the plans accompanying the NOIs. Proper resource area delineation at Dowses Beach (a barrier beach as defined in 310 CMR 10.29(2)) in Barnstable is critical in determining the Projects impacts to coastal resources found at that site. Pursuant to the Wetlands Protection Act Regulations, barrier beaches consist of coastal beaches and coastal dunes. Coastal Beaches consist of unconsolidated sediment subject to wave, tidal and coastal storm action that extends from the mean low water line landward to the dune line, coastal bank line or the seaward edge of existing human-made structures (310 CMR 10.27(2)). Coastal Dunes are any natural hill, mound or ridge of sediment that has been deposited by wind action or storm overwash that lies landward of a coastal beach (310 CMR 10.28(2)). The Surficial Geology data layer on MassMapper confirms the presence of an area of glacially deposited soils on Dowses Beach, a portion of which has been designated Coastal Bank on the plans accompanying the ENF. The NOI should include information that confirms the presence of glacially deposited sediments and an explanation as to the methodology used to delineate the coastal bank.**

As described in Section 5, wetland resource areas present at the landfall site were identified and delineated by a field survey conducted by Epsilon Associates in June 2022. Resource areas delineated at that time included salt marsh, coastal beach, coastal dune, and coastal bank. The delineation effort included a limited investigation of the soils present in the vicinity of the lifeguard station, which is located on a small knoll at the south end of the paved parking lot. Probing soils in this area allowed for the demarcation between the loose unconsolidated sands of the adjacent coastal dune and the more developed glacial materials that were observed on the relatively steep slopes of the adjacent coastal bank. The upper boundary of the coastal bank was determined in accordance with DEP wetlands program policy 92-1.

DEP 02 **Based on the information and plans provided in the ENF, the Wetlands Program believes that HDD Drill Path 1 would likely have the least potential for causing damage to the coastal resource areas located on Dowses Beach. The Wetlands Program would encourage the Project Proponent to develop that alternative.**

As described in Sections 1.4.3, 5.2, and 12.2, all three HDD drill paths at the landfall site are critical elements of the Project. Each of the three offshore export cables will transition from offshore to a transition joint bay in the paved parking lot via a separate HDD conduit.

DEP 03 **The Wetlands Program concurs with the Project Proponent's determination that the proposed Project could be reviewed as a Limited Project pursuant to 310 CMR 10.24(7)(b). As required by 310 CMR 10.24(9), the Notice of Intent should include an operation and maintenance plan to ensure that the infrastructure will continue to**

function as designed. Implementation of the operation and maintenance plan as approved by the issuing authority shall be a continuing condition that shall be set forth in the Order of Conditions and the Certificate of Compliance.

The Proponent acknowledges this comment.

DEP 04 **Additionally, the Wetlands Program would suggest that the Project Proponent carefully review the Minor Exempt Activities provisions found in 310 CMR 10.02(2)(b)2.i. to determine if any of the work within the buffer zone or along Old Falmouth Road and Oak Street meets the criteria listed in that section of the Wetlands Protection Act Regulations.**

The proposed work within the buffer zones of many resource areas located along the onshore transmission route appears to satisfy the regulatory requirements as a Minor Exempt Activity (310 CMR 10.02(2)(b)2.i). There are, however, locations where the resource areas are directly adjacent to the anticipated construction limits and the potential for adverse impact to those adjacent resource areas is greater. Accordingly, the Proponent will request approval under the Massachusetts Wetlands Protection Act for anticipated impacts to the buffer zone. Regardless, the protection of adjacent resource areas is an important priority for the Project and appropriate controls and construction methods will be applied to minimize impacts to all wetland buffer zones.

DEP 05 **Pursuant to the Waterways Regulations at 310 CMR 9.12(2)(b)10., the Project would be classified as a water-dependent-industrial use. On March 10, 2020, the Department issued Chapter 91 License No. 15011 approving Vineyard Wind Connector 1. A second Project, New England Wind 1 Connector is currently under Chapter 91 review. The offshore components of this Project, New England Wind 2 Connector, are very similar to the prior projects as the export cables will be installed in the previously approved construction corridor with the exception that the preferred landfall will be at the Town owned Dowses Beach in Barnstable. Portions of the construction corridor will be widened to accommodate the additional cables. The DEIR should include more detailed information on the delineation of the expanded areas of the construction corridor.**

The OECC, including the expansion areas, is described in detail in Section 2.1.3. The NE Wind 2 Connector OECC is entirely the same as the corridor for the NE Wind 1 Connector with the exception of the spur off to the west to access the landfall site. That spur is characterized within this DEIR, and conditions within the spur are shown on the map sets provided in Attachment H.

DEP 06 **The proposed three (3) offshore export cables will require up to approximately 131,100 cubic yards of dredging within state waters in order to bury the cables approximately 5 feet below the sea floor. In addition to the Chapter 91 License required for the cables,**

a Chapter 91 Dredge Permit and 401 Water Quality Certification will be required to install the cables. The Proponent may choose to file a MassDEP BRP WW26 Combined Application for Chapter 91 and WQC.

The Proponent acknowledges these requirements. All required permits, reviews, and approvals are identified in Table 1-1. The Proponent anticipates filing a Joint Application for Chapter 91 and the Water Quality Certification (WQC).

DEP 07 **It appears that the noticed alternative onshore cable route along Five Corners Road may pass over a river/stream subject to Chapter 91 jurisdiction. However, assuming the stream is non-tidal, and the cables will be embedded in the soil beneath the stream, they would be exempt from licensing pursuant to the Waterways Regulations at 310 CMR 9.05(3)(g). In the preparation of the DEIR the Proponent is requested to identify any non-tidal rivers or streams that may be subject to Chapter 91 jurisdiction and confirm the construction methodology for these crossings. In addition, the alternative onshore cable route along East Bay Road crosses a small area of previously filled tidelands. The DEIR should address this area and the need for Chapter 91 licensing if the alternative onshore route is utilized.**

An assessment of Chapter 91 jurisdiction and the Project's compliance with Chapter 91 regulations is provided in Section 3.5. As shown on Figure 3-5, the Project will cross a tidal portion of Bumps River while on Bumps River Road/Five Corners Road. It is anticipated that the duct bank will pass above the culvert, leading it unaffected.

DEP 08 **Pursuant to 314 CMR 9, a 401 Water Quality Cert. should be filed for MassDEP to review and approve on the proposed Project.**

The Proponent will seek a permit under the Massachusetts 401 WQC Regulations for activities occurring within the Massachusetts seaward boundaries (the three-nautical mile limit). Conformance with Water Quality Certification Criteria is discussed in Section 3.8.

DEP 09 **The proposed Project area is an area with highly valuable ecological service and economical values provided by mammals, turtles, sea birds, fish, eelgrass beds, coastal wetlands, shellfish habitat (Figure 1), calanus, shrimp, amphipods, crab, and sea stars. Trenching tool is the proposed as the major cable installation method. At the same time, dredging a deeper trench to ensure adequate burial depth is also proposed (i.e., dredging of up to 131,100 cubic yards) of sediment in connection with installation of the offshore export cables) and, where burial is not possible due to subsurface conditions, armoring may be needed to cover the cables laid on the ocean floor. Therefore, such construction and operations (e.g., dredging and armoring) will have direct impact to the benthic resources. As a result, benthic organisms in the dredging area will be impacted severely and the impact will be lasting for a long time.**

MassDEP suggests the Proponent to develop a systematic survey using the Before-After Control-Impact (BACI) design. The survey should be conducted prior to the start of construction activities, and consistent post-construction monitoring protocol should be used for assessing 1) the impact to benthic habitat and benthic community, and 2) any recovery of benthos and how long it takes to recover, if there is any. In addition, more detailed information of the monitoring plan should be provided to MassDEP for review and approval. For example, how long and frequent the sampling events to monitor the benthos should be further refined in the monitoring plan and provided to stakeholders.

Benthic habitat monitoring is described in Section 12.1.6.2, and the Draft Benthic Habitat Monitoring Plan developed for New England Wind is provided in Attachment L.

DEP 10 **The newly created habitats such as the armoring material may facilitate the establishment and spread of invasive species. Therefore, a systematic monitoring plan as part of long-term resource monitoring for potential marine invasive species colonization should be developed prior to commencement of the Project.**

Within state jurisdiction, because the offshore export cables will be buried, they will not provide a substrate for colonization by invasive species. The only Project element within state jurisdiction that may result in a permanent alteration of the seafloor is cable protection, which is described in Section 5.1.3. Elements of the Commonwealth Wind project in federal waters, including those pertaining to post-construction monitoring, will be thoroughly assessed through federal permitting.

DEP 11 **The Proponent has acknowledged the need for a Construction General Permit. The Proponent can access information regarding the NPDES Stormwater requirements and an application for the Construction General Permit by completing and submitting a Notice of Intent (NOI) to EPA via the Stormwater Discharges from Construction Activities | National Pollutant Discharge Elimination System (NPDES) | US EPA. The Proponent is advised to consult with Sania Kamran (Kamran.Sania@epa.gov, 617- 918-1522) for questions regarding EPA's NPDES Construction General Permit requirements. In addition, the Proponent is reminded that local Planning Boards (and/or other local authorities) may require stormwater controls beyond that of the Wetlands Protection Act. These controls are usually created to keep stormwater onsite so as not to create nuisance conditions offsite.**

Prior to construction, the Project will obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges from Construction Activities from the U.S. Environmental Protection Agency (EPA). The Project will also be constructed in accordance with local stormwater regulations.

DEP 12 **The Project Proponent is advised that if oil and/or hazardous material (OHM) are identified during the implementation of this project, notification to MassDEP may be required pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000). Any OHM encountered during this roadway Project could likely be addressed using the Utility-Related Abatement Measures provisions at 310 CMR 40.0460. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions and/or conduct response actions. The BWSC may be contacted for guidance if questions arise regarding cleanup.**

The Proponent acknowledges these requirements and will adhere to any requirements pursuant to the MCP. The Proponent will contract with a third-party Licensed Site Professional (LSP), as necessary based on conditions encountered during Project development, consistent with the requirements of the MCP at 310 CMR 40.0460 et seq.

DEP 13 **The Project Proponent is reminded that a spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The contingency plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases.**

A Spill Prevention Control and Countermeasure (SPCC) Plan for the Project will be developed and will be overseen by the contractor's environmental compliance manager. All operators will be trained in the use and deployment of spill prevention procedures and equipment. Spill prevention measures are described in Sections 12.5.3, 12.5.4, and 12.10.4.

DEP 14 **Air Quality. Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to: 310 CMR 7.09 Dust, Odor, Construction, and Demolition; 310 CMR 7.10 Noise.**

Construction-period air and noise are discussed in Sections 12.8 and 12.9, respectively. Further, a detailed noise analysis of substation operations is provided in Section 11.

DEP 15 **Massachusetts Air Quality and Substation Noise. The ENF is silent concerning noise levels at the proposed substation in West Barnstable and offers the following comments: MassDEP's noise policy establishes a 10 dB(A) increase in sound as the maximum sound impact which cannot be exceeded at the property line or the nearest receptor. Sound increases are evaluated in accordance with the MassDEP Noise Pollution Policy Interpretation. The Proponent is reminded that the 10 dB(A) is not a design standard but a performance standard. Sound impacts should be mitigated to extent practicable.**

A sound-level impact assessment for operation of the proposed substation was conducted in accordance with the MassDEP Noise Pollution Policy. The noise analysis is provided in Section 11.

DEP 16 **MassDEP reminds the Project Proponent that all non-road diesel equipment rated 50 horsepower or greater should meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of 4 the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.**

Construction-period air quality considerations, including those referenced in this comment, are described in Section 12.8.

DEP 17 **MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (Section 7.11 of 310 CMR 7.00). Regarding construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is underway, MassDEP recommends that the Proponent install signs limiting idling to five minutes or less on-site.**

Construction-period air quality considerations, including anti-idling measures, are described in Section 12.8.

DEP 18 **The Project Proponent is silent on its use of hazardous materials following the construction of its new substation. The Project Proponent is reminded that hazardous waste must be properly registered with the MassDEP in accordance with 310 CMR 30.000 for legally generating and managing regulated waste. The Proponent is advised to consult at this MassDEP website https://www.mass.gov/guides/hazardous-waste-generation-generators to determine if the Proponent qualifies as a generator of hazardous waste and/or waste oil.**

As described in Section 6.1.4, the operational phase of the Project will have no impact on water quality or water supplies. The onshore concrete duct bank will be primarily located along existing roadway layouts and involve standard inert materials such as concrete, PVC conduit, and solid dielectric cables. The solid dielectric cables do not contain any type of insulating fluids. As described in Sections 2.4 and 6.1.3, none of the substation equipment at the proposed substation will contain polychlorinated biphenyls (PCBs). The Proponent will provide full-volume (110%) containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable).

DEP 19 **The Proponent is advised that any solid waste found or generated during construction must be disposed of at an appropriate MassDEP approved facility.**

Construction-period solid waste management is described in Section 12.5.6.

DEP 20 **MassDEP recommends the Proponent consider source separation or separating different recyclable materials at the job site. Source separation may lead to higher recycling rates and lower recycling costs. Further guidance can be found at: https://recyclingworksma.com/construction-demolition-materials-guidance/.**

The Proponent will consider this guidance. Construction-period solid waste management is described in Section 12.5.6.

DEP 21 **Asphalt, brick, and concrete (ABC) rubble, such as the rubble generated during construction must be handled in accordance with the Solid Waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The Proponent should refer to MassDEP's Information Sheet, entitled " Using or Processing Asphalt Pavement, Brick and Concrete Rubble, Updated February 27, 2017 ", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: https://www.mass.gov/files/documents/2018/03/19/abc-rubble.pdf.**

As described in Section 12.5.6, asphalt and concrete will be handled separately from soil to allow for recycling at an asphalt batching plant and/or recycling facility.

DEP 22 **Tree removal/land clearing/clean wood: As defined in 310 CMR 16.02, clean wood means "discarded material consisting of trees, stumps and brush, including but limited to sawdust, chips, shavings, bark, and new or used lumber"…etc. Clean wood does not include wood from commingled construction and demolition waste, engineered wood products, and wood containing or likely to contain asbestos, chemical preservatives, or paints, stains or other coatings, or adhesives. The Proponent should be aware that wood is not allowed to be buried or disposed of at the Site pursuant to 310 CMR 16.00 & 310 CMR 19.000 unless otherwise approved by MassDEP. Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood.**

Management of trees cleared during construction is discussed in Section 12.3.7.

DEP 23 **Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.**

Proposed Section 61 Findings are provided in Section 13.0.

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
251 Causeway Street, Suite 800, Boston, MA 02114-2136
(617) 626-1200 FAX: (617) 626-1240

MEMORANDUM

TO:	Bethany A. Card, Secretary, EEA
ATTN:	Alex Strysky, MEPA Unit
FROM:	Lisa Berry Engler, Director, CZM
DATE:	November 30, 2022
RE:	EEA-16611, ENF – New England Wind 2 Connector

Lisa Berry Engler

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Environmental Notification Form (ENF) presented in the *Environmental Monitor* dated October 7, 2022 and offers the following comments for inclusion in the Draft Environmental Impact Report (DEIR).

Project Description

Commonwealth Wind (CWW), a wholly owned subsidiary of Avangrid Renewables, LLC, has proposed the CWW New England Wind 2 Connector project. The New England Wind 2 Connector is comprised of those elements of the broader CWW project that are subject to state jurisdiction, including components proposed within both state waters and onshore. This project will deliver approximately 1,232 megawatts (MW) of power to the ISO New England (ISO-NE) electric grid to meet the company's obligations to initially provide approximately 1,200 MW with the potential for an additional approximately 32 MW in the future.

The project includes 4 major components: the installation of three (3) 275-kilovolt (kV) high voltage alternating current (HVAC) offshore export cables within state waters; construction of a 6.7-mile underground concrete duct bank housing 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 located off Oak Street in Barnstable; construction of a new onshore substation where the 275-kV voltage onshore transmission cables will step up to 345-kV in preparation for interconnection at the existing Eversource 345-kV West Barnstable Substation; and construction of 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.

Project Comments

Jurisdiction

The CWW project in its entirety is a large-scale commercial offshore wind energy facility comprised of wind turbine generators, foundations, offshore cables, and offshore substations in federal waters and export marine and land-based cables and an onshore substation within state jurisdiction. The proposed facility would produce up to 1,232 MW nameplate capacity annual renewable energy. The ENF filing covers the elements proposed within Massachusetts state boundaries, including most of the offshore export cables, all the onshore underground cables, and the proposed onshore substation. These project elements are referred to collectively in the filing as the "New England Wind 2 Connector". Although the ENF focuses on the elements proposed within state boundaries, CZM's federal consistency authority extends to activities that have reasonably foreseeable effects on any coastal use or coastal resources resulting from a federal agency activity or

federal license or permit activity. Renewable energy leases and related authorizations by the Bureau of Ocean Energy Management (BOEM) are listed as federal actions of the state's approved Coastal Management Program (CMP). While CZM's review of the entire project to ensure its consistency with policies of the CMP will occur through the BOEM renewable energy program and National Environmental Policy Act filings, as detailed below, the proponent should provide sufficient detail CZM 01
and information on activities in adjacent federal waters as well as potential effects on state resources and uses in subsequent MEPA filings to allow for a complete assessment of the entire project through this MEPA process.

Seafloor Disturbance

To lay the combined 69 miles of export cable, the proponent has estimated a total of 183 acres of impacts that include: 28 acres of trenching impact due to fluidization of sediments during cable laying, 82 acres of disturbance due to instrument skids, 27-33 acres disturbed due to dredging, and a range for the area of potential long-term cable protection of 29.4-35.6 acres (not presented in the ENF and estimated by CZM). In addition, the acreage of seafloor disturbed by anchor setting for construction vessels is not reported in the ENF. To evaluate the project impact under the CZM 02
Massachusetts Ocean Management Plan (OMP) regulations at 301 CMR 28.00, the DEIR should explicitly enumerate the acreage of seafloor disturbance associated with trenching, instrument skids, anchor setting, dredging, and long-term cable protection. Further, the acreage of disturbed seafloor CZM 03
within the mapped hard bottom and complex bottom, (together comprising the Special, Sensitive, or Unique [SSU] resource "hard/complex seafloor" under the OMP), should be calculated.

The ENF states that cable protection will be employed if a minimum burial depth of 5 feet (ft) is not achieved within areas of "higher risk of damage from anchor strikes." These areas of higher risk are proposed to be based on existing vessel traffic patterns and comprise the majority of the Offshore Export Cable Corridor (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. The DEIR should describe what/how data will be used to determine high and low-risk vessel traffic areas. These risk areas should be represented in maps in the DEIR depicting the CZM 04
proposed cable routes. The proponent should consider input from CZM, the Division of Marine Fisheries (DMF), and local stakeholders such as the harbormaster(s) in determining these areas.

Ocean Management Plan

The OMP and implementing regulations at 301 CMR 28.00 set out standards for certain marine uses including submarine cables. Cable laying activities in the ocean planning area are presumptively excluded from SSU resource areas as mapped in the OMP. A project alternative that is located outside of mapped SSU resources is presumed to be a less environmentally damaging practicable alternative than a project located within a mapped SSU resource. The SSU areas that cable projects in the ocean planning area must avoid are the North Atlantic right whale core habitat, humpback whale core habitat, fin whale core habitat, areas of hard/complex seafloor, intertidal flats, and eelgrass. According to the mapped SSU resources in the 2021 OMP and the survey results reported in the ENF, it appears that SSU resources potentially impacted by the project are areas of hard/complex seafloor and eelgrass. However, the DEIR should depict the project footprint in CZM 05
relation to all relevant SSU areas as mapped in the 2021 OMP and as mapped via site-specific surveys for this project.

While in general cable laying projects are presumptively excluded from areas with hard/complex seafloor, the presence of relatively small areas of the hard-bottom substrate, such that the cable route cannot be practicably located without going through, within acceptable limits, is permissible, based on review and determination by the Secretary in consultation with Executive Office of Energy and Environmental Affairs (EEA) agencies. In cases where the crossing of hard/complex seafloor is more than de minimis, the OMP siting standard requires the proponent to demonstrate that the maps delineating the SSU resources do not accurately characterize the resource or that 1) no less environmentally damaging alternative is practicable; 2) the project will cause no significant alteration of SSU resources; 3) the public benefits of the project outweigh the potential detriments posed by impacts to SSU resources.

Given that the proponent has done extensive site-specific surveys and has mapped hard and complex seafloor within the project footprint (e.g., Figures 3.0-3 and 3.0-4), the DEIR should explain how the proponent will use all practicable measures to avoid disturbing hard/complex seafloor, that no Less Damaging Environmentally Practicable Alternative to the proposed project exists, that the project will cause no significant alteration of SSU resources, and how the public benefits outweigh the detriments of the project. Section 1.2 of the ENF describes the public benefits of the project. These benefits should be considered when proposing an ocean development mitigation fee (see below). CZM 06

Under the OMP and its regulations, the project is subject to an ocean development mitigation fee to compensate the Commonwealth for the unavoidable impacts of the project on the broad public interests and rights in the lands, waters, and resources of the ocean planning area and to support the planning, management, restoration, or enhancement of marine habitat, resources and uses under the Massachusetts Oceans Act. Details on the ocean development mitigation fee are contained in the OMP (Volume 1 Appendix 3) and at 301 CMR 28.06. After analyzing the temporary and permanent impacts of the project in the DEIR, the proponent should propose an ocean development mitigation fee to compensate for the unavoidable impacts of the project. CZM 07

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Cable Laying

The proponent has estimated that as much as 29.4-35.6 acres of long-term cable protection—potentially composed of rocks, gabion rock bags, concrete mattresses, or half-shell pipes—may be required to ensure that cables are adequately buried beneath the seafloor. To minimize alterations to seafloor habitats, CZM discourages the use of armor, and the proponent should first attempt to lower the cable protection required through alternative means (e.g., a second plow pass or hand jetting). If cable protection is deemed necessary, the use of a top cover that is comprised of sediments whose grain size and composition mimic that of the adjacent seafloor should be employed. The proponent should work with the permitting agencies to implement the hierarchy of preferred cable protection methods presented in the ENF. CZM 08

Fisheries Mitigation

The proponent is a member of the Massachusetts Fisheries Working Group on Offshore Wind Energy, the Responsible Offshore Development Alliance, the Responsible Offshore Science Alliance, and other groups concerned with the impact of offshore wind on commercial, recreational, and for-hire fisheries. As such, the proponent should be aware of the concerns associated with potential disruptions during the construction, operation, and decommissioning of the proposed project. The ENF describes efforts including fisheries studies to assess impacts associated with construction and operations, a Fisheries Communication Plan to convey information to fishers during construction implemented by fisheries liaisons and representatives, commitment to a 1 nautical mile (nm) x 1 nm turbine layout with North/South and East/West orientation, providing portable digital media with electronic charts depicting locations of New England Wind-related activities, and developing and implementing procedures for handling compensation to fishermen for potential gear loss. The DEIR should provide an analysis of the predicted economic exposure to Massachusetts fishermen from the construction, operation, and decommissioning of the OECC in Massachusetts waters and propose a financial mitigation package to compensate fishers for lost revenue. CZM, in cooperation with the Massachusetts Division of Marine Fisheries, will review the analysis of potential economic exposure to Massachusetts fisheries through the federal consistency review process and in keeping with guidance developed by BOEM. CZM 09

Underwater Archeological Resources

Under Massachusetts General Laws Chapter 6, sections 179-180, and Chapter 91, section 63, the Massachusetts Board of Underwater Archaeological Resources (MBUAR) is charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. No person may remove, displace, damage, or destroy any underwater archaeological resource except in conformity with permits issued by MBUAR. Generally, those resources are defined as abandoned property, artifacts, treasure troves, and shipwrecks that have remained unclaimed for over 100 years, exceed a value of $5,000, or are judged by MBUAR to be of historical value. The Commonwealth holds title to these resources and retains regulatory authority over their use. MBUAR's jurisdiction extends over the inland and coastal waters of the state. Underwater archaeological resource identification surveys, site examinations, responses to unanticipated discoveries, and any mitigation activities conducted for the project within the Commonwealth's waters must conform to the MBUAR statute and regulations and published *Policy Guidance for the Discovery of Unanticipated Archaeological Resources* and be conducted under an MBUAR Special Use Permit. The proponent should consult closely with the MBUAR, and a marine archaeological resources assessment and mitigation proposal that is prepared for the project should be provided to MBUAR for review. CZM 10

Coastal Resource Delineation

The wetland resource areas delineated in Attachment B, and Figure 6 in the ENF show that Dowses Beach is a barrier beach. However, the delineation shows a gap in the coastal dune where it is lower and unvegetated, as well as in the footprint of the parking lot and roadway. Barrier beaches, by definition, are composed of coastal beaches and coastal dunes. Although there has been a modification of the coastal dune form, the area landward of the annual high tide line on a barrier beach is typically a coastal dune. It appears that Attachment B may not be consistent with the wetland resource area delineations shown in other plans included with the ENF. For example, in Attachment F1, the construction staging plans show a coastal bank on the barrier beach. Inconsistencies such as this should be corrected in the DEIR. Detailed guidance for differentiating coastal beaches and coastal dunes, and delineation of other coastal resource areas is available in Chapter 1 of Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect the Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas (aka the Coastal Manual). Coastal resource area delineations should be reviewed and updated as necessary for inclusion in the DEIR based on the Coastal Manual. CZM is available to provide technical assistance as needed regarding coastal resource area delineations. CZM 11

Coastal Barrier Resource Unit

CZM notes that Dowses Beach is a Coastal Barrier Resource Unit as mapped by the U.S. Fish and Wildlife Service. There are limitations to federal funding and assistance associated with projects in these areas. Implications to the proposed project should be identified and described as applicable in the DEIR. CZM 12

Coastal Resiliency

The preferred cable landing locations at Dowses Beach in Barnstable are in Velocity flood zones, elevation 15 and 14 NAVD 88, as mapped by the Federal Emergency Management Agency on their Flood Insurance Rate Maps (FIRMs). The preferred cable route from the landing location traverses the Dowses Beach Road causeway between Phinney's Bay and East Bay, which is also within a mapped Velocity Zone. The landing locations for the three cables and the route across the causeway are low-lying, with low-lying beach and dune systems located seaward. As a result, the landing locations and cable routes are vulnerable to erosion and overwash in moderate to major coastal storms. The DEIR should further describe the vulnerabilities of the proposed project and how the project was designed to minimize and reduce risk from coastal effects as discussed below. CZM 13

According to the ENF, the Massachusetts Shoreline Change data was reviewed and applied to the proposed project. However, as discussed at the MEPA meeting, the shoreline change data is not a useful data source for quantifying the vulnerability of the project shoreline to coastal erosion in moderate to major coastal storms due to the infrequency of these storm events in this area. The primary vulnerability of south-facing shorelines in Massachusetts is to hurricanes. Since the shoreline change data set averages change over a long time horizon and the major hurricanes that cause changes to the shoreline occur once every 75-100 years, the actual effects of these infrequent but impactful storms may be artificially reduced.

As critical infrastructure, the proposed energy-producing facility should be designed to continue operating through a moderate to a major hurricane (i.e., a 500-year storm) for the life of the project. The DEIR should include an analysis of 1) likely nearshore, beach, and dune erosion at the preferred landing site to ensure the cables and associated infrastructure maintain adequate burial depth over the design life of the project; 2) potential impacts to the cable route as a result of erosion and storm surge; 3) potential effects of back-to-back storms, such as Hurricanes Carol and Edna in 1954; and 4) the extent of future flood zones including sea level rise using best available information as provided through the Massachusetts Coast Flood Risk Model (MC-FRM) in 2030, 2050, and 2070. CZM 14 Although the MC-FRM outputs from the Climate Resilience Design Standards Tool delineate the potential extent of flood zones with sea level rise, the outputs do not account for the effects of erosion or other landform change. These should be evaluated by the proponent separately. CZM 15 The Climate Resilience Design Standards Tool Project Report included in Appendix G was run in July 2022 and does not include the most recent updates released in September. The Tool should be re-run to obtain the flood depths for the scenario years for this project. CZM 16 Depending on the outcome of the analysis described above, alternative designs and/or mitigation may be necessary to ensure the proposed infrastructure continues to operate for the life of the project.

Species of Concern

The Natural Heritage and Endangered Species Program (NHESP) has established Priority Habitat for Piping Plover along the Centerville Harbor shoreline that includes Dowses Beach, the proposed offshore export cable landing site, as well as the alternative landing site at Wianno Avenue Beach. According to the ENF, a Piping Plover Protection Plan will be finalized as part of the Massachusetts Endangered Species Act permitting process that will commence upon the conclusion of the Massachusetts Environmental Policy Act (MEPA) review. In addition, as documented in a supplemental letter dated December 17, 2021, the proponent has committed to implement a conservation program to research and address the impacts of offshore wind development on coastal waterbird populations. The program will include research, conservation, and habitat restoration measures for avian populations that nest, forage, or migrate through offshore wind project areas. The proponent should continue to coordinate with the NHESP and other state agencies to develop the specifics of the program including partners, funding, timing, and specific projects. The development of the coastal waterbird conservation program will also be reviewed as part of CZM's ongoing federal consistency review process. CZM 17

Monitoring Plan

To compare the predicted impacts as presented through the MEPA process with actual project impacts, the proponent should implement a monitoring program that includes both short-term and long-term studies that quantify the physical effects of dredging, plowing, and cable laying on seafloor topography, benthic infauna, and sediment grain size; the extent, duration, and concentration/depth of suspended solids/sediment drape and any effects on flora and fauna (e.g., eelgrass); and the as-built location and long-term burial of the export cables. The DEIR should include a Benthic Habitat Monitoring Plan (BHMP) associated with the proposed cable laying. The proponent should continue to engage state and federal agencies in a dialogue as the project plans and schedules develop to finalize a BHMP for this project. CZM 18

Geophysical surveys of the export cables should be conducted immediately after construction to document and ensure cable location and burial depth. These surveys should include bathymetric analyses that depict the change in seafloor height after construction as compared to preconstruction. Reports on as-built cable depth and any near-term changes in seafloor topography should be discussed with the resource agencies so that remediation options, if necessary, can be discussed and implemented. As part of the MassDEP 401 Water Quality Certification process, the proponent should develop a plan to assess and ensure cable burial depth at regular intervals and after significant storm events so that other water-dependent uses are not threatened or impeded by any exposed cable segment. CZM 19 CZM 20

Lastly, total suspended solids concentrations during construction, both within and outside of the affected construction area should be monitored and an analysis of the depth and extent of sediment drape associated with the settling of suspended sediments should be provided. The goal of this monitoring is to discern the magnitude and duration of impacts that occur during construction and to identify impacts that are beyond the temporal and spatial scope modeled for the project and described in the ENF. CZM 21

Article 97

Article 97 lands include the Dowses Beach Landfall Site, the onshore transmission cable route along Dowses Beach Road, and the lands required for Grid Interconnection Option G1 and Grid Interconnection Option G2. Consistent with Article 97, authorization will be required from the Massachusetts Legislature as well as approval from the Town of Barnstable for the disposition of new easement rights within these areas. The DEIR should identify the existing restrictions on these parcels held for conservation, preservation, or agricultural or watershed preservation purposes, and describe how the proposed project protects the interests of these provisions and provides an overriding public benefit. CZM 22

Federal Consistency Review

The proposed project is subject to CZM federal consistency review and must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at robert.boeri@mass.gov, or visit the CZM website at https://www.mass.gov/federal-consistency-review-program.

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MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT (CZM)

CZM 01 **Although the ENF focuses on the elements proposed within state boundaries, CZM's federal consistency authority extends to activities that have reasonably foreseeable effects on any coastal use or coastal resources resulting from a federal agency activity or federal license or permit activity. Renewable energy leases and related authorizations by the Bureau of Ocean Energy Management (BOEM) are listed as federal actions of the state's approved Coastal Management Program (CMP). While CZM's review of the entire project to ensure its consistency with policies of the CMP will occur through the BOEM renewable energy program and National Environmental Policy Act filings, as detailed below, the proponent should provide sufficient detail and information on activities in adjacent federal waters as well as potential effects on state resources and uses in subsequent MEPA filings to allow for a complete assessment of the entire project through this MEPA process.**

Please see the response to MEPA 09.

CZM 02 **To lay the combined 69 miles of export cable, the proponent has estimated a total of 183 acres of impacts that include: 28 acres of trenching impact due to fluidization of sediments during cable laying, 82 acres of disturbance due to instrument skids, 27-33 acres disturbed due to dredging, and a range for the area of potential long-term cable protection of 29.4-35.6 acres (not presented in the ENF and estimated by CZM). In addition, the acreage of seafloor disturbed by anchor setting for construction vessels is not reported in the ENF. To evaluate the project impact under the Massachusetts Ocean Management Plan (OMP) regulations at 301 CMR 28.00, the DEIR should explicitly enumerate the acreage of seafloor disturbance associated with trenching, instrument skids, anchor setting, dredging, and long-term cable protection.**

A detailed quantification and discussion of impacts associated with offshore cable installation is provided in Section 5.1.

CZM 03 **Further, the acreage of disturbed seafloor within the mapped hard bottom and complex bottom, (together comprising the Special, Sensitive, or Unique [SSU] resource "hard/complex seafloor" under the OMP), should be calculated.**

Table 5-2 presents the total estimated lengths and direct trenching impacts from cables passing through hard bottom or complex bottom for all three scenarios involving the primary OECC and the Western Muskeget Variant.

CZM 04 **The ENF states that cable protection will be employed if a minimum burial depth of 5 feet (ft) is not achieved within areas of "higher risk of damage from anchor strikes." These areas of higher risk are proposed to be based on existing vessel traffic patterns and comprise the majority of the Offshore Export Cable Corridor (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. The DEIR should describe what/how data will be used to determine high and low-risk vessel traffic areas. These risk areas should be represented in maps in the DEIR depicting the proposed cable routes. The proponent should consider input from CZM, the Division of Marine Fisheries (DMF), and local stakeholders such as the harbormaster(s) in determining these areas.

The Proponent has conducted preliminary route engineering to develop the first iteration of the offshore export cable alignments within the OECC. These preliminary cable alignments are supported by a risk assessment that determines the minimum level of burial required to protect the cables and an assessment of the method of burial that is most suitable for specific site conditions. The preliminary alignments consider numerous seabed features and environmental constraints, including areas of coarse deposits, boulders, sand waves, seabed slopes, water depths, magnetic anomalies, and the location of other existing or planned cables. While the target burial depth of the offshore export cables will be at least 5 ft along their entire length, cable protection will not automatically be applied if the target burial depth cannot be achieved. The Proponent plans to use cable protection if a minimum burial depth of 5 ft is not achieved within areas where there is a non-negligible risk of damage from anchor strikes. Automatic identification system (AIS) data (AIS is a shipboard broadcast system that acts like a transponder) was used to determine the level of risk of anchor strike along the OECC. To minimize the use of cable protection, for those sections of the OECC where the risk of anchor strike is negligible (i.e., where the risk of anchor strike is less than 1 in 100,000 years), the Proponent plans to use cable protection if a minimum burial depth of 3.3 feet is not achieved. The risk assessment includes a detailed decision framework for when to apply cable protection if sufficient burial depths are not achieved in various risk areas along the OECC.

CZM 05 **According to the mapped SSU resources in the 2021 OMP and the survey results reported in the ENF, it appears that SSU resources potentially impacted by the project are areas of hard/complex seafloor and eelgrass. However, the DEIR should depict the project footprint in relation to all relevant SSU areas as mapped in the 2021 OMP and as mapped via site-specific surveys for this project.**

As described in Section 2.1.3, the Proponent has performed detailed marine surveys within the OECC. These surveys have delineated areas of hard bottom and complex bottom, and have shown that no eelgrass beds are present within the OECC for NE Wind 2 Connector. All SSU areas present within the OECC are shown on the map set provided in Attachment H1.

CZM 06 **Given that the proponent has done extensive site-specific surveys and has mapped hard and complex seafloor within the project footprint (e.g., Figures 3.0-3 and 3.0-4), the DEIR should explain how the proponent will use all practicable measures to avoid disturbing hard/complex seafloor, that no Less Damaging Environmentally Practicable**

Alternative to the proposed project exists, that the project will cause no significant alteration of SSU resources, and how the public benefits outweigh the detriments of the project.

An extensive alternatives analyses has been conducted to minimize environmental impacts while maintaining Project benefits. The alternatives analysis is discussed in Section 4.0. Mitigation measures are summarized in Section 13.2. Public benefits are described in detail in Section 1.9.

CZM 07 **Under the OMP and its regulations, the project is subject to an ocean development mitigation fee to compensate the Commonwealth for the unavoidable impacts of the project on the broad public interests and rights in the lands, waters, and resources of the ocean planning area and to support the planning, management, restoration, or enhancement of marine habitat, resources and uses under the Massachusetts Oceans Act. Details on the ocean development mitigation fee are contained in the OMP (Volume 1 Appendix 3) and at 301 CMR 28.06. After analyzing the temporary and permanent impacts of the project in the DEIR, the proponent should propose an ocean development mitigation fee to compensate for the unavoidable impacts of the project.**

The proposed mitigation fee is discussed in Section 3.4.6.

CZM 08 **The proponent has estimated that as much as 29.4-35.6 acres of long-term cable protection—potentially composed of rocks, gabion rock bags, concrete mattresses, or half-shell pipes—may be required to ensure that cables are adequately buried beneath the seafloor. To minimize alterations to seafloor habitats, CZM discourages the use of armor, and the proponent should first attempt to lower the cable protection required through alternative means (e.g., a second plow pass or hand jetting). If cable protection is deemed necessary, the use of a top cover that is comprised of sediments whose grain size and composition mimic that of the adjacent seafloor should be employed. The proponent should work with the permitting agencies to implement the hierarchy of preferred cable protection methods presented in the ENF.**

As described in Section 5.1.3, the Proponent’s priority will be to achieve adequate burial depth of the three offshore export cables and to avoid the need for any cable protection. However, achieving adequate burial depth may be unsuccessful in areas where the seafloor is composed of consolidated materials, making complete avoidance of cable protection measures infeasible. If sufficient burial depth cannot be achieved, cable protection methods may be necessary. The Proponent will seek to avoid and/or minimize the use of such cable protections, and cable protection will only be used where necessary, thus minimizing potential impacts. The Proponent is seeking to maintain the cable protection methodologies described in Section 5.1.3 as options for the Project. It is worth noting that concrete mattresses would only need to be 10 feet wide, while rock protection would need to be 30 feet wide to account for sideslopes.

CZM 09 **The DEIR should provide an analysis of the predicted economic exposure to Massachusetts fishermen from the construction, operation, and decommissioning of the OECC in Massachusetts waters and propose a financial mitigation package to compensate fishers for lost revenue. CZM, in cooperation with the Massachusetts Division of Marine Fisheries, will review the analysis of potential economic exposure to Massachusetts fisheries through the federal consistency review process and in keeping with guidance developed by BOEM.**

An economic analysis of potential impacts on fisheries is provided in Section 7.1.2.

CZM 10 **Underwater archaeological resource identification surveys, site examinations, responses to unanticipated discoveries, and any mitigation activities conducted for the project within the Commonwealth's waters must conform to the MBUAR statute and regulations and published Policy Guidance for the Discovery of Unanticipated Archaeological Resources and be conducted under an MBUAR Special Use Permit. The proponent should consult closely with the MBUAR, and a marine archaeological resources assessment and mitigation proposal that is prepared for the project should be provided to MBUAR for review.**

The Proponent has met with the agencies comprising the Massachusetts Ocean Team (MEPA, CZM, MassDEP, DMF, and MBUAR) to review Project background, marine surveys, and use of the same OECC as for Vineyard Wind and NE Wind 1 Connector for the offshore portion of the proposed transmission cables. Marine cultural resources are discussed in Section 9.2.

CZM 11 **The wetland resource areas delineated in Attachment B, and Figure 6 in the ENF show that Dowses Beach is a barrier beach. However, the delineation shows a gap in the coastal dune where it is lower and unvegetated, as well as in the footprint of the parking lot and roadway. Barrier beaches, by definition, are composed of coastal beaches and coastal dunes. Although there has been a modification of the coastal dune form, the area landward of the annual high tide line on a barrier beach is typically a coastal dune. It appears that Attachment B may not be consistent with the wetland resource area delineations shown in other plans included with the ENF. For example, in Attachment F1, the construction staging plans show a coastal bank on the barrier beach. Inconsistencies such as this should be corrected in the DEIR. Detailed guidance for differentiating coastal beaches and coastal dunes, and delineation of other coastal resource areas is available in Chapter 1 of Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect the Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas (aka the Coastal Manual). Coastal resource area delineations should be reviewed and updated as necessary for inclusion in the DEIR based on the Coastal Manual. CZM is available to provide technical assistance as needed regarding coastal resource area delineations.**

As stated in the Project's ENF and Section 5 of this DEIR, the proposed landfall site in a paved parking lot is located on a Barrier Beach that lies between East Bay to the west and Centerville Harbor (Nantucket Sound) to the east. This coastal landform is composed of various wetland resource areas including Coastal Beach and Coastal Dune. Other adjacent resource areas include Land Under the Ocean, Salt Marsh, and Coastal Bank. The parking lot also likely occupies an area that was once coastal dune. However, due to its paved condition, the parking lot is no longer functioning as a coastal dune, nor does it meet the definition of a coastal dune found in the Wetland Protection Act Regulations at 310 CMR 10.28(2): "Coastal Dunes are any natural hill, mount or ridge of sediment that has been deposited by wind action or storm overwash that lies landward of a coastal beach."

CZM 12 **CZM notes that Dowses Beach is a Coastal Barrier Resource Unit as mapped by the U.S. Fish and Wildlife Service. There are limitations to federal funding and assistance associated with projects in these areas. Implications to the proposed project should be identified and described as applicable in the DEIR.**

The Proponent is not seeking federal funding or assistance for the Project.

CZM 13 **The preferred cable landing locations at Dowses Beach in Barnstable are in Velocity flood zones, elevation 15 and 14 NAVD 88, as mapped by the Federal Emergency Management Agency on their Flood Insurance Rate Maps (FIRMs). The preferred cable route from the landing location traverses the Dowses Beach Road causeway between Phinney's Bay and East Bay, which is also within a mapped Velocity Zone. The landing locations for the three cables and the route across the causeway are low-lying, with low-lying beach and dune systems located seaward. As a result, the landing locations and cable routes are vulnerable to erosion and overwash in moderate to major coastal storms. The DEIR should further describe the vulnerabilities of the proposed project and how the project was designed to minimize and reduce risk from coastal effects as discussed below. According to the ENF, the Massachusetts Shoreline Change data was reviewed and applied to the proposed project. However, as discussed at the MEPA meeting, the shoreline change data is not a useful data source for quantifying the vulnerability of the project shoreline to coastal erosion in moderate to major coastal storms due to the infrequency of these storm events in this area. The primary vulnerability of south-facing shorelines in Massachusetts is to hurricanes. Since the shoreline change data set averages change over a long time horizon and the major hurricanes that cause changes to the shoreline occur once every 75-100 years, the actual effects of these infrequent but impactful storms may be artificially reduced.**

Please see the responses to MEPA 61 and MEPA 62.

CZM 14 **As critical infrastructure, the proposed energy-producing facility should be designed to continue operating through a moderate to a major hurricane (i.e., a 500-year storm) for the life of the project. The DEIR should include an analysis of 1) likely nearshore, beach, and dune erosion at the preferred landing site to ensure the cables and associated**

infrastructure maintain adequate burial depth over the design life of the project; 2) potential impacts to the cable route as a result of erosion and storm surge; 3) potential effects of back-to-back storms, such as Hurricanes Carol and Edna in 1954; and 4) the extent of future flood zones including sea level rise using best available information as provided through the Massachusetts Coast Flood Risk Model (MC-FRM) in 2030, 2050, and 2070.

Please see the responses to MEPA 61 and MEPA 62.

CZM 15 **Although the MC-FRM outputs from the Climate Resilience Design Standards Tool delineate the potential extent of flood zones with sea level rise, the outputs do not account for the effects of erosion or other landform change. These should be evaluated by the proponent separately.**

Section 10.1.3 provides a description of predicted episodic flooding, erosion, and landform change (including accreting beaches) due to future sea level rise combined with major storm events (see Attachment Q for the technical report).

CZM 16 **The Climate Resilience Design Standards Tool Project Report included in Appendix G was run in July 2022 and does not include the most recent updates released in September. The Tool should be re-run to obtain the flood depths for the scenario years for this project. Depending on the outcome of the analysis described above, alternative designs and/or mitigation may be necessary to ensure the proposed infrastructure continues to operate for the life of the project.**

Updated Resilient Massachusetts Action Team Climate Resilience Design Standards Tool Project Reports (RMAT Reports) are provided in Attachment K and are discussed in Section 10.1.2. Sediment transport modeling for episodic erosions from wave and surge with rising sea level and storm events is discussed in Section 10.1.3.

CZM 17 **The Natural Heritage and Endangered Species (NHESP) has established Priority Habitat for Piping Plover along the Centerville Harbor shoreline that includes Dowses Beach, the proposed offshore export cable landing site, as well as the alternative landing site at Wianno Avenue Beach. According to the ENF, a Piping Plover Protection Plan will be finalized as part of the Massachusetts Endangered Species Act permitting process that will commence upon the conclusion of the Massachusetts Environmental Policy Act (MEPA) review. In addition, as documented in a supplemental letter dated December 17, 2021, the proponent has committed to implement a conservation program to research and address the impacts of offshore wind development on coastal waterbird populations. The program will include research, conservation, and habitat restoration measures for avian populations that nest, forage, or migrate through offshore wind project areas. The proponent should continue to coordinate with the NHESP and other state agencies to develop the specifics of the program including partners, funding,**

timing, and specific projects. The development of the coastal waterbird conservation program will also be reviewed as part of CZM's ongoing federal consistency review process.

A Piping Plover and Least Tern Protection Plan (PP&LTPP) has been developed and is included as Attachment I. The Proponent plans to maintain an active level of consultation with NHESP and other state agencies as the environmental review and permitting processes continue. Additional information regarding the coastal waterbird conservation program is discussed in Section 7.3.1.

CZM 18 **To compare the predicted impacts as presented through the MEPA process with actual project impacts, the proponent should implement a monitoring program that includes both short-term and long-term studies that quantify the physical effects of dredging, plowing, and cable laying on seafloor topography, benthic infauna, and sediment grain size; the extent, duration, and concentration/depth of suspended solids/sediment drape and any effects on flora and fauna (e.g., eelgrass); and the as-built location and long-term burial of the export cables. The DEIR should include a Benthic Habitat Monitoring Plan (BHMP) associated with the proposed cable laying. The proponent should continue to engage state and federal agencies in a dialogue as the project plans and schedules develop to finalize a BHMP for this project.**

The development of post-construction monitoring/survey plans for NE Wind 2 Connector is discussed in Section 12.1.6. Benthic habitat monitoring is specifically discussed in Sections 7.1 and 12.1.6.2, and the Draft Benthic Habitat Monitoring Plan is provided as Attachment L. Pursuant to 314 CMR 9.07(3), the Proponent anticipates being required to conduct turbidity monitoring during non-HDD dredging operations (including but not limited to trailing suction hopper dredging, clamshell bucket, mass flow excavator), cable installation (such as jet plowing, mechanical plowing, and hand excavation of a small seafloor area beneath the seaward end of the conduit to bury the cable into the seafloor) and other construction activities. It is anticipated that a condition of the 401 WQC will require the Proponent to submit a turbidity (NTU) and Total Suspended Solids (TSS) monitoring plan to MassDEP and CZM.

The monitoring plan is anticipated to include monitoring locations, frequency of monitoring, type of monitoring equipment, proposed action level for implementation of corrective action or BMPs, level for stop work, background monitoring locations, and frequency. TSS concentrations associated with dredging and cable installation within Muskeget Channel will also be monitored.

CZM 19 **Geophysical surveys of the export cables should be conducted immediately after construction to document and ensure cable location and burial depth. These surveys should include bathymetric analyses that depict the change in seafloor height after construction as compared to preconstruction. Reports on as-built cable depth and any near-term changes in seafloor topography should be discussed with the resource agencies so that remediation options, if necessary, can be discussed and implemented.**

Post-installation inspections and surveys are described in Section 12.1.6. The Proponent anticipates that a condition of the 401 WQC will require, in accordance with 314 CMR 9.07(3), that the Proponent provide a cable monitoring report within 90 calendar days following each export cable inspection to determine cable location, burial depths, state of the cable, and site conditions. An inspection of the export cable is expected to include high-resolution geophysical methods, such as a multi-beam bathymetric survey equipment, and identify seabed features, natural and human-made hazards, and site conditions along the cable route. Export cable inspection will be carried out within 6 months of commissioning, and subsequent inspections will be carried out at years 1, 2, and every 3 thereafter, and after a major storm event. Major storm events are defined as when metocean conditions at the facility meet or exceed the 1 in 50-year return period calculated in the metocean design basis. If conditions warrant adjustment to the frequency of inspections following the Year 2 survey, a revised monitoring plan may be provided to MassDEP for review. In addition to inspection, the export cable will be monitored continuously with the as-built DTS system. If data indicate that burial conditions have deteriorated or changed significantly and remedial actions are warranted, a seabed stability analysis may be undertaken.

CZM 20 **As part of the MassDEP 401 Water Quality Certification process, the proponent should develop a plan to assess and ensure cable burial depth at regular intervals and after significant storm events so that other water-dependent uses are not threatened or impeded by any exposed cable segment.**

Please see response to CZM 19.

CZM 21 **Lastly, total suspended solids concentrations during construction, both within and outside of the affected construction area should be monitored and an analysis of the depth and extent of sediment drape associated with the settling of suspended sediments should be provided. The goal of this monitoring is to discern the magnitude and duration of impacts that occur during construction and to identify impacts that are beyond the temporal and spatial scope modeled for the project and described in the ENF.**

Please see the response to CZM 18.

CZM 22 **Article 97 lands include the Dowses Beach Landfall Site, the onshore transmission cable route along Dowses Beach Road, and the lands required for Grid Interconnection Option G1 and Grid Interconnection Option G2. Consistent with Article 97, authorization will be required from the Massachusetts Legislature as well as approval from the Town of Barnstable for the disposition of new easement rights within these areas. The DEIR should identify the existing restrictions on these parcels held for conservation, preservation, or agricultural or watershed preservation purposes, and describe how the proposed project protects the interests of these provisions and provides an overriding public benefit.**

Article 97-protected parcels and compliance with EEA's Article 97 Policy and Chapter 274 is discussed in Section 2.7.

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Attn: MEPA Office
Alex Strysky, EEA No. 16611
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Card:

The Division of Marine Fisheries (MA DMF) has reviewed the Environmental Notification Form (ENF) by Commonwealth Wind LLC for the New England Wind Connector 2 project.

The proposed project seeks to install three 275 kilovolt (kV) high voltage alternating current (HVAC) offshore export cables, a 6.7-mile underground concrete duct bank, and a new onshore substation. The proposed offshore cable would connect 64 to 88 offshore wind turbine generators (WTGs)/electrical service platforms (ESPs) located in Lease Area OCS-A-0534 to a landfall site at Dowses Beach in the Town of Barnstable. The project would go through the town waters of Edgartown, Nantucket, Barnstable, and Mashpee. The proposed cable route would largely follow the established Offshore Export Cable Corridor (OECC) associated with the Vineyard Wind 1 Connector and New England Wind 1 Connector Projects, which travels along the eastern side of Muskeget Channel, towards landfall at Dowses Beach. The OECC has a typical width of 3,500 feet, ranging from 3,100 to 5,500 feet. Potential new areas outside the OECC include a section through Centerville Harbor required to reach the Dowses Beach Landfall Site as well as a Western Muskeget Variant. This is included in the event that prior cable installations within the OECC preclude installations associated with the current project.

Cable protection is anticipated with total estimated area of impact varying depending on the need for the Western Muskeget Variant. The lowest area of cable protection would be achieved if all three cables are maintained in the OECC (29.4 acres), with impact areas increasing to 23.5 and 35.6 acres if one or two cables, respectively, need to be routed through the Western Muskeget Variant. Target burial depth for the offshore portion is five to eight feet with cable protection anticipated if a minimum depth of three or five feet cannot be achieved in low and high anchor strike risk areas, respectively. For areas where burial is not feasible, hard structures may be used as cable protection in the form of rock, gabion rock bags, concrete mattresses, or half-shell pipes.

The overall cable corridor would traverse 47.2 miles, 21.9 miles of which would be within state waters. The offshore portion is proposed to be installed using a lay and bury method with either jetting or mechanical plow while the nearshore section would be installed using horizontal directional drilling (HDD). In areas containing sand waves, dredging is anticipated to achieve adequate burial depth. Proposed dredging methods consist of trailing suction hopper dredge (TSHD) or jetting by controlled flow excavation. If TSHD is used, dredge material would be transported and deposited elsewhere within the surveyed area containing sand waves. Up to 131,100 cubic yards of dredging may occur in 27 to 33 acres of state waters for the installation of all three cables. Cable installation in state waters is estimated to impact 104 to 110 acres with an additional 26 to 27 acres of impact anticipated from the use of jack-up and/or anchored vessels.

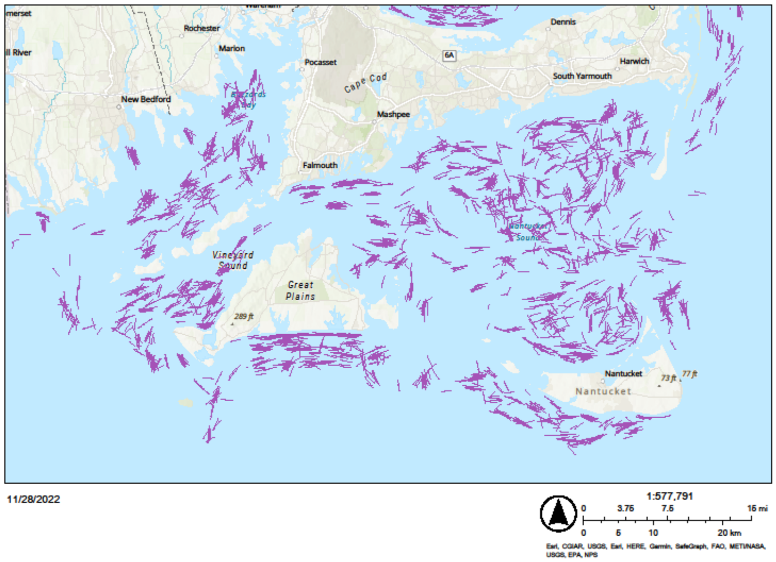
Existing marine fisheries resources and potential project impacts are described in Attachment 1. The primary resources of concern in Nantucket Sound that are vulnerable to the adverse effects of cable laying and EMF include (but are not limited to) shellfish, longfin squid (*Doryteuthis pealeii*) and squid eggs, knobbed whelk (*Busycon carica*) and channeled whelk (*Busycotypus canaliculatus*), and flatfish. Both commercial and recreational fisheries are active throughout the OECC area.

MA DMF offers the following comments on DEIR content referenced in the ENF for consideration in developing the Draft Environmental Impact Report (DEIR):

<u>MA DMF permits and affected activities</u>

- Through the "Nantucket Sound exception" included within the Magnuson Act, MA DMF exerts fisheries jurisdiction across all waters within Nantucket Sound [1]. A Letter of Authorization from MA DMF will be needed for any activities that could result in the collection of fishing gear in Nantucket Sound and Massachusetts state waters. A Scientific Permit from MA DMF will be needed for any activities that could result in the collection of marine plants or animals in Nantucket Sound and Massachusetts state waters. DMF 01 DMF 02
- The MA DMF bottom trawl survey operates throughout Nantucket Sound annually during spring and fall (Fig. 1). Coordination with MA DMF is recommended to ensure lack of direct conflict with this survey during survey activities and cable installation. Furthermore, cable installation, even at the targeted 5-8 foot depth, can impact future MA DMF bottom trawl activity in the corridor. Potential impacts to this long-running survey should be considered in the DEIR and in the final routing decision. Providing post construction coordinates and shapefiles of cable route(s) with cable depth (armored, 0 - <3', 3' - target depth 5-8') is critical. NOAA captains use this information when conducting the bottom trawl surveys to determine towable areas. DMF 03 DMF 04

Figure 1. MA DMF Resource Survey Tow Locations 1978-2019



<u>An up-to-date description of the Affected Environment</u>

- Dredging and cable trenching will likely impact existing marine resources that are sessile or with limited mobility (e.g., shellfish, whelks, squid eggs). These vulnerable species should receive particular attention in terms of documenting their distribution along the OECC as well as strategies for minimizing impacts to these resources. Many species trends have been affected due to warming waters, so characterization of these resources should be informed by up-to-date analyses of trawl survey data and other available data sources. DMF 05
- Through the Ocean Plan, the Commonwealth established a standard substrate map. We would like to see that the data produced by this effort be compatible with that substrate map, since it underlies the interpretation of hard/complex seafloor. The maps shown in the ENF are useful and illustrative, but it is more helpful to have the data in an online viewer and available for viewing in our own GIS systems. Toward that end, substrate analyses from project survey work should be produced in the same Excel spreadsheet as the Commonwealth's substrate data and interpreted substrate units should be produced as an ArcGIS shapefile or geodatabase. All data should be provided digitally in formats compatible with ArcGIS to enable comparison with existing datasets. Acoustic mosaics should be provided as geotiffs at the maximum resolution possible. There should be at least four geotiffs provided: multibeam backscatter, sidescan sonar backscatter, multibeam bathymetry, and backscatter draped on bathymetry. The date of data collection should be easily discernable for all products. DMF 06

<u>An expanded discussion of how scheduling, sequencing, and communication can be used to minimize impacts to fish and fisheries</u>

- Many potential impacts to marine resources and associated fisheries can be minimized by timing cable installation activities to avoid seasons of vulnerable life history phases and/or concentrated fishing effort along the OECC. The DEIR should describe planned DMF 07 timing of cable-laying activities with regards to co-occurring marine resources and stakeholders. The proponent's experience with Vineyard Wind 1 Connector and New England Wind 1 Connector Projects should be used to identify the communication mechanisms and stakeholder partners that will enhance coordination with fishermen.

- Potential prohibition or relocation of fishing (fixed or mobile gear) for any length of time as a result of survey, installation, or repair procedures should also be described. The size, length, and potential economic impact of closures should be included in the description. DMF 08

Description of overall economic impact to fishing industries

- The DEIR should present an analysis describing the potential economic impact on Massachusetts fishing industries associated with the Park City Wind Project and VW2. The analysis should include impacts on individual ports, as well. DMF 09
- Economic analyses should rely on the most up-to-date methods and datasets developed through the Mass CEC pilot studies projects and/or NOAA analyses.
- Providing a range of potential impacts, including a no-fishing alternative, is needed.
- A clear explanation of how the proponent is working toward mitigation agreements and how it is supporting regional impact monitoring is needed.

An expanded discussion of cable covering

- Anticipated areas requiring covering should be described in greater detail, both in terms of the spatial distribution and existing habitat characteristics. Relative impacts to benthic habitat associated with the Western Muskeget Variant should be further described in the DEIR to more thoroughly assess the relative impact of this alternative. The DEIR should also describe the likelihood of concrete mattresses or rock material affecting fishing activities. DMF 10 DMF 11 DMF 12
- Information related to the habitat equivalency of rock placement, gabion rock bags, concrete mattresses, or half-shell pipes of cables should be provided and should cite relevant literature. The concrete mattresses are estimated to occupy less seafloor, but if the rock cover has a higher habitat value, it may be the preferred alternative despite occupying more seafloor DMF 13

A detailed discussion of all installation methods proposed for offshore cables

- MA DMF recommends that the proponent develop a comprehensive contingency plan in the DEIR outlining response protocols for a frac-out event for the horizontal directional drilling (HDD) alternative for nearshore installation. Plans should include how frac-outs will be avoided, as well as actual response and containment plans. DMF 14

Presentation of monitoring plans

- Monitoring plans should be developed with input from the Agencies and should include annual reporting. DMF 15
- All monitoring plans should clearly identify the questions being addressed (i.e. the objectives of the monitoring plan).

Electric and magnetic fields (EMF) and cable burial

- Since cable burial will be relied upon to minimize adverse effects associated with EMF transmission, the EMF analysis should include a thorough description of how cable burial DMF 16 will be monitored on a regular basis to ensure the entire length of the cable will remain buried.

Cumulative impacts

- Multiple cable laying activities over time increase seafloor impacts and impacts to fishing activities. The DEIR should include a proposed schedule that clarifies how this project's timing compares to Vineyard Wind 1 and New England Wind 1. DMF 17

Questions regarding this review may be directed to John Logan in our New Bedford office at john.logan@mass.gov.

Sincerely,

Daniel J. McKiernan

Director

cc: Barnstable Conservation Commission
Mashpee Conservation Commission
Edgartown Conservation Commission
Nantucket Conservation Commission
Marc Bergeron, Epsilon Asssociates
Sabrina Pereira, NMFS
Rebecca Haney, Robert Boeri, CZM
Rachel Croy, Ed Reiner, EPA
Brendan Mullaney, David Wong, DEP
Tori LaBate, DFG
Amanda Davis, Emma Gallagher, Steve Wilcox, Robert Glenn, Mark Rousseau, Melanie Griffin, Kelly Whitmore, Tracy Pugh, Derek Perry, DMF

DM/JL/sd

Attachment 1: Description of the Affected Environment, Nantucket Sound

The waters within Nantucket Sound and adjacent state waters along the proposed cable routes traverse habitat for a variety of finfish and invertebrate species (Figures 1 and 2). The Massachusetts Ocean Plan [1] identified several areas of important fish resources based on MA DMF trawl survey data (2015 Massachusetts Ocean Plan Figure 15). In particular, commercially and recreationally important species with high abundance in this region include channeled whelk (*Busycotypus canaliculatus*), knobbed whelk (*Busycon carica*), longfin squid (*Doryteuthis pealeii*), summer flounder (*Paralichthys dentatus*), scup (*Stenotomus chrysops*), and windowpane flounder (*Scophthalmus aquosus*) (Figures 1 and 2). Of these species, summer flounder, scup, and knobbed whelk are abundant throughout Nantucket Sound while channeled whelk, longfin squid, and windowpane flounder are in greater abundance further east along Nantucket Sound.

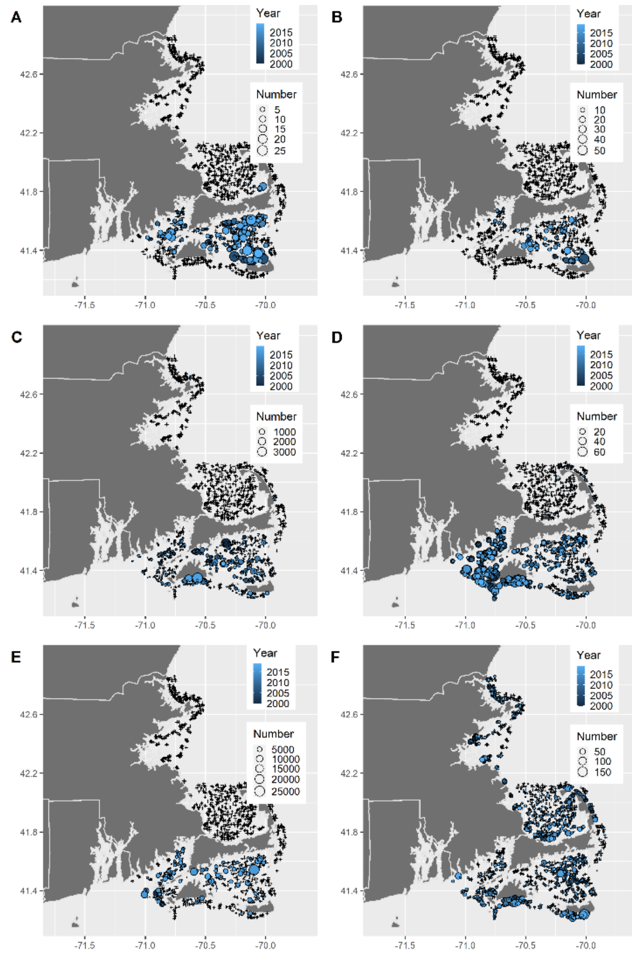


Figure 1. Abundance of select recreationally and commercially important fish and invertebrate species in Massachusetts spring bottom trawl surveys from 2000-2019. Tows for which the species of interest were absent are indicated by (+). Panels represent seasonal abundance of A) channeled whelk, B) knobbed whelk, C) longfin squid, D) summer flounder, E) scup, and F) windowpane flounder.

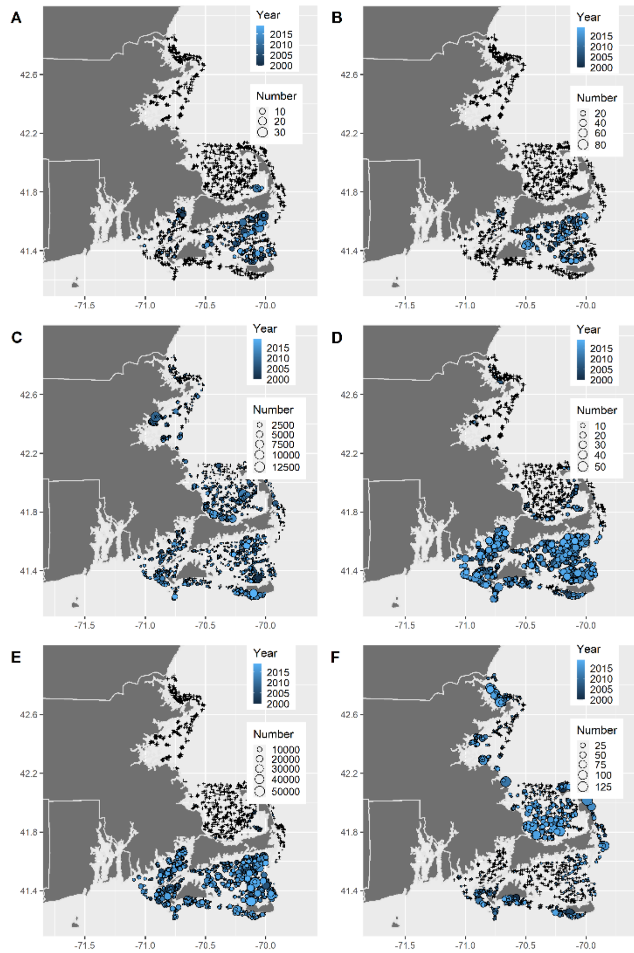


Figure 2. Abundance of select recreationally and commercially important fish and invertebrate species in Massachusetts fall bottom trawl surveys from 2000-2019. Tows for which the species of interest were absent are indicated by (+). Panels represent seasonal abundance of A) channeled whelk, B) knobbed whelk, C) longfin squid, D) summer flounder, E) scup, and F) windowpane flounder.

Of the species identified in trawl survey data, whelks and squid are particularly sensitive to benthic habitat disturbance due to limited mobility and deposition of demersal eggs, respectively. Recent stock assessments indicate that the whelk stock in Nantucket Sound is overfished and overfishing is still occurring. The biomass index based on the MA DMF trawl survey has declined by over 70% since the early 1980s. Longfin squid spawn in the spring in Nantucket and Vineyard Sounds and lay demersal egg clusters (i.e., mops) with peak activity in May [2-4; Fig. 3]

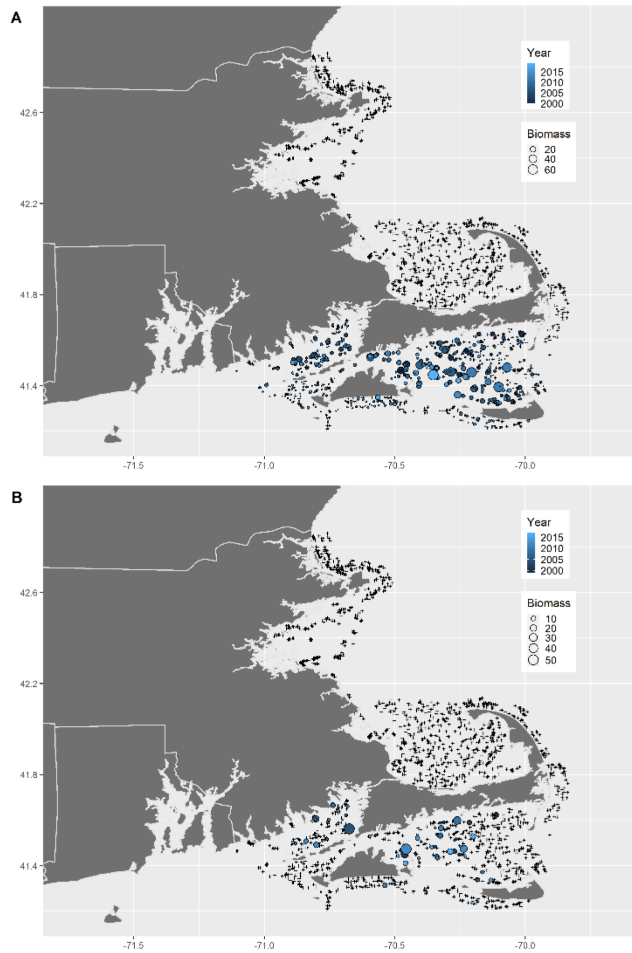


Figure 3. Biomass (kg per tow) of A) longfin squid and B) longfin squid demersal egg in Massachusetts spring bottom trawl surveys from 2000-2019. Tows for which the species of interest were absent are indicated by (+).

The cable route through Nantucket Sound also includes habitat for a variety of shellfish species. The offshore waters between Martha's Vineyard and Nantucket are mapped surf clam (*Spisula solidissima*) habitat. The OECC also closely borders sea scallop (*Argopecten irradians*), quahog (*Mercenaria mercenaria*), and blue mussel (*Mytilus edulis*) habitat.

The various finfish and invertebrate resources along the cable corridors also support a variety of associated fisheries. The Massachusetts Ocean Plan [1] identified several areas of medium and high commercial fisheries activity and concentrated recreational fishing activity within the proposed cable route (2015 Massachusetts Ocean Plan Figures 16 and 28). Nantucket Sound waters within and adjacent to the proposed cable route are also classified as areas of high recreational boating density [5]. The commercial whelk fishery targets both channeled and knobbed whelk and is an important state-waters only fishery in Massachusetts that has expanded in recent years due to declines in southern New England lobster resources and increased whelk prices [6]. The channeled whelk fishery is of particular economic importance and annually ranks among the top fifteen in terms of ex-vessel value landings in Massachusetts. Based on dealer reports, nearly two million pounds of channeled whelk were landed in 2016 with an estimated value of $4.8 million USD. Most of these landings are derived from fisheries in Nantucket Sound (Figures 4 and 5). Blue mussel (*Mytilus edulis*) and kelp (*Saccharina latissima*) aquaculture operations are also present or in the process of being permitted for deployment within Horseshoe Shoals in close proximity to the proposed cable corridors.

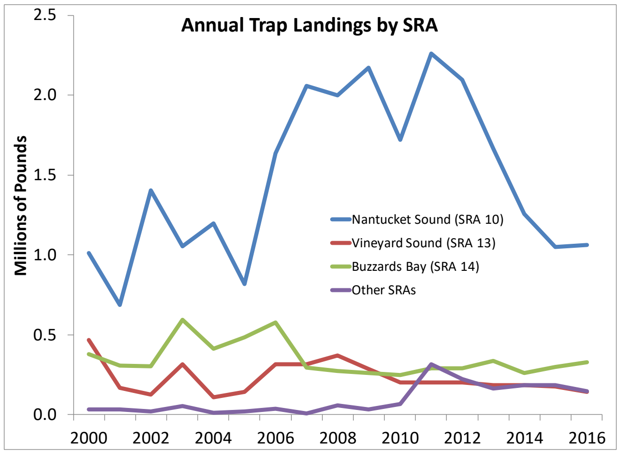


Figure 4. MA channeled whelk landings 2000 – 2016 Source: MA Commercial Catch Reports [6].

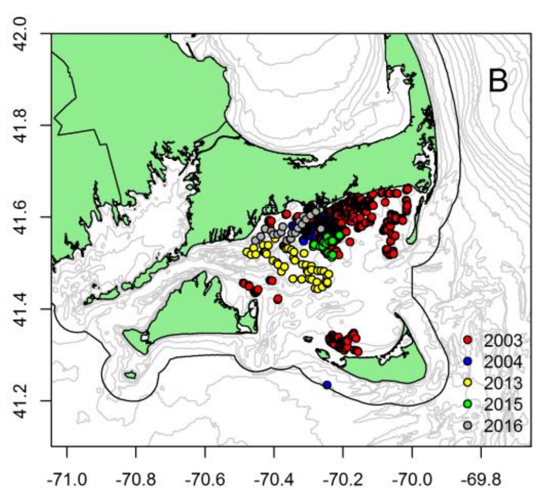


Figure 5. Locations of yearly commercial sampling effort in the Massachusetts whelk fishery, MA DMF [6].

Nantucket Sound is also the epicenter of the horseshoe crab (*Limulus polyphemus*) fishery for the state of Massachusetts with > 80% of landings derived from this general region (Figure 6).

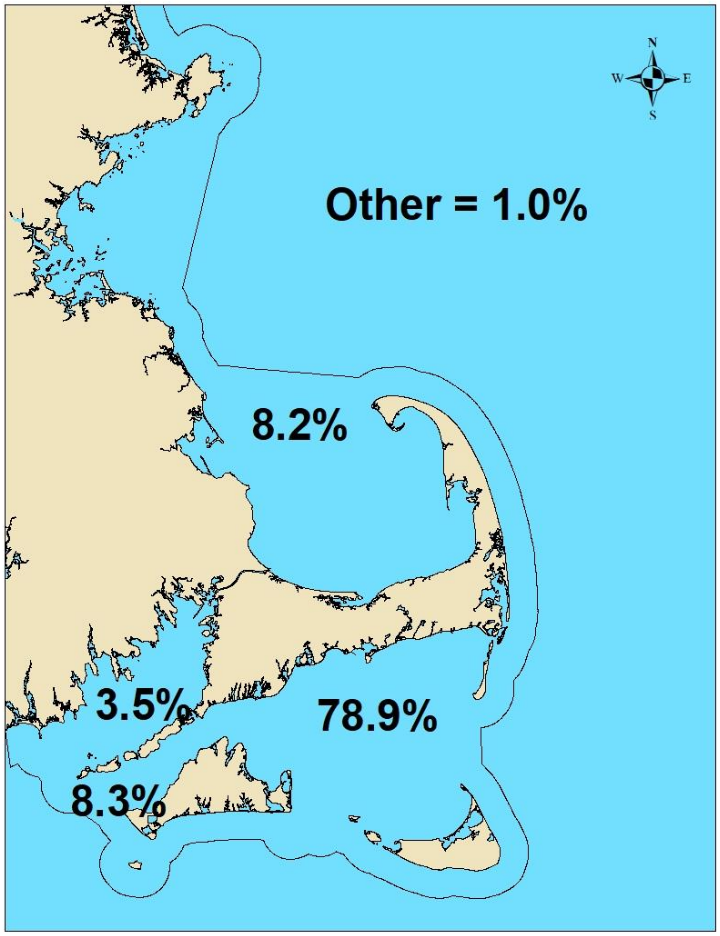


Figure 6. Landings data for the 2018 Massachusetts horseshoe crab fishery reported as percentages by region. The Nantucket Sound region accounted for 83% of state landings.

Waters within Nantucket Sound also provide habitat for a variety of whale and sea turtle species. An area of right whale (*Eubalaena glacialis*) core habitat is present south of Martha's Vineyard in close proximity to the proposed cable corridor (2015 Massachusetts Ocean Plan Figure 24) while loggerhead (*Caretta caretta*) and leatherback (*Dermochelys coriacea*) sea turtles have been observed throughout Nantucket Sound [1,7].

Nearshore waters off the proposed Craigville Beach and Covell's Beach landfall sites provide habitat for a variety of marine flora and fauna. The shoreline at both considered landfall sites is mapped as a horseshoe crab nesting beach. Horseshoe crabs deposit their eggs in the upper intertidal regions of sandy beaches from late spring to early summer during spring high tides [8]. Adult crabs congregate in deep waters such as channel areas and troughs during the day while waiting to move on to the beaches at night to spawn. Adults will also overwinter in these deeper water areas. Recent stock assessments conclude that horseshoe crab abundance in the New England region has improved from poor to neutral [9]. The waters offshore of the eastern and western ends of the landfall sites have been mapped previously by the Massachusetts Department of Environmental Protection (MA DEP) as eelgrass (*Zostera marina*) meadows (Fig. 7). Eelgrass beds provide one of the most productive habitats for numerous marine species [8] but have declined statewide in the past decade [10]. The waters offshore of the landfall sites are also mapped surf clam (*Spisula solidissima*) habitat.

References

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3. McKiernan DJ, Pierce DE. 1995 Loligo squid fishery in Nantucket and Vineyard Sounds. Massachusetts Division of Marine Fisheries Publication No. 17648-75-200-1/95-3.47-C.R.
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5. Northeast Ocean Data Portal. 2018 Northeast ocean data - maps and data for ocean planning in the northeastern United States. http://www.northeastoceandata.org/data-explorer/?recreation. Accessed July 10, 2020.
6. Nelson GA, Wilcox SH, Glenn R, Pugh TL. A stock assessment of channeled whelk (*Busycotypus canaliculatus*) in Nantucket Sound, Massachusetts. Massachusetts Division of Marine Fisheries Technical Report TR-66. 2018.
7. Dodge KL, Galuardi B, Miller TJ, Lutcavage ME. 2014 Leatherback turtle movements, dive behavior, and habitat characteristics in ecoregions of the Northwest Atlantic Ocean. PLoS ONE. 9: e91726. doi: 10.1371/journal.pone.0091726.
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MASSACHUSETTS DIVISION OF MARINE FISHERIES (DMF)

DMF 01 **Through the "Nantucket Sound exception" included within the Magnuson Act, MA DMF exerts fisheries jurisdiction across all waters within Nantucket Sound [1]. A Letter of Authorization from MA DMF will be needed for any activities that could result in the collection of fishing gear in Nantucket Sound and Massachusetts state waters.**

The Proponent will obtain a Letter of Authorization from MA DMF for any activities that could result in the collection of fishing gear in Nantucket Sound and Massachusetts state waters.

DMF 02 **A Scientific Permit from MA DMF will be needed for any activities that could result in the collection of marine plants or animals in Nantucket Sound and Massachusetts state waters.**

The Proponent will obtain a Scientific Permit from MA DMF for any activities that could result in the collection of marine plants or animals in Nantucket Sound and Massachusetts state waters.

DMF 03 **The MA DMF bottom trawl survey operates throughout Nantucket Sound annually during spring and fall (Fig. 1). Coordination with MA DMF is recommended to ensure lack of direct conflict with this survey during survey activities and cable installation.**

The Proponent will coordinate with MA DMF prior to survey activities and cable installation in order to avoid conflicts with the MA DMF bottom trawl survey in Nantucket Sound.

DMF 04 **Furthermore, cable installation, even at the targeted 5-8 foot depth, can impact future MA DMF bottom trawl activity in the corridor. Potential impacts to this long-running survey should be considered in the DEIR and in the final routing decision. Providing post construction coordinates and shapefiles of cable route(s) with cable depth (armored, 0 -<3', 3' - target depth 5-8') is critical. NOAA captains use this information when conducting the bottom trawl surveys to determine towable areas.**

The Proponent will provide DMF with as-built plans for the proposed offshore export cables. Utilizing a common OECC and co-locating cables within the same corridor as the Vineyard Wind Connector and NE Wind 1 Connector projects should help avoid conflicts.

DMF 05 **Dredging and cable trenching will likely impact existing marine resources that are sessile or with limited mobility (e.g., shellfish, whelks, squid eggs). These vulnerable species should receive particular attention in terms of documenting their distribution along the OECC as well as strategies for minimizing impacts to these resources. Many species**

trends have been affected due to warming waters, so characterization of these resources should be informed by up-to-date analyses of trawl survey data and other available data sources.

Marine resources are characterized in Section 7, including their distribution along the OECC, as well as planned avoidance, minimization, and mitigation measures.

DMF 06 **Through the Ocean Plan, the Commonwealth established a standard substrate map. We would like to see that the data produced by this effort be compatible with that substrate map, since it underlies the interpretation of hard/complex seafloor. The maps shown in the ENF are useful and illustrative, but it is more helpful to have the data in an online viewer and available for viewing in our own GIS systems. Toward that end, substrate analyses from project survey work should be produced in the same Excel spreadsheet as the Commonwealth's substrate data and interpreted substrate units should be produced as an ArcGIS shapefile or geodatabase. All data should be provided digitally in formats compatible with ArcGIS to enable comparison with existing datasets. Acoustic mosaics should be provided as geotiffs at the maximum resolution possible. There should be at least four geotiffs provided: multibeam backscatter, sidescan sonar backscatter, multibeam bathymetry, and backscatter draped on bathymetry. The date of data collection should be easily discernable for all products.**

The Proponent has provided the Massachusetts Ocean Team with marine survey data from within the OECC. An electronic deliverable of data was provided to the Ocean Team (via CZM) in November 2021 for the NE Wind 1 Connector project. The NE Wind 2 Connector Project is utilizing the majority of that same OECC. An additional electronic deliverable was provided to CZM and DMF in March 2023 containing marine survey data from the OECC spur to the landfall site as well as the Western Muskeget Variant, meaning the Ocean Team now has access to the marine survey data within the entirety of the OECC for NE Wind 2 Connector.

DMF 07 **Many potential impacts to marine resources and associated fisheries can be minimized by timing cable installation activities to avoid seasons of vulnerable life history phases and/or concentrated fishing effort along the OECC. The DEIR should describe planned timing of cable-laying activities with regards to co-occurring marine resources and stakeholders. The proponent's experience with Vineyard Wind 1 Connector and New England Wind 1 Connector Projects should be used to identify the communication mechanisms and stakeholder partners that will enhance coordination with fishermen.**

The Project schedule is discussed in Section 1.6, and the Fisheries Communication Plan is discussed in Section 7.1.3 and provided as Attachment J. TOY restrictions are discussed in Section 12.7.2. TOY restrictions, if any, for offshore export cable installation should take into consideration the safe operational conditions for cable-laying vessels and the need to provide power on schedule in addition to environmental considerations. At this time, final determination of all offshore and onshore TOY restrictions for the NE Wind 2 Connector 2 is not complete. The Proponent will continue to consult with regulatory agencies regarding relevant TOY restrictions for all aspects of Project construction.

DMF 08 **Potential prohibition or relocation of fishing (fixed or mobile gear) for any length of time as a result of survey, installation, or repair procedures should also be described. The size, length, and potential economic impact of closures should be included in the description.**

During construction and installation, fishing vessels will not be precluded from operating in or transiting through the OECC other than where temporary safety buffer zones are established around construction and installation vessels. Similarly, during O&M of the offshore wind energy generation facility and NE Wind 2 Connector, fishing vessels will not be restricted in the OECC except where temporary safety buffer zones may be established around limited in-water maintenance activities. A description of the temporary safety buffer zone and estimated economic exposure of commercial fisheries is provided in Section 7.1.2.

DMF 09 **The DEIR should present an analysis describing the potential economic impact on Massachusetts fishing industries associated with the Park City Wind Project and VW2. The analysis should include impacts on individual ports, as well. Economic analyses should rely on the most up-to-date methods and datasets developed through the Mass CEC pilot studies projects and/or NOAA analyses. Providing a range of potential impacts, including a no-fishing alternative, is needed. A clear explanation of how the proponent is working toward mitigation agreements and how it is supporting regional impact monitoring is needed.**

During construction and installation, fishing vessels will not be precluded from operating in or transiting through the OECC other than where temporary safety buffer zones are established around construction and installation vessels. Section 7.1.2 provides an economic analysis of potential impacts on fisheries. Because of the limited potential economic exposure of fisheries during construction of the OECC, the analysis does not break down the economic exposure by individual port. Section 7.1.4 describes fisheries mitigation. The need for financial compensation to offset impacts on commercial fishing will be established through the Project's federal permitting process. Fisheries compensation and program design will be determined through the consistency review process conducted pursuant to the Coastal Zone Management Act and will include significant input from commercial fishermen, state agencies, and other stakeholders.

DMF 10 **Anticipated areas requiring covering should be described in greater detail, both in terms of the spatial distribution and existing habitat characteristics.**

Cable protection is specifically described in Section 5.1.3. As addressed in that discussion, the Proponent intends to avoid or minimize the need for cable protection to the greatest extent feasible through careful site assessment and thoughtful selection of the most appropriate cable installation tool to achieve sufficient burial. Areas requiring cable protection, if any, will be the only locations where post-installation conditions at the seafloor may permanently differ from existing conditions; however, such cable protection would only be expected within hard bottom areas, and the cable protection itself would function as hard bottom.

DMF 11 **Relative impacts to benthic habitat associated with the Western Muskeget Variant should be further described in the DEIR to more thoroughly assess the relative impact of this alternative.**

Impacts associated with offshore export cable installation are presented in Section 5.1, and the discussion includes impacts for cable installation entirely within the OECC as well as scenarios that would utilize the Western Muskeget Variant.

DMF 12 **The DEIR should also describe the likelihood of concrete mattresses or rock material affecting fishing activities.**

Cable protection is described in detail in Section 5.1.3.

DMF 13 **Information related to the habitat equivalency of rock placement, gabion rock bags, concrete mattresses, or half-shell pipes of cables should be provided and should cite relevant literature. The concrete mattresses are estimated to occupy less seafloor, but if the rock cover has a higher habitat value, it may be the preferred alternative despite occupying more seafloor.**

Cable protection is specifically described in Section 5.1.3, including habitat equivalency of rock placement, gabion rock bags, concrete mattresses, or half-shell pipes of cables.

DMF 14 **MA DMF recommends that the proponent develop a comprehensive contingency plan in the DEIR outlining response protocols for a frac-out event for the horizontal directional drilling (HDD) alternative for nearshore installation. Plans should include how frac-outs will be avoided, as well as actual response and containment plans.**

HDD procedures are described in Section 12.2, with management of drilling fluids specifically addressed in Section 12.2.2.

DMF 15 **Monitoring plans should be developed with input from the Agencies and should include annual reporting. All monitoring plans should clearly identify the questions being addressed (i.e. the objectives of the monitoring plan).**

The Proponent has assembled a Draft Benthic Habitat Monitoring Plan for all of New England Wind (inclusive of Park City Wind/NE Wind 1 Connector and Commonwealth Wind/NE Wind 2 Connector) intended to document habitat and benthic community disturbance and recovery as a result of construction and cable installation in the Primary OECC. The Draft Benthic Habitat Monitoring Plan is included as Attachment L.

DMF 16 **Since cable burial will be relied upon to minimize adverse effects associated with EMF transmission, the EMF analysis should include a thorough description of how cable burial will be monitored on a regular basis to ensure the entire length of the cable will remain buried.**

Please see response to CZM 19.

DMF 17 **Multiple cable laying activities over time increase seafloor impacts and impacts to fishing activities. The DEIR should include a proposed schedule that clarifies how this project's timing compares to Vineyard Wind 1 and New England Wind 1.**

Section 5.6 discusses potential cumulative impacts from the three projects to be located within the common OECC.

DIVISION OF
FISHERIES & WILDLIFE

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p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

November 30, 2022

Bethany Card, Secretary
Executive Office of Energy and Environmental Affairs
Attention: MEPA Office
Alex Strysky, EEA No. 16611
100 Cambridge Street
Boston, Massachusetts 02114

Project Name:	*New England Wind 2 Connector*
Proponent:	*Commonwealth Wind LLC*
Location:	*Offshore export cables from a proposed 1,232 megawatt (MW) wind generation facility within Federal waters through Massachusetts waters northerly through Nantucket Sound to Dowses Beach, Barnstable (Preferred Route). Onshore routes (Main Street and Old Mill Road Alternatives) from Dowses Beach to a proposed substation off Oak Street, Barnstable.*
Project Description:	*Utility- Transmission Cables*
Document Reviewed:	*Environmental Notification Form*
EEA File Number:	*16611*
NHESP Tracking No.:	*17-37398*

Dear Secretary Card,

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the Division) has reviewed the Environmental Notification Form (ENF) for the proposed New England Wind 2 (NEW2) Connector and would like to offer the following comments.

The Commonwealth Wind offshore and onshore components, as currently proposed, will occur within areas of Priority Habitat and Estimated Habitat for state-listed species. The Preferred Route offshore will occur within key migratory and foraging habitat for the state-listed terns listed below. The Preferred Route onshore at Dowses Beach will occur within nesting habitat for Piping Plover and Least Tern. Additionally, the Old Mill Road Alternative will occur within Priority Habitat for Water Willow Stem Borer.

Scientific Name	Common Name	Taxonomic Group	State Status
Sterna dougallii	Roseate Tern	Vertebrate - Bird	Endangered*
Sterna hirundo	Common Tern	Vertebrate - Bird	Special Concern
Sternula antillarum	Least Tern	Vertebrate - Bird	Special Concern
Charadrius melodus	Piping Plover	Vertebrate - Bird	Threatened*
Papaipema sulphurata	Water-willow Stem Borer	Invertebrate - Moth	Threatened

*Species also protected pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11).

These species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (M.G.L c. 131A) and its implementing regulations (MESA, 321 CMR 10.00). State-listed species habitats are also protected pursuant to the rare wetland wildlife provisions of the Massachusetts Wetlands Protection Act and its implementing regulations (WPA, 310 CMR 10.00). This project will require a direct filing with the Division for compliance with the MESA and the rare species provisions of the WPA. NHESP 01

Renewable energy sources, such as offshore wind power, would reduce the reliance upon fossil fuels, provide zero-emissions energy generation, and are necessary to achieve the Commonwealth's renewable energy requirements. Wind energy generation can have unintended impacts, particularly upon avian species. Thus, the wind energy planning, review and permitting processes must thoroughly and comprehensively assess impacts and risks to imperiled birds – this is particularly critical for imperiled bird populations with existing stressors, including, small population sizes, low reproduction or recruitment rates, and compounding factors related to climate change. NHESP 02

Background

Massachusetts is a globally significant nesting, feeding, staging and overwintering area for numerous migratory birds, from common waterfowl to ESA-and MESA-listed bird species. A large proportion of the North American Roseate Tern (ESA- & MESA-Endangered) population and Atlantic Coast Piping Plover population (ESA- & MESA-Threatened) are reliant upon Massachusetts for reproduction. As such, Massachusetts's responsibility for state- and federally-listed coastal waterbirds is disproportionately high. To that end, the Division has expended considerable funds and resources to protect and manage these birds, as well as restore nesting habitat.

As a result of management efforts occurring since the 1980s, Massachusetts supports over 740 pairs of Piping Plover (almost 40% of the Atlantic Coast breeding population). The Commonwealth also supports approximately 50% (about 2,200 pairs) of the North American Roseate Tern population on three islands actively managed by the Division since the 1990s (previously managed by other organizations since the 1960s). In addition, the Division manages significant nesting colonies of Common and Least terns.

ESA- and MESA-listed terns forage in the waters surrounding Massachusetts during the nesting, staging, and migratory seasons. The post-breeding tern aggregation ("staging") beaches of Cape Cod, Martha's Vineyard, and Nantucket are used during July – September. These sites are regionally and continentally important migratory preparation areas where adults care for fledged young until they become proficient at feeding themselves and birds put on body mass for their over-sea journey to wintering areas in South America. These staging areas appear to support a majority if not all the North American Roseate Tern population (Jedrey et al. 2010).

Onshore Components

The Preferred Alternative for onshore components, including, cable route, new substation site and proposed substation off Oak Street, Barnstable primarily avoid areas identified as Priority and Estimated Habitat for state-listed species. However, there are two exceptions: the proposed cable landfall location at Dowses Beach and the conduit installation at Bumps River Road (Old Mill Road Alternative) are located within Priority Habitat for state-listed species. The proposed cable landfall at Barnstable's Dowses Beach provides important nesting habitat for the Piping Plover and Least Tern. Additionally, the beaches within larger Centerville Harbor provide nesting, feeding and staging habitat for state-listed terns species.

The ENF identifies that the onshore transmission cable route for the Old Mill Road Alternative is located entirely within public roadway layouts. The Division notes that the conduit installation at Bumps River Road (Old Mill Road Alternative) may qualify for an exemption from the MESA pursuant to 321 CMR 10.14(10). NHESP 03

Within the ENF, the Proponent references a Piping Plover Protection Plan that was approved for the Vineyard Wind Connector 1 (EEA #15787) project. The cable landing location associated with Commonwealth Wind/ NEW2 Connector is proposed at Dowses Beach, Barnstable. Dowses Beach is nesting habitat for both Piping Plover and Least Tern. Thus, at this time and without site specific details regarding construction and restoration timelines, temporary impacts, etc., the Division cannot to assess whether the Piping Plover Protection Plan would be adequate and sufficient to avoid both temporary and permanent impacts to state-listed plovers and terns as well as their habitats. NHESP 04

Offshore Components

Based on the information provided within the ENF, the offshore cable installation process is anticipated to impact up to 183 acres of wetlands in state waters. The impacts associated with the cable installation in state waters are described as temporary impacts. For context, the Proponent provides an overview of the Commonwealth Wind Project located within both state and federal waters (ENF Attachment A, Section 2). As the inter-array cables, foundations, wind turbine generators (WTG's) and other components of the Commonwealth Wind (1,232 MW) project are located within federal waters, the Division anticipates providing comments through the Bureau of Ocean Energy Management (BOEM) National Environmental Policy Act (NEPA) process or coordinating through the Office of Coastal Zone Management Federal Consistency process, as appropriate. However, given the Division's responsibility of managing and protecting ESA- & MESA-listed avian species and the importance of Massachusetts both nationally and continentally, the Division would like to offer the following comments relative to offshore components.

Acknowledged in BOEM's Supplemental Draft Environmental Impact Statement (SDEIS) for Vineyard Wind 1, the construction and operation of wind turbine generators is expected to result in direct mortality of Common Tern, a MESA-listed avian species. Thus, cumulative impacts to MESA-listed species associated with Park City Wind (New England Connector 1) and now Commonwealth Wind (New England Connector 2) can also reasonably be expected.

As previously identified, a large proportion of the North American Roseate Tern population is reliant upon Massachusetts for nesting (primarily, on Bird, Ram & Penikese Islands managed by the Division). Massachusetts breeding Roseate Terns and those that breed in New York (Great Gull Island) convene in Massachusetts waters during the staging period (July - September) prior to migrating south. Thus, in addition to Common Terns, and because a large proportion of the population of this imperiled avian species is likely to forage within and travel through the Vineyard Wind Lease Area, wind turbine generators (WTGs) are also anticipated to result in direct mortality to Roseate Terns and other avian species (e.g., Least Tern and Piping Plover).

Therefore, the Proponent should consult with the Division to develop and integrate suitable conservation measures to mitigate unavoidable project impacts to affected imperiled avian species associated with Vineyard Wind 1, Park City Wind, and now also Commonwealth Wind. Conservation measures may include, but are not limited to, support for ongoing tern colony and plover monitoring and management and the restoration and enhancement of critical nesting habitats. These actions would NHESP 05 provide meaningful and measurable benefits to the Roseate Tern and because terns typically nest in mixed species colonies, would also benefit other avian species.

The Division notes, as part of the Secretary's February 1, 2019 Certificate on the MEPA FEIR for Vineyard Wind Connector 1, it was requested that the Proponent develop a comprehensive post-construction monitoring and adaptive management plan for avian species and support conservation measures that provide meaningful and measurable benefit to these species. To date, the Proponent has not provided such a plan or consulted with the Division regarding mitigative measures, as identified in both the NEPA and MEPA review processes.

NHESP 06

Conclusion

The Proponent should evaluate all alternatives to reduce or minimize impacts to avian species, for both onshore and offshore project components; this is particularly important relative to cumulative impacts from Vineyard Wind Connector 1, New England Wind Connector 1, New England Wind Connector 2 and their associated offshore components (Vineyard Wind 1, Park City Wind, and Commonwealth Wind), and potential future development within the Proponent's offshore Lease Areas.

NHESP 07

Given the Division's responsibility to protect and manage imperiled avian resources, every effort should be made to avoid and minimize risks, as well as monitor and mitigate unavoidable Project impacts to the Commonwealth's wildlife resources. Through such efforts, we can ensure that offshore wind projects not only contribute to meeting critical renewable energy needs, but also help to ensure healthy populations of coastal waterbirds, including vulnerable MESA and ESA-listed species, for the benefit of our citizens.

The Division will not render a final decision until the MEPA review process and associated public and agency comment period is completed, and until all required MESA filing materials are submitted by the Proponent to the Division. As our MESA review is not complete, no alteration to the soil, surface, or vegetation and no work associated with the proposed project shall occur until the Division has made a final determination.

NHESP 08

If you have any questions about this letter, please contact Amy Hoenig, Endangered Species Review Biologist, at (508) 389-6364 or Amy.Hoenig@mass.gov. We appreciate the opportunity to comment on this project.

Sincerely,

Everose Schlüter

Everose Schlüter, Ph.D.
Assistant Director

cc: Commonwealth Wind LLC
Marc Bergeron, Epsilon Associates, Inc.
Barnstable Board of Selectmen

Barnstable Conservation Commission
Barnstable Planning Department
DEP Southeast Regional Office, MEPA
Lisa Engler, CZM
Bob Boeri, CZM

References

Jedrey, E. L., R. J. Harris, and E. A. Ray. 2010. Roseate Terns— citizens of the world: the Canada to Cape Cod connection. Bird Observer 38:146-150.

MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE, NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP)

NHESP 01 **The Commonwealth Wind offshore and onshore components, as currently proposed, will occur within areas of Priority Habitat and Estimated Habitat for state-listed species. ...These species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (M.G.L c. 131A) and its implementing regulations (MESA, 321 CMR 10.00). State-listed species habitats are also protected pursuant to the rare wetland wildlife provisions of the Massachusetts Wetlands Protection Act and its implementing regulations (WPA, 310 CMR 10.00). This project will require a direct filing with the Division for compliance with the MESA and the rare species provisions of the WPA.**

In accordance with the MESA (321 CMR 10.14), the Proponent will continue to consult with NHESP to ensure that the Project will not result in a Take. With regard to the onshore duct bank, because it will be installed beneath or within ten feet of road pavement where the duct bank route will pass directly adjacent to rare species habitat, construction in those areas is exempt from review under MESA, and accordingly there is not expected to be any impact to rare species habitat by the duct bank installation.

NHESP 02 **Renewable energy sources, such as offshore wind power, would reduce the reliance upon fossil fuels, provide zero-emissions energy generation, and are necessary to achieve the Commonwealth's renewable energy requirements. Wind energy generation can have unintended impacts, particularly upon avian species. Thus, the wind energy planning, review and permitting processes must thoroughly and comprehensively assess impacts and risks to imperiled birds – this is particularly critical for imperiled bird populations with existing stressors, including, small population sizes, low reproduction or recruitment rates, and compounding factors related to climate change.**

Potential impacts to avian species and associated mitigation measures are described in detail in Sections 7.2 and 7.3. To avoid and minimize impacts to plovers and terns, a Draft Piping Plover and Least Tern Protection Plan has been developed for the Project and is provided as Attachment I. The plan highlights various mitigation measures including adopting schedules to avoid and minimize noise impacts to Piping Plover and Least Tern during the breeding season.

NHESP 03 **The ENF identifies that the onshore transmission cable route for the Old Mill Road Alternative is located entirely within public roadway layouts. The Division notes that the conduit installation at Bumps River Road (Old Mill Road Alternative) may qualify for an exemption from the MESA pursuant to 321 CMR 10.14(10).**

Installation of the onshore transmission system within Priority Habitat at Bump's River Road, part of the Noticed Alternative Route, would be completed within the existing roadway layout with the intent of limiting disturbance to within ten feet of the pavement edge. However, the design of the duct bank system at this location is not sufficiently advanced to conclude with certainty that the MESA exemption pursuant to 321 CMR 10.14(10) would apply.

NHESP 04 **Within the ENF, the Proponent references a Piping Plover Protection Plan that was approved for the Vineyard Wind Connector 1 (EEA #15787) project. The cable landing location associated with Commonwealth Wind / NEW2 Connector is proposed at Dowses Beach, Barnstable. Dowses Beach is nesting habitat for both Piping Plover and Least Tern. Thus, at this time and without site specific details regarding construction and restoration timelines, temporary impacts, etc., the Division cannot to assess whether the Piping Plover Protection Plan would be adequate and sufficient to avoid both temporary and permanent impacts to state-listed plovers and terns as well as their habitats.**

Rare species and mapped habitat are discussed in Section 7.2. The Proponent has developed a draft Piping Plover and Least Tern Protection Plan (PP&LTPP, see Attachment I) for construction activities at the landfall site very similar to the Piping Plover Protection Plans that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector.

NHESP 05 **Therefore, the Proponent should consult with the Division to develop and integrate suitable conservation measures to mitigate unavoidable project impacts to affected imperiled avian species associated with Vineyard Wind 1, Park City Wind, and now also Commonwealth Wind. Conservation measures may include, but are not limited to, support for ongoing tern colony and plover monitoring and management and the restoration and enhancement of critical nesting habitats. These actions would provide meaningful and measurable benefits to the Roseate Tern and because terns typically nest in mixed species colonies, would also benefit other avian species.**

In addition to development of the Draft Piping Plover and Least Tern Protection Plan to avoid impacts to these species, the Proponent is currently finalizing its Draft Bird and Bat Monitoring Framework for New England Wind, of which NE Wind 2 Connector is a part. The Draft Piping Plover and Least Tern Protection Plan is included as Attachment I.

NHESP 06 **The Division notes, as part of the Secretary's February 1, 2019 Certificate on the MEPA FEIR for Vineyard Wind Connector 1, it was requested that the Proponent develop a comprehensive post-construction monitoring and adaptive management plan for avian species and support conservation measures that provide meaningful and measurable benefit to these species. To date, the Proponent has not provided such a plan or consulted with the Division regarding mitigative measures, as identified in both the NEPA and MEPA review processes.**

Offshore avian resources are discussed in Section 7.3. The Proponent is currently finalizing its Draft Bird and Bat Monitoring Framework for New England Wind, of which NE Wind 2 Connector is a part. In developing this framework, which is focused on the area of WTGs and ESPs in federal waters, the Proponent has met with federal and state agencies as well as other stakeholders. The draft framework is anticipated to be completed in Q1 of 2023, at which point it will be submitted to BOEM and USFWS for review and comment.

NHESP 07 **The Proponent should evaluate all alternatives to reduce or minimize impacts to avian species, for both onshore and offshore project components; this is particularly important relative to cumulative impacts from Vineyard Wind Connector 1, New England Wind Connector 1, New England Wind Connector 2 and their associated offshore components (Vineyard Wind 1, Park City Wind, and Commonwealth Wind), and potential future development within the Proponent's offshore Lease Areas.**

The Project has evaluated potential risks and identified mitigation measures to avoid and reduce impact to avian species. Potential impacts to avian species are described in Sections 7.2 and 7.3. The Proponent has developed a Draft Piping Plover and Least Tern Protection Plan for construction activities at the landfall site very similar to the Piping Plover Protection Plans that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector. The Draft Piping Plover and Least Tern Protection Plan is included as Attachment I. In addition, the Proponent remains committed to funding a coastal bird conservation program as discussed in Section 7.3.

NHESP 08 **The Division will not render a final decision until the MEPA review process and associated public and agency comment period is completed, and until all required MESA filing materials are submitted by the Proponent to the Division. As our MESA review is not complete, no alteration to the soil, surface, or vegetation and no work associated with the proposed project shall occur until the Division has made a final determination.**

The Proponent acknowledges this comment.

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1014 Fax (617) 626-1240
www.mass.gov/orgs/board-of-underwater-archaeological-resources

December 5, 2022

Bethany A. Card, Secretary
Executive Office of Energy and Environmental Affairs
Attention: Alexander Strysky, MEPA Unit (via email attachment)
100 Cambridge Street, Suite 1020
Boston, MA 02114

RE: Commonwealth Wind, LLC (a wholly owned subsidiary of Avangrid Renewables, LLC): EEA #16611 – New England Wind 2 Connector Project

Dear Secretary Card,

The staff of the Massachusetts Board of Underwater Archaeological Resources (MBUAR or the Board) has reviewed the above-referenced proposed project as detailed in the Environmental Notification Form (ENF) presented in the *Environmental Monitor* of October 7, 2022. We offer the following comments.

The New England Wind 2 Connector is comprised of those elements of the broader Commonwealth Wind project that are subject to state jurisdiction, including components proposed within both state waters and onshore. The project includes 4 major components, one of which – the installation of three 275-kilovolt high-voltage alternating current offshore export cables making landfall at the Dowses Beach Landfall Site in Barnstable – will impact the seafloor and, therefore, have the potential to displace, damage, or destroy underwater archaeological resources within state waters.

The proponent notes in the ENF that the proposed locations of the New England Wind 2 Connector Project's offshore export cables lie almost entirely within previously surveyed, mapped and characterized Offshore Export Cable Corridor(s) (OECC) (i.e., the Vineyard Wind 1 and New England Wind 1 OECC survey envelopes). Underwater archaeological identification survey was completed and mitigation investigations are currently being performed by the proponent's marine archaeological consultant within the Vineyard Wind 1 OECC under MBUAR Special Use Permit 17-003. Identification survey of the New England Wind 1 OECC is being performed by the proponent's marine archaeological consultant under MBUAR Special Use Permit 21-006, issued December 17, 2021, and extended until January 26, 2023. MBUAR awaits receipt of the final results from the mitigation investigations and from the New England Wind 1 OECC identification survey. Marine archaeological identification survey of the state waters portion of the Vineyard Wind Connector 1 Project OECC determined that the offshore component of the waters within and in the vicinity of the OECC possessed a high density of post-contact period shipwrecks and contained numerous areas of submerged paleolandscapes with archaeological sensitivity for potentially containing submerged Native American archaeological deposits.

In consideration of these results, as well as Nantucket Sound's status as a National Register of Historic Places-eligible Traditional Cultural Property (TCP) considered significant for the region's Wampanoag Tribes, the New England Wind 2 Connector Project's offshore export cables proposed location almost entirely within the previously surveyed, mapped, and characterized Vineyard Wind 1 OECC survey envelope, and MBUAR's preliminary review of its files and secondary literature sources to identify known and potential underwater archaeological resources within the proposed project area, MBUAR concludes that the New England Wind 2 Connector Project area may be generally archaeologically sensitive for both pre-contact period and post-contact period (principally shipwrecks) underwater archaeological resources. MBAUR 01

Under Massachusetts General Laws Chapter 6, sections 179-180, and Chapter 91, section 63, the MBUAR is charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. No person may remove, displace, damage, or destroy any underwater archaeological resource except in conformity with permits issued by MBUAR. Generally, those resources are defined as abandoned property, artifacts, treasure troves, and shipwrecks that have remained unclaimed for over 100 years, exceed a value of $5,000, or are judged by MBUAR to be of historical value. The Commonwealth holds title to these resources and retains regulatory authority over their use. MBUAR's jurisdiction extends over the inland and coastal waters of the state.

Underwater archaeological resource identification surveys, site examinations, responses to unanticipated discoveries, and any mitigation activities conducted for the project within the Commonwealth's waters must conform to the MBUAR statute and regulations and published *Policy Guidance on Archaeological Investigations and Related Survey*

Standards for the Discovery of Underwater Archaeological Resources and *Policy Guidance for the Discovery of Unanticipated Archaeological Resources* and be conducted under an MBUAR Special Use Permit. MBAUR 02

The proponent should consult with the MBUAR to develop for MBUAR's review and comment a project-specific proposal, submitted as part of an MBUAR Special Use Permit application for the project, that provides for complete marine archaeological identification survey coverage for the entire state waters portion of the New England Wind 2 Connector Project's area of potential effect, in conformance with MBUAR statute, regulations, and policy guidance documents.

The Board appreciates the opportunity to provide these comments as part of the MEPA review process. Should you have any questions regarding this letter, please do not hesitate to contact me at the address above or by email at david.s.robinson@mass.gov.

Sincerely,

David S. Robinson
Director

/dsr

Cc: Brona Simon, MHC
Robert Boeri, Todd Callaghan, Lisa Engler, Rebecca Haney, Stephen McKenna, MCZM (via email attachment)
Bettina Washington, WTGH/A (via email attachment)
David Weeden, MWT (via email attachment)

MASSACHUSETTS BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES (MBUAR)

MBUAR 01 **MBUAR awaits receipt of the final results from the mitigation investigations and from the New England Wind 1 OECC identification survey. Marine archaeological identification survey of the state waters portion of the Vineyard Wind Connector 1 Project OECC determined that the offshore component of the waters within and in the vicinity of the OECC possessed a high density of post-contact period shipwrecks and contained numerous areas of submerged paleo landscapes with archaeological sensitivity for potentially containing submerged Native American archaeological deposits. In consideration of these results, as well as Nantucket Sound's status as a National Register of Historic Places-eligible Traditional Cultural Property (TCP) considered significant for the region's Wampanoag Tribes, the New England Wind 2 Connector Project's offshore export cables proposed location almost entirely within the previously surveyed, mapped, and characterized Vineyard Wind 1 OECC survey envelope, and MBUAR's preliminary review of its files and secondary literature sources to identify known and potential underwater archaeological resources within the proposed project area, MBUAR concludes that the New England Wind 2 Connector Project area may be generally archaeologically sensitive for both pre-contact period and post-contact period (principally shipwrecks) underwater archaeological resources.**

The marine archaeological resources assessments (MARA) completed for the Project are described in Section 9.2. Further, the Nantucket Sound TCP is discussed in Section 9.2.3.

MBUAR 02 **Underwater archaeological resource identification surveys, site examinations, responses to unanticipated discoveries, and any mitigation activities conducted for the project within the Commonwealth's waters must conform to the MBUAR statute and regulations and published Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources and Policy Guidance for the Discovery of Unanticipated Archaeological Resources and be conducted under an MBUAR Special Use Permit. The proponent should consult with the MBUAR to develop for MBUAR's review and comment a project-specific proposal, submitted as part of an MBUAR Special Use Permit application for the project, that provides for complete marine archaeological identification survey coverage for the entire state waters portion of the New England Wind 2 Connector Project's area of potential effect, in conformance with MBUAR statute, regulations, and policy guidance documents.**

The Proponent has had a consultation meeting with the MBUAR to discuss the Project and results of the MARA (see Section 9.2). The Proponent also prepared a state-waters-only MARA to facilitate the MBUAR's review of the Project. The Proponent will continue to consult with the MBUAR as part of the Section 106 process.

dcr
Massachusetts

November 29, 2022

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

Re: EEA#16611 – New England Wind 2 Connector (Barnstable) ENF

Dear Secretary Card:

The Department of Conservation and Recreation ("DCR" or "the Department") is pleased to submit the following comments in response to the Environmental Notification Form ("ENF") filed by Commonwealth Wind, LLC (the "Proponent") for the New England Wind 2 Connector (the "Project").

The Proponent proposes to install three new cables that will connect offshore turbines to the proposed landfall site at Dowses Beach. An approximate 6.7-mile underground duct bank will be constructed to connect from the landfall site to a proposed new substation site off Oak Street in Barnstable.

The proposed substation site abuts DCR's West Barnstable Fire Tower, and the Proponent proposes shared use of the fire tower access road. Fire towers play an important role in forest fire detection for municipalities across the Commonwealth. The Barnstable Fire Tower is staffed during the fire season, from March through October, and tower operators work to detect wildland fires in the Upper Cape region. The Barnstable Fire Tower is the 'Key' tower for the Cape and the Islands, meaning that the tower operators facilitate communications between regional fire towers and municipal fire departments. Early detection of fires and the ability to pinpoint their exact locations significantly reduces the response time for local firefighters.

DCR is concerned about potential impacts of the substation and use of the fire tower access road on the day-to-day operations of the fire tower, which is 68 feet tall. The fire tower staff requires 360 degrees of unobstructed views in order to carry out their operations related to fire prevention and safety. DCR also is concerned about whether substation operation may adversely affect radio communications from the fire tower. Finally, DCR staff must be able to access the fire tower at all times, including during the Project construction phase. DCR seeks to better understand and address these issues and asks that the Proponent to respond to these concerns. DCR 01 DCR 02 DCR 03

The Proponent also should provide details as to the Proponent's rights to use the fire tower access road and, if such rights exist, that the Proponent provide a plan for use of the access road, both during and after construction. DCR notes that a Construction and Access Permit may be required for use of the fire tower access road. DCR 04

Thank you for the opportunity to comment on the EENF. If you have any questions regarding these comments, or to request additional information or coordination with DCR, please contact DCR District Fire Warden Josh Nigro at josh.nigro@mass.gov.

Sincerely,

Douglas Rice

Douglas J. Rice
Commissioner

cc: Josh Nigro, Priscilla Geigis, Patrice Kish, Tom LaRosa

MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION (DCR)

DCR 01 **DCR is concerned about potential impacts of the substation and use of the fire tower access road on the day-to-day operations of the fire tower, which is 68 feet tall. The fire tower staff requires 360 degrees of unobstructed views in order to carry out their operations related to fire prevention and safety.**

The DCR fire tower is discussed in Section 2.4.1. As described therein, based on the Zone of Visual Influence (ZVI) analysis provided as Attachment G, the proposed substation will not obstruct views from the existing fire tower.

DCR 02 **DCR also is concerned about whether substation operation may adversely affect radio communications from the fire tower.**

The DCR fire tower is discussed in Section 2.4.1. As described therein, the substation components/structures will have top elevations at or near the fire tower base, and well below the fire tower observation level where the telecom equipment is mounted. Based on this, the Barnstable Country Sheriff's Department and State Police do not anticipate any interference issues.

DCR 03 **Finally, DCR staff must be able to access the fire tower at all times, including during the Project construction phase. DCR seeks to better understand and address these issues and asks that the Proponent to respond to these concerns.**

The construction sequence will provide full access to the fire tower at all times. The initial road widening to 20-feet will allow for two-way traffic (and one-lane traffic during construction of the 345kV duct bank). Any necessary trenches can be immediately made passable with on-site road plates.

DCR 04 **The Proponent also should provide details as to the Proponent's rights to use the fire tower access road and, if such rights exist, that the Proponent provide a plan for use of the access road, both during and after construction. DCR notes that a Construction and Access Permit may be required for use of the fire tower access road.**

The fire tower access road is discussed in Section 2.4.1. Please also see the response to MEPA 52.

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BARNSTABLE, MASSACHUSETTS 02630

(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

CAPE COD COMMISSION

Via Email

November 29, 2022
Bethany A. Card, Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office, Alexander Strysky, MEPA Analyst
100 Cambridge Street, Suite 900, Boston, MA 02114

Re: Environmental Notification Form
EEA No. 16611 (Cape Cod Commission File No. 22029)
New England Wind 2 Connector, Barnstable

Dear Secretary Card:

Thank you for the opportunity to provide comment on the above-referenced ENF.

The New England Wind 2 Connector Project (the Project) requires an Environmental Impact Report (EIR) in some form and is therefore deemed a Development of Regional Impact (DRI) under § 12(i) of the Cape Cod Commission Act, c. 716 of the Acts of 1989. After MEPA review concludes, the Cape Cod Commission will conduct DRI review to assess the Project's consistency with the Cape Cod Regional Policy Plan (RPP) goals and objectives.

The Project consists of three High Voltage Alternating Current (HVAC) offshore export cables in a mapped Offshore Export Cable Corridor (OECC), onshore connection cables and transmission vaults at Dowses Beach in Barnstable, 6.7 miles of onshore transmission cable and ducts in existing roadway, a new substation off Oak Street in Barnstable, and an interconnection line from the substation to the existing higher voltage West Barnstable substation. When complete, the transmission cables will connect approximately 1200 Megawatts (MW) of renewable energy capacity to the ISO-NE electric grid, furthering Massachusetts' net-zero emissions goals.

The ENF indicates that various natural and built resources of Cape Cod are found in or near the Project work areas. Accordingly, Commission staff offer the following comments for the proponent to consider while preparing an EIR.

Offshore Transmission Cable Route

The offshore elements of the Project will generally utilize the same OECC as the Vineyard Wind 1 and New England Wind 1 Connector projects; however, a portion of the OECC associated with the New England Wind 2 Connector in Centerville Harbor was not previously reviewed as part of those projects. As noted in the ENF, using a substantially shared OECC should minimize environmental, operational, and commercial impacts. The proposed OECC appears to avoid and minimize impacts to sensitive ocean habitats, including North Atlantic Right Whale core habitat and eelgrass beds. The OECC also appears to minimize impacts to hard/complex bottom. Commission staff suggest the Proponent provide an assessment of potential impacts and mitigation measures for other species CCC 01
including fish, sea turtles, coastal waterbirds, sea ducks, and marine mammals in the EIR. The Proponent should also provide more details on the portion of the Project in Centerville Harbor that CCC 02
was not previously reviewed.

Landfall Site

The proposed landfall site at Dowses Beach is mapped rare species habitat for Piping Plover and Least Tern. The beach and surrounding nearshore environment are also mapped BioMap Core Habitat and Critical Natural Landscape. The Proponent should continue to consult with the Natural Heritage and Endangered Species Program while developing a protection plan to avoid and minimize adverse impacts to rare species and habitats. Horizontal directional drilling (HDD) at the CCC 03
landfall should prevent surface disruption of potential bird nesting areas. Construction should occur outside of bird nesting and foraging seasons to minimize adverse impacts on species that use habitat in the work area.

Dowses Beach also includes DEP-mapped wetlands; however, all work is proposed in existing paved areas or underground. The work area will be restored to pre-construction conditions upon completion. As proposed, the Project will not increase the amount of impervious surface at Dowses Beach. Construction best management practices including spill prevention measures, erosion controls, stockpile containment and management, and inspection and oversight are proposed in the ENF and should prevent adverse effects on wetland and water resources.

Project activities proposed within the floodplain include horizontal directional drilling at the landfall site and installation of underground transition vaults and the transmission cable duct bank system. Development within the floodplain is vulnerable to coastal storms and the effects of sea level rise. The Proponent should provide detailed information on how proposed methods and infrastructure CCC 04
are designed to address sea level rise and storms for the life of the Project. Staff notes portions of Dowses Beach Road and East Bay Road have been identified as highly vulnerable roads in the Cape Cod Commission's Low Lying Roads project. The Proponent should coordinate with the Town on any long-term planning for these road segments and proposed utility infrastructure underneath CCC 05
them.

Onshore Transmission Cable Route

The preferred and alternative land-based cable routes are located entirely within public roadway layouts or within the existing parking lot at Dowses Beach. Commission staff does not anticipate adverse impacts to natural resources from the proposed land installation routes presented, provided construction best management practices are followed. The ENF indicates an undetermined number of public shade trees may be impacted along the route. To the extent feasible, removal of public shade trees should be avoided, and any trees removed should be replaced. CCC 06

According to the ENF, some of the underground easements associated with certain routes cross land currently protected under Article 97 of the Massachusetts Constitution for conservation purposes. Potential crossing locations include the existing parking lot and beach at the landfall site, along Dowses Beach Road, for onshore substation site access, and for the grid interconnection route. Commission staff suggest the Proponent investigate any alternatives to avoid adverse impacts on Article 97 lands. If unavoidable, and as noted in the ENF, the Proponent will be required to seek legislative approval, and should provide mitigation for any loss of protected open space lands. CCC 07

The preferred route passes through Commission-mapped freshwater recharge areas, a Barnstable Wellhead Protection Overlay District, a Barnstable Groundwater Protection Overlay District, and is adjacent to potential public water supply areas. The transmission cable components of the Project will result in no net increase of impervious surface, consistent with RPP aquifer protection objectives. The proposed construction and erosion control measures should be sufficient to mitigate impacts to water resources along the transmission route.

The Project timeline is proposed to overlap with the Town of Barnstable's sewer installation plan, Phases 1 and 2. Commission staff recommend continued collaboration with the Town to ensure overlap of road construction to reduce construction related impacts to the community and resources. Construction period traffic management strategies for all modes of transportation should be detailed in subsequent submissions. Temporary traffic control plans should be prepared for the affected roadways, including intersections of major road crossings. Continued discussions with the Town of Barnstable and MassDOT are encouraged for further coordination on future roadway and infrastructure projects that may coincide with the Project. CCC 08

Both the preferred and alternate routes for onshore cable pass through National Register historic districts, adjacent to inventoried historic structures, and into a portion of the Old Kings Highway Historic District. The high number of historic buildings along the preferred route raises concerns about potential impacts to both above ground resources and to archaeological resources in their proximity. Staff suggest the Proponent carefully examine the portions of the route adjacent to historic resources to ensure construction can occur without negative impact. The Proponent and their archaeology consultant should continue consulting with Massachusetts Historical Commission and Tribal Historic Preservation Officers to identify potential impacts to cultural resources and appropriate mitigation. CCC 09

Onshore Substation

The proposed new substation in Barnstable is on an approximately 15.2-acre undeveloped wooded upland site, most of which would need to be cleared and graded. The parcel is within the Barnstable Aquifer Protection Overlay District and adjacent to protected open space. While the location is relatively close to the existing West Barnstable substation where the project proposes to interconnect, construction of the new substation will result in permanent loss of natural forest and increase impervious surface by 1.2 acres.

Staff suggest the Proponent continue to explore alternative locations for the new substation where there is existing disturbance or development. The EIR should provide more detailed substation design plans, including the low impact development stormwater techniques cited in the ENF, the capacity of those systems, necessary grading, and alternative designs and locations considered. CCC 10 CCC 11

Thank you for the opportunity to provide comments on the above-referenced ENF. Commission staff are available to answer any questions you have about these comments.

Sincerely,

Kristy Senatori

Kristy Senatori
Executive Director

Cc: Project File
via email-
Marc Bergeron, Epsilon Associates
Mark Ells, Barnstable Town Manager
Cape Cod Commission Barnstable Representative
Cape Cod Commission Chair
Cape Cod Commission Committee on Planning and Regulation Chair

CAPE COD COMMISSION (CCC)

CCC 01 **Commission staff suggest the Proponent provide an assessment of potential impacts and mitigation measures for other species including fish, sea turtles, coastal waterbirds, sea ducks, and marine mammals in the EIR.**

Section 7 discusses fish and fisheries resources, offshore avian resources, marine mammals, and sea turtles.

CCC 02 **The Proponent should also provide more details on the portion of the Project in Centerville Harbor that was not previously reviewed.**

The description of the OECC provided in Section 2.1.3 and the detailed map sets provided as Attachments H1 and H2 include the OECC spur to the landfall site, which is the only difference in the OECC between NE Wind 2 Connector and NE Wind 1 Connector.

CCC 03 **The proposed landfall site at Dowses Beach is mapped rare species habitat for Piping Plover and Least Tern. The beach and surrounding nearshore environment are also mapped BioMap Core Habitat and Critical Natural Landscape. The Proponent should continue to consult with the Natural Heritage and Endangered Species Program while developing a protection plan to avoid and minimize adverse impacts to rare species and habitats. Horizontal directional drilling (HDD) at the landfall should prevent surface disruption of potential bird nesting areas. Construction should occur outside of bird nesting and foraging seasons to minimize adverse impacts on species that use habitat in the work area.**

Rare species and mapped habitat are discussed in Section 7.2. The Proponent has developed a draft Piping Plover and Least Tern Protection Plan (PP&LTPP, see Attachment I) for construction activities at the landfall site very similar to the Piping Plover Protection Plans (PPPPs) that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector; NHESP issued no take determinations for the Vineyard Wind Connector and NE Wind 1 Connector that relied in part on the PPPPs.

CCC 04 **Project activities proposed within the floodplain include horizontal directional drilling at the landfall site and installation of underground transition vaults and the transmission cable duct bank system. Development within the floodplain is vulnerable to coastal storms and the effects of sea level rise. The Proponent should provide detailed information on how proposed methods and infrastructure are designed to address sea level rise and storms for the life of the Project.**

Section 10.1.3 provides a description of predicted flooding and erosion associated with future sea level rise combined with major storm events (see Attachment Q for the technical report). Section 10.1 discusses climate change resiliency and sustainability. As described in Section 10.1, Project engineers are designing the proposed duct bank, transition joint bay, and culvert crossing to withstand the forces in these modeled scenarios, and such design considerations may include using reinforced structural concrete, anchoring the infrastructure in place, and/or lowering the infrastructure below the modeled erosion level. The Proponent will consult with state and federal agencies as well as the Town of Barnstable about the design measures that could be incorporated to ensure the Project infrastructure is resilient under these modeled conditions.

CCC 05 **Staff notes portions of Dowses Beach Road and East Bay Road have been identified as highly vulnerable roads in the Cape Cod Commission's Low Lying Roads project. Dowses Beach Road and East Bay Road have been identified as highly vulnerable roads in the Cape Cod Commission's Low Lying Roads project. The Proponent should coordinate with the Town on any long-term planning for these road segments and proposed utility infrastructure underneath them.**

The Proponent is actively coordinating Project design with the Town. Further design development and refinement will consider the Town's long-term road and utility infrastructure planning.

CCC 06 **The ENF indicates an undetermined number of public shade trees may be impacted along the route. To the extent feasible, removal of public shade trees should be avoided, and any trees removed should be replaced.**

To the extent practicable, removal of public shade trees will be avoided and minimized. As described in Section 12.3.7, a preliminary inventory of public shade trees along the onshore transmission route has been conducted. The Proponent will meet with the Town of Barnstable Tree Warden and/or MassDOT to confirm the location and condition of trees along the onshore duct bank route relative to construction work areas. Prior to the trimming or removal of any shade trees, a valid work permit will be obtained from the Barnstable tree warden, municipal planning board, and MassDOT. The Proponent will work with the tree warden and MassDOT to identify appropriate mitigation.

CCC 07 **According to the ENF, some of the underground easements associated with certain routes cross land currently protected under Article 97 of the Massachusetts Constitution for conservation purposes. Potential crossing locations include the existing parking lot and beach at the landfall site, along Dowses Beach Road, for onshore substation site access, and for the grid interconnection route. Commission staff suggest the Proponent investigate any alternatives to avoid adverse impacts on Article 97 lands. If unavoidable, and as noted in the ENF, the Proponent will be required to seek legislative approval, and should provide mitigation for any loss of protected open space lands.**

Article 97-protected parcels are described in Section 2.7. An extensive alternatives analysis is provided in Section 4.

CCC 08 **The Project timeline is proposed to overlap with the Town of Barnstable's sewer installation plan, Phases 1 and 2. Commission staff recommend continued collaboration with the Town to ensure overlap of road construction to reduce construction related impacts to the community and resources. Construction period traffic management strategies for all modes of transportation should be detailed in subsequent submissions. Temporary traffic control plans should be prepared for the affected roadways, including intersections of major road crossings. Continued discussions with the Town of Barnstable and MassDOT are encouraged for further coordination on future roadway and infrastructure projects that may coincide with the Project.**

The Proponent intends to continue to collaborate with the Town to minimize construction-related impacts through use of construction-related BMPs described in Section 12.5. Draft Traffic Management Plans for the Preferred Route are included in Attachment C1. 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 for work on roadways under MassDOT jurisdiction. The TMP will be a living document such that any unanticipated change in construction location, timing, or method previously identified will result in revision of the TMP and approval by the appropriate authorities before any construction changes are implemented.

CCC 09 **Both the preferred and alternate routes for onshore cable pass through National Register historic districts, adjacent to inventoried historic structures, and into a portion of the Old Kings Highway Historic District. The high number of historic buildings along the preferred route raises concerns about potential impacts to both above ground resources and to archaeological resources in their proximity. Staff suggest the Proponent carefully examine the portions of the route adjacent to historic resources to ensure construction can occur without negative impact. The Proponent and their archaeology consultant should continue consulting with Massachusetts Historical Commission and Tribal Historic Preservation Officers to identify potential impacts to cultural resources and appropriate mitigation.**

Historic and archaeological resources are discussed in Section 9. The Proponent continues to consult with MHC and Tribes through the Section 106 process directed by BOEM.

CCC 10 **Staff suggest the Proponent continue to explore alternative locations for the new substation where there is existing disturbance or development.**

As described in Section 4.0, the Proponent has performed an extensive alternatives analysis for all elements of the proposed Project. Section 4.6 specifically addresses alternative substation sites. For a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this analysis.

CCC 11 **The EIR should provide more detailed substation design plans, including the low impact development stormwater techniques cited in the ENF, the capacity of those systems, necessary grading, and alternative designs and locations considered.**

The proposed substation is described in Section 2.4, and accompanying engineering plans are provided in Attachment C2. Section 2.4.3 specifically discusses stormwater at the proposed substation site, and a Draft Stormwater Management Report is provided in Attachment F.

TOWN OF BARNSTABLE

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October 19, 2022

VIA Email: mepa@mass.gov

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:

On behalf of Barnstable Town Manager, Mark S. Ells, this is to express the Town's concurrence with Commonwealth Wind's request for a 30 day extension of the comment period for its ENF filing and to independently ask for the same extension of time. TOB1 01

Given the complexities, size, and environmental considerations attendant to the project, and the time necessary to have as much internal and public input as possible, we believe that the interests of all parties and agencies will be well-served by such an extension.

Sincerely,

Charles S. McLaughlin, Jr.
Senior Counsel

CSM/mf

cc: Mark S. Ells, Town Manager

TOWN OF BARNSTABLE, OCTOBER 19, 2022 (TOB1)

TOB1 01 **On behalf of Barnstable Town Manager, Mark S. Ells, this is to express the Town's concurrence with Commonwealth Wind's request for a 30 day extension of the comment period for its ENF filing and to independently ask for the same extension of time. Given the complexities, size, and environmental considerations attendant to the project, and the time necessary to have as much internal and public input as possible, we believe that the interests of all parties and agencies will be well-served by such an extension.**

The Proponent acknowledges this position.

TOWN OF BARNSTABLE

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November 28, 2022

SENT VIA ELECTRONIC MAIL AND US PRIORITY MAIL
Alexander.strysky@mass.gov
mepa@mass.gov

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) EEA #16611

Dear Secretary Card:

The Town of Barnstable offers the following comments:

I. Executive Summary:

The Town's comments below reflect several primary concerns.

First, the Town wishes to seek assurance that Commonwealth Wind cables cannot ever be accessed by a wind developer seeking to develop a wind farm in Nantucket Sound. TOB2 01

Second, Town officials are very cognizant of the fact that the Dowse's causeway is proposed as the only, and highly exposed, cable connection to the mainland. The proponent carries a very high burden to convince regulators that the culvert, the proposed concrete conduits atop the causeway, and the very causeway itself can successfully survive future storm events. It seems clear to the Town that the very size of the conduits will add considerable expenses for sewer and other utility installation, maintenance, and replacement along the proposed routes, and the Town should not bear those expenses during and after the project's useful life. TOB2 02 TOB2 03

Third, the proposed substation and expansion of the existing Eversource substation pose significant risks to groundwater because of the presence of highly toxic dielectric fluids and other hydrocarbon-based liquids that, if released to our sole source aquifer perhaps only 50' or less below the substations, would cause irreparable harm to our public water supplies. All of these risks have been thoroughly addressed in the two Host Community Agreements between the Town and Vineyard Wind and between the Town and Park City Wind executed to date. A third HCA for this project has not been negotiated and, regardless, the aquifer protections agreed to in those agreements should, as a matter of course, be incorporated into any and all relevant permits as a matter of vital public policy. The standards are industry leading and should not be left out of permits in the hope that an HCA will be successfully executed. TOB2 04

Fourth, and certainly not the last concern, is that the proposed routes for upland cable will pass through several Zone I and Zone II Wellhead Protection areas. Again, groundwater protection is one of our highest priorities. The closest possible examination of these facts is required to fashion alternatives that offer the highest level of protection to our water resources. TOB2 05

The Town hopes that the Secretary's MEPA Certificate will indicate that the scoping tasks represent the minimum, and not the exclusive, areas to be examined by all involved agencies. The project is very large, the challenges many, and the resolutions complicated. As newly discovered issues arise or are identified, the Secretary should encourage all agencies not to be unduly restrictive in their inquiry and willingness to explore thoroughly all issues responsibly raised by the parties during permitting proceedings.

The Town's officials look forward to a proactive and creative exchange of ideas that will bring this important project to life if consistent sound environmental practice and public health, safety, and welfare considerations.

II. <u>General comments related to specific ENF sections:</u>

The ENF repeatedly refers to the project site focusing on the substation but the "project site" includes a beach landing, on shore cable routing, new substation and improvements to an existing substation. It is unclear whether Avangrid's answers of "yes" or "no" to ENF standard questions are for the substation or for the "entire project". The Town's comments and questions assume that the ENF is for the entire project. TOB2 06

The ENF suggests that the commencement date for the project will be 2025. In light of Avangrid's recent announcement seeking to re-negotiate Power Purchase Agreements while asserting that the project is uneconomic without new PPA's, is 2025 an accurate target commencement date in order to successfully coordinate the Town's sewer and utility installations with cable installation? TOB2 07

On page 8 of the ENF, the term "off season" is used. For clarity, does this term refer to the "summer season" or to the interim presence of rare and endangered species? TOB2 08

On page 9, Table 2, there is discussion of the Dowse's Beach access road. It has a trenchless crossing to address concerns about storm surge and impacts to sensitive resource areas. There appears to be little to no analysis of this highly vulnerable location to high velocity and storm surge events and how the proposed construction atop the causeway could negatively affect the area's resources. TOB2 09

On page 9, does the single core cable specification reflect of the modifications that needed to be made to the Phase 1 and 2 cables specifications relative to municipal, district, and private utilities regarding adequate lateral separation and insulation requirements? TOB2 10

On page 10, the new substation is proposed for an area in a residential zone and within an aquifer protection overlay district. The EIR must address the impacts of the proposed substation on these protected interests. An alternatives analysis should also be ordered. TOB2 11 TOB2 12

On page 11, are the Oak Street substation and the new substation containment systems going to reflect the specificity of the Phase 1 and 2 containment design requirements as set forth in the relevant Host Community Agreements as a condition of permitting, rather than relying on the yet-to-be-negotiated HCA for this project? TOB2 13

On page 12, is the stormwater management plan for the existing and new electrical substations adequate, given the sensitivity of the surrounding public water resources? TOB2 14

On page 14, the proponent has answered "No" to the Outstanding Resource Water "ORW" question. Given the proximity of Zone I and II resources, and the proposed upland cable route alternatives, both of which pierce both Zone I and II areas, the answer to the ORW question should be "yes". All research and analyses implicated by the correct affirmative answer should be pursued to completion and publicly reported in a timely fashion. TOB2 15

With reference to page 15, Dowse's Beach and the upland cable routes are regulated areas. The ENF seems to downplay the impacts of the project at Dowse's and along the upland cable route. The EIR scope needs to set out adequate environmental precautions to protect all sensitive receptors along the cable route/s. TOB2 16

On page 16, the Centerville River and East Bay are covered under the River Sanctuary act. The ENF suggests that these two waterways are not considered a Wild and Scenic River or a State-designated Scenic River? How are these two water bodies designated and what will be required if either body is so designated? TOB2 17

On page 19, Section II.E is answered "No". In light of clear Conservation Commission jurisdiction over some of these areas, zoning designating areas as GP, WP, and Zone I and II, should not the answer be "Yes"? Additionally, the Three Bays Watershed is a "Nitrogen Sensitive Area" given great scrutiny by MassDEP as part of the Town's approved Comprehensive Wastewater Management Plan. Finally, MassDEP is expected to drastically revise its septic system regulations in January 2023, likely resulting in the Three Bays Area being designated as special areas necessitating greatly intensified protection from TOB2 18 nitrogen and other pollutants. If the answer is "yes", what additional studies are indicated and how will such designations affect the proposed project?

On page 20, "Economic Development", how does Avangrid's announcement that the proposed project is uneconomic affect the project's permitting trajectory and the amount of time that the Town should await final commitments before it may reasonably pursue other potential projects seeking landfall in Barnstable? TOB2 19

On page 21, the proponent has answered questions 1 A & B in the negative or "unknown" category. Given the admitted presence of piping plovers and least terns in the immediate area, the answer should be "yes". All appropriate studies, avoidance techniques, and mitigation solutions should be publically vetted by experts as part of the DEIR and EIR. TOB2 20

On page 26, D.3 should be answered "yes" with respect to the velocity zone. The cable will be elevated atop the culvert and causeway and therefore not technically "buried". Additionally, in terms of consistency, the Town published in 2009 the "Coastal Resource Management Plan" covering the Three Bays Area, including Dowse's Beach and East Bay. Among the subjects addressed was "Erosion Control" and "Design Criteria". See section 7.3.2 – 7.3.2.2, page 7 – 9. Design criteria favored design height of hard structures to "allow sediment release during extreme storm events" and "Require 'rough face' surfaces with shallowest possible slope to displace wave energy and cut down on 'end effect' erosion without a footprint that encroaches on resource areas." Finally, the Plan called for "Construct[ion] of hard structures as far landward from MHW (mean high water) as possible." TOB2 21

The addition of concrete conduits atop the causeway does not reflect the proponent's concerns about rising sea level at the Dowse's site. Nor does the ENF acknowledge the high degree of vulnerability of the causeway and the proposed conduit which is located in a high velocity flood zone and a Category 1 (the worst) Hurricane Zone with expected flooding to elevation 15', compounded by massive wave heights atop the elevated sea surface. TOB2 22

Clearly the ENF does not address the obvious risks posed, nor does it attempt to find and seriously analyze numerous other locations that might actually assure uninterrupted delivery of green energy to the grid. This deficiency must be rectified with exhaustive alternatives analysis. TOB2 23

On page 29, there does not appear to be sufficient analysis to confidently determine whether eel grass beds will be adversely affected by dredging nor is there sufficient disclosure of the presence of eel grass, the quantities, and its relative health. Only with this information can one determine whether the seaward cable exit point is appropriate or should be moved to another location. TOB2 24

III. Specific Categories:

1. Protection of Nantucket Sound:

The Town embarked on years of litigation to ban Cape Wind from building its 130 wind towers in Nantucket Sound in close proximity (one-quarter of a mile in one measurement) to the only deep-water channel between Vineyard Sound and Nantucket. This route exposed the Sound and more than 400 miles of shoreline to the risk of a collision between fuel barges and the wind towers, an accident that would have released up to 1,000,000 gallons of petroleum products. Having in mind the devastation resulting from the Bouchard spill in Buzzards Bay which dumped "only" 100,000 gallons of fuel oil onto the beaches, the risk posed by the Cape Wind project was at least 10x greater.

Those risks were readily acknowledged by Vineyard Wind (VW)and by Park City Wind (PCW). The Host Community Agreements for both projects contain a ban on allowing their respective cable connections to the grid to be utilized by any developer who proposes to construct a wind farm in Nantucket Sound.

The public interests of the Nantucket Sound communities, the Commonwealth, and the parties have been well served by such a ban. That ban should be incorporated into any relevant permitting for this project as any failure to adopt that standard would be an outcome completely unacceptable to the Town. TOB2 25

2. **<u>Cable Landing area:</u>**
    a. An exhaustive study of alternative cable landing and mobilization areas is needed. TOB2 26
    b. For the Dowse's route, consider Horizontal Directional Drilling (HDD) landing and mobilization in vicinity of East Bay Road. TOB2 27
    c. For non-Dowse's routes, examine other locations including Centerville River, West Bay, etc. TOB2 28
    d. Consider splitting cable landings between PCW route and a westerly route. TOB2 29
    e. Consider joining CW and PCW routes. TOB2 30
    f. All landing and upland areas being considered are owned by the Town. Require a thorough examination of private property that would otherwise satisfy location criteria. TOB2 31

3. **<u>Causeway and Culvert Considerations:</u>**
    a. Causeway is in a high velocity "VE" flood plain zone. Expected flood elevation is at Elevation 15, per Flood Plain regulations. The Causeway is in a Category I (i.e., the worst) hurricane surge zone. TOB2 32
    b. An exhaustive study of the viability of both the causeway, the culvert, and the duct bank in Category 1, 2, and 3 hurricanes (or higher categories, if warranted) must be undertaken. TOB2 33
    c. Causeway, according to witnesses, is regularly submerged in lunar and storm conditions. TOB2 34
    d. DEP and/or CZM should identify "significant" erosion potential at the Dowse's site, especially in hurricane conditions. TOB2 35
    e. Construction atop a culvert poses a number of issues: TOB2 36
        a. Unclear what added weight of the conduit will do to integrity of culvert.

b. Unclear how normal maintenance, repair, and replacement of culvert would be accomplished if the conduit is built atop it, at what added costs, and at whose expense? TOB2 37
c. If the culvert fails under any circumstances, how would repairs/replacement be accomplished? TOB2 38
d. If the conduits on the causeway suffer a catastrophic failure under any circumstances, how would repairs/replacement be accomplished? TOB2 39
e. Will added water flow resistance be caused by the conduit atop the causeway? Would redirected water flow contribute to undermining the causeway and/or culvert, thereby causing washout and structural failure? Would existing height of water in either the abutting pond or in East Bay be altered temporarily or permanently in any circumstances and what would those effects be? TOB2 40
f. Require that the added bulk, weight, and resistance of conduit atop the causeway be fully modeled in a test tank to mimic hurricane conditions in order to predict erosion, culvert failure, or/or conduit failure. TOB2 41
g. Require at proponent's expense exhaustive peer review of all risks posed, and mitigation measures proposed, should the causeway be used for the proponent's cable. TOB2 42

4. **<u>Dowse's Beach Mobilization:</u>**
- Time lines
- Construction season
- Public access and Handicapped pier access; proponent's verbal assurances of uninterrupted beach and pier access appear at variance with proponent's visual aids that suggest complete denial of such access during construction. This conflict needs clarity and resolution. TOB2 43
- Surface restoration standards, interim and permanent

5. **<u>Upland Conduit Routes:</u>**
a. Roadways south of Main Street are quite narrow and the 9' width of the conduits, with associated trenching design, will close many roads. How long will road access be closed? What are plans for alternate routing during such closures? TOB2 44
b. For abutting residential and commercial properties, how will access be guaranteed? TOB2 45
c. Conduit's complete occupancy of many roadways during construction will require relocation of all existing utilities in most roadways. TOB2 46
   1. How will this be accomplished?
   2. How will abutters be assured of uninterrupted use of their homes and businesses?
   3. Is compensation proposed for abutters whose use of their properties is interrupted? How will this be compensated and guaranteed?
   4. What other abutter impacts may be expected?

5. The conduit occupation of the roadways will make installation, repair, and replacement of utilities considerably more expensive. It will also add costs to sewer installation. TOB2 47
6. How will these costs be determined?
7. Will the proponent be held responsible for such costs for the life of the conduit installation? TOB2 48
8. How can the payment of such costs be guaranteed? TOB2 49
9. What thermal impacts may be expected in the immediate vicinity of the conduits? How will those impacts affect adjoining utilities in the narrow roadways? Order peer review of these impacts and costs at proponent's expense. TOB2 50
10. Will the proponent be responsible for added costs to protect , repair, or replace such utilities negatively affected by thermal impact and/or other identifiable causes related to the project? TOB2 51

6. Road restoration:

a. Vineyard Wind specifications for road restoration to Barnstable and MassDOT standards were apparently not included or inadequately identified in its road construction contract, leading to conflicts, delays, and enormous consumption of Town DPW staff time. TOB2 52
b. How can these standards be assured via CW permitting and contract drafting and approvals?
c. Will Avangrid agree to include such resolutions into its PCW road construction contracts or must there be supplemental proceedings initiated for the PCW permits?

7. Coordinated Conduit and Sewer Construction

a. Ideally, conduit and sewer construction should be accomplished by the same contractor in order to minimize conflicts and accelerate installation. TOB2 53
b. How can this be accomplished via a single contract or via two contracts with the same contractor, one public and one private?

8. Environmental Considerations

a. Both the primary and noticed alternative routes call for stream crossings. However, the ENF provides little to no detail concerning potential negative impacts to protected wetlands interests, nor does it propose and analyzed construction and mitigation methods intended to avoid or mitigate such negative impacts. See ENF, page 24. Please provide this analysis. TOB2 54
b. Older Town studies of eelgrass presence and health identified relatively vibrant communities of eelgrass, especially in Nantucket Sound in the immediate vicinity of Dowse's Beach and extending westerly from there. As potential partial mitigation offered by this developer, are these identified areas capable of sustaining eelgrass that might be replanted in the vicinity, even a demonstration project? TOB2 55

c. Electromagnetic and thermal impacts need to be thoroughly investigated. Regular testing pre-commissioning annually post-construction with reporting to the Town should be required. TOB2 56

9. **Proximity to and Protection of Public Water Supply**

- The ENF appears to incorrectly state that neither the primary nor noticed alternative upland cable route will pass near public water supply lands. TOB2 57
- In fact, the primary route will transect two (2) Zone I Wellhead Protection Areas as well as two (2) extended incursions into a very large Zone II Wellhead Protection Areas.
- The noticed alternative route will transect one Zone 1 and two Zone II areas.
- The projected upland routes will also pass very closely to potential Public Water Supply Areas under consideration for future well development.
- What research, if any, has the proponent conducted to identify risks and to propose mitigation measures to protect these Zones? Indeed, will any incursion into a Zone I be tolerated?

10. **Protection of the Sole Source Aquifer:**

a. Vineyard Wind and Park City Wind Host Community Agreements ("HCA") provided extensive protocols to identify all hazardous materials and fluids at their substations. The Town collaborated with these two developers in the design of industry-leading containment designs to protect groundwater from releases of dangerous fluids, including dielectric cooling fluids, diesel oil, etc. Indeed, Eversource, to its credit, has now voluntarily undertaken to retrofit its Independence Park sub-station with such protective designs and equipment. TOB2 58

b. Will the agencies require such designs and construction in both the proponent's and Eversource's Oak Street substation, regardless of an HCA between the proponent and the Town?

c. Construction sites often experience spills of diesel fuel, hydraulic fluid releases from broken hoses, etc. What conditions will attach to permits to require immediate response equipment on-site to contain releases in the shortest possible time? What training and stockpiled equipment will be available onsite to insure this instant response? TOB2 59

d. Given the extreme sensitivity of the sole source receptor, will there be a permitting condition requiring an onsite, independent Licensed Site Professionals (LSP) at proponent's cost, present at all times during construction to identify and direct response to identified environmental threats? Will the LSP have authority identified in any relevant permit to order the immediate shut down of the project for good cause? TOB2 60

e. The sole source aquifer on the Cape is often not more than 35 to 50 feet below the surface. Will permitting require testing to determine that depth both at Dowse's Beach, and along the entire upland route? Are there any site-specific design and construction precautions that may be needed to protect the aquifer? TOB2 61

f. The aquifer likely extends seaward from the beach. Given the number of access wells that need to be inserted along the path of the HDD, and given the depths at which the cable is proposed to be installed, will the jet-plowed cable, the HDD drilling, and/or the HDD enabled cable intrude into the aquifer? TOB2 62

g. If so, there appears to be a high likelihood for saltwater intrusion into the aquifer. A full study of the possibility and consequences of such an intrusion and of the effects of the cable contact with the aquifer needs to be undertaken.

h. If the study shows risks of damage to the aquifer, what options are available, including raising the elevation of the cable, to prevent such damage?

11. Electrical Substations:

a. The Town requests that an alternatives analysis be provided for the new substation. It is unclear whether that study has been performed. It is a significant asset meriting a logical selection process to determine the most appropriate location. It appears that more than twelve acres will be clear cut to accommodate the new substation. What alternatives analysis has been conducted? TOB2 63

b. Will the proponent follow the hazardous product identification, containment, and emergency notification protocols adopted for Vineyard Wind and Park City Wind? TOB2 64

c. Will these protocols be incorporated as conditions of any and all relevant permits issued for this project? TOB2 65

d. Will Eversource be required to update its substation with such containment and other protocols developed for Vineyard Wind and Park City Wind substations and for Eversource's Independence Park substation? If so, will the proponent bear the costs of doing so? TOB2 66

12. Performance and Decommissioning Assurances:

a. It is vital to identify the milestones and performance obligations of each stage of the project. How will that be accomplished? What will be the consequences for failing to comply with such obligations? TOB2 67

b. Adequate bonding is deemed by the Town vital to assure completion of the project once begun and removal and restoration of town property once the proposed project ceases operations.

    a. How will the appropriate insured amount of each be calculated in present value?
    b. How will the insured amount be increased over the life of the project to accurately reflect cost growth over time?
    c. How will recovery of such amounts be guaranteed?
    d. Will the bond issuer be U.S.–based and licensed to do business in the Commonwealth?
    e. Will bond terms and conditions be subject to review and reasonable commercial approval by the Town prior to commencement of construction?

13. Economic Uncertainty:

a. Avangrid has asserted that its Park City and Commonwealth Wind projects are uneconomic in today's high interest rate and supply chain environment.

b. What detailed, independent expert evaluation and conditions can be ordered to assure that the project, once begun, will be completed? Will the DPU/EFSB be directed to complete this investigation? TOB2 68

c. Will appropriate irrevocable financial assurances be required before the construction commences? Would Avangrid be required to directly guarantee completion of this project, once begun?

14. Process:

a. In the event that the parties reach agreement on a Host Community Agreement ("HCA") for this project, will the HCA be incorporated in whole or in relevant part to any permits that may issue for this project, including from the DPU and EFSB? TOB2 69

b. Because the project is expected to be in commission for twenty-five years or more, requiring constant interaction between the proponent and the Town, will the DPU and/or EFSB order periodic compliance filings and hold open the opportunity for the parties to bring matters in dispute to either agency for resolution during and after the operational life of the project? TOB2 70

c. The Town expects to require the advice of independent experts on a potential variety of subjects now and over the life of the project. Will the proponent be required to pay the cost of such expert consultants and, if so, under what terms and conditions? TOB2 71

Thank you for your consideration of these comments.

Sincerely,

Charles S. McLaughlin, Jr. /mf

Charles S. McLaughlin, Jr.
Senior Counsel

TOWN OF BARNSTABLE, NOVEMBER 28, 2022 (TOB2)

TOB2 01 **First, the Town wishes to seek assurance that Commonwealth Wind cables cannot ever be accessed by a wind developer seeking to develop a wind farm in Nantucket Sound.**

Avangrid provides assurance that the proposed export cables will never be accessed by a wind developer seeking to develop a wind farm in Nantucket Sound. The current Project before MEPA does not contain elements that would allow generation sources from Nantucket Sound to interconnect or otherwise use the Project. The Proponent would document its assurance that it will not allow any generation from Nantucket Sound in a Host Community Agreement with the Town.

TOB2 02 **Second, Town officials are very cognizant of the fact that the Dowse's causeway is proposed as the only, and highly exposed, cable connection to the mainland. The proponent carries a very high burden to convince regulators that the culvert, the proposed concrete conduits atop the causeway, and the very causeway itself can successfully survive future storm events.**

The coastal erosion analysis summarized in Section 10.1 and the technical report provided as Attachment Q models erosion along the causeway from future sea level rise combined with major storm events. As described in Section 10.1, Project engineers are designing the proposed duct bank, transition joint bay, and culvert crossing to withstand the forces in these modeled scenarios, and such design considerations may include using reinforced structural concrete, anchoring the infrastructure in place, and/or lowering the infrastructure below the modeled erosion level. The Proponent will consult with state and federal agencies as well as the Town of Barnstable about the design measures that could be incorporated to ensure the Project infrastructure is resilient under these modeled conditions.

TOB2 03 **It seems clear to the Town that the very size of the conduits will add considerable expenses for sewer and other utility installation, maintenance, and replacement along the proposed routes, and the Town should not bear those expenses during and after the project's useful life.**

Preliminary engineering analysis has determined that co-locating the duct bank and sewer line is feasible. The Proponent intends to collaborate with the Town on the proposed design to incorporate feedback from the Town of Barnstable DPW as the design of the duct bank is advanced. With regard to the Vineyard Wind Connector and NE Wind 1 Connector projects, the Town determined that coordinating the sewer construction with duct bank installation would be financially beneficial and less disruptive to abutters than separate construction. Additional collaboration is needed, and the Proponent welcomes the opportunity to coordinate directly with the Town DPW.

TOB2 04 **Third, the proposed substation and expansion of the existing Eversource substation pose significant risks to groundwater because of the presence of highly toxic dielectric fluids and other hydrocarbon- based liquids that, if released to our sole source aquifer perhaps only 50' or less below the substations, would cause irreparable harm to our public water supplies. All of these risks have been thoroughly addressed in the two Host Community Agreements between the Town and Vineyard Wind and between the Town and Park City Wind executed to date. A third HCA for this project has not been negotiated and, regardless, the aquifer protections agreed to in those agreements should, as a matter of course, be incorporated into any and all relevant permits as a matter of vital public policy. The standards are industry leading and should not be left out of permits in the hope that an HCA will be successfully executed.**

Although the HCA between the Proponent and the Town has not yet been negotiated or executed, the Commonwealth Wind/NE Wind 2 Connector substation is being designed to the industry-leading standards committed to in the HCA for Park City Wind/NE Wind 1 Connector and as more fully described in Section 2.4. These design requirements were already incorporated into Project plans submitted as part of the ENF and are reflected in the engineering plans provided as Attachment C2. Beyond documenting these design elements in permitting and environmental review submissions, the Proponent would like to further document its commitment in a Host Community Agreement with the Town. Eversource will be designing and implementing any required changes to its West Barnstable substation.

TOB2 05 **Fourth, and certainly not the last concern, is that the proposed routes for upland cable will pass through several Zone I and Zone II Wellhead Protection areas. Again, groundwater protection is one of our highest priorities. The closest possible examination of these facts is required to fashion alternatives that offer the highest level of protection to our water resources.**

The Project will protect groundwater supply through the implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction to properly manage construction activities (e.g., dewatering procedures, erosion and sediment controls). As described in Section 12.10.4, a Spill Prevention, Control, and Countermeasures Plan (SPCC) will ensure hazardous materials (such as oils, greases, fuels, and equipment fluids) are stored properly and that contingency plans are in place for immediate response actions in the event of a release. Once the proposed duct bank is installed, backfilled, and repaved, there will be no Project-related sources of erosion or sedimentation. The cables will not contain any fluids, including any hazardous pollutants, since they will be solid dielectric cables.

TOB2 06 **The ENF repeatedly refers to the project site focusing on the substation but the "project site" includes a beach landing, on shore cable routing, new substation and improvements to an existing substation. It is unclear whether Avangrid's answers of "yes" or "no" to ENF standard questions are for the substation or for the "entire project". The Town's comments and questions assume that the ENF is for the entire project.**

The NE Wind 2 Connector Project undergoing MEPA review is comprised of all state-jurisdictional components of the Commonwealth Wind project (i.e., offshore export cables through state waters, cable landings in the paved parking lot at the landfall site, the onshore export cable route, the proposed new substation, and cables interconnecting the new substation with Eversource's West Barnstable Substation). The DEIR includes in-depth analyses of all state-jurisdictional components as well as a high-level overview of components of Commonwealth Wind in federal jurisdiction.

TOB2 07 **The ENF suggests that the commencement date for the project will be 2025. In light of Avangrid's recent announcement seeking to re-negotiate Power Purchase Agreements while asserting that the project is uneconomic without new PPA's, is 2025 an accurate target commencement date in order to successfully coordinate the Town's sewer and utility installations with cable installation?**

The Proponent is committed to maintaining the current schedule with the aim to deliver power to the Commonwealth in support of the Commonwealth's climate goals. At this time, the Proponent intends to begin construction in 2025. Project schedule is discussed in greater detail in Section 1.6.

TOB2 08 **On page 8 of the ENF, the term "off season" is used. For clarity, does this term refer to the "summer season" or to the interim presence of rare and endangered species?**

The term "off season" was used to refer to the non-summer months, when construction is proposed to occur. Unless otherwise authorized by the Town, construction will take place only between September 15 and May 15. Project schedule is discussed in Section 1.6. For clarity, the term "non-summer months" will be used in place of "off season" going forward.

TOB2 09 **On page 9, Table 2, there is discussion of the Dowse's Beach access road. It has a trenchless crossing to address concerns about storm surge and impacts to sensitive resource areas. There appears to be little to no analysis of this highly vulnerable location to high velocity and storm surge events and how the proposed construction atop the causeway could negatively affect the area's resources.**

The causeway is discussed in Section 2.3.5.1. As described therein, the duct bank conduits will be spaced in a single row underneath the pavement (12 wide by 1 deep) and will be contained in an independent structural span constructed of pre-cast concrete above the existing box culvert but beneath the pavement. Each concrete span plank will contain three voids to accommodate eight-inch-diameter PVC conduits. The concrete planks will sit on two concrete footings, which will be supported by piles driven to the necessary depth. A continuous metallic sheet in an inverted "U" shape will span the entire top of the duct bank and extend down both sides (see Attachment C6). The proposed use of metallic plate shielding would minimize above-ground magnetic field (MF) levels from this shallow duct bank (see Section 8), while the use of the structural span would avoid impacting the existing culvert.

In addition, Section 10.1 discusses climate change resiliency and sustainability, including modeling of episodic coastal storm erosion.

TOB2 10 **On page 9, does the single core cable specification reflect of the modifications that needed to be made to the Phase 1 and 2 cables specifications relative to municipal, district, and private utilities regarding adequate lateral separation and insulation requirements?**

The duct bank and construction methodologies shall be designed to minimize impacts to existing underground utilities to the maximum extent practicable. The Proponent will evaluate the municipal water system in collaboration with the Town water company and will provide adequate separation and/or insulation if needed. In addition, the Proponent is coordinating the duct bank design with the interfacing gas utility (National Grid). The Proponent will maintain a robust lessons-learned program to incorporate feedback from the Vineyard Wind Connector is and NE Wind 1 Connector projects.

TOB2 11 **On page 10, the new substation is proposed for an area in a residential zone and within an aquifer protection overlay district. The EIR must address the impacts of the proposed substation on these protected interests.**

The proposed substation, including the containment system, is described in Section 2.4. The substation's robust containment system is described in Section 2.4.2, and water resources at the proposed substation site are described in Section 6.1.3. As demonstrated in those sections, none of the substation equipment will contain polychlorinated biphenyls (PCBs), and the Proponent will provide full-volume (110% dielectric fluid volume) plus probable maximum precipitation rainwater event containment systems for major substation components using dielectric fluid (i.e., the main transformers, iron core reactors, and equipment containing dielectric fluid associated with the STATCOMS, as applicable). Please also see the response to TOB2 04.

TOB2 12 **An alternatives analysis should also be ordered.**

An extensive alternatives analysis is provided in Section 4.

TOB2 13 **On page 11, are the Oak Street substation and the new substation containment systems going to reflect the specificity of the Phase 1 and 2 containment design requirements as set forth in the relevant Host Community Agreements as a condition of permitting, rather than relying on the yet-to-be- negotiated HCA for this project?**

Although an HCA between the Proponent and the Town has yet to be negotiated and executed for the NE Wind 2 Connector, the design of substation containment has been informed by the designs for Vineyard Wind Connector and NE Wind 1 Connector (see Section 2.4.2). Among other things, the Proponent is proposing the same containment system measures for this new substation that were negotiated for the Park City Wind project as set forth in the Host Community Agreement for that project. In addition to documenting design elements and commitments in permitting and environmental review submissions, the Proponent would like to further document its commitments in a Host Community Agreement with the Town for this Project.

TOB2 14 **On page 12, is the stormwater management plan for the existing and new electrical substations adequate, given the sensitivity of the surrounding public water resources?**

The stormwater management design for the proposed Project substation meets or exceeds the Mass Stormwater Policy Standards as well as any applicable local requirements (see Section 2.4.3). In addition, it has been designed in consideration of climate change using the Resilient Massachusetts Action Team Tools and standards and considers future storm events with Extreme Precipitation estimates from the Northeast Regional Climate Center. Any upgrades to the existing West Barnstable Substation that trigger compliance with local or state stormwater standards will be designed by Eversource.

TOB2 15 **On page 14, the proponent has answered "No" to the Outstanding Resource Water "ORW" question. Given the proximity of Zone I and II resources, and the proposed upland cable route alternatives, both of which pierce both Zone I and II areas, the answer to the ORW question should be "yes". All research and analyses implicated by the correct affirmative answer should be pursued to completion and publicly reported in a timely fashion.**

The Project area includes Zone 1 and Zone II wellhead protection areas; onshore water supply protection areas are described in Section 6.1. Outstanding Resource Waters only include surface waters; there are no ORWs within the Project area, and the Project will not impact an ORW. As described in Section 6.1.4, the onshore export cable routes are primarily located along existing roadway layouts and involve standard inert materials such as concrete, PVC conduit, and solid dielectric cables. The solid dielectric cables do not contain any type of insulating fluids. The Project will employ proper erosion and sedimentation controls and implement construction best management practices as described in Section 12.5.

TOB2 16 **With reference to page 15, Dowse's Beach and the upland cable routes are regulated areas. The ENF seems to downplay the impacts of the project at Dowse's and along the upland cable route. The EIR scope needs to set out adequate environmental precautions to protect all sensitive receptors along the cable route/s.**

The DEIR includes detailed descriptions of Project elements (see Section 2.0) as well as potential impacts. Consistency with state and regional policies and plans is described in Section 3, and compliance with the WPA is discussed in Section 5.4.

TOB2 17 **On page 16, the Centerville River and East Bay are covered under the River Sanctuary act. The ENF suggests that these two waterways are not considered a Wild and Scenic River or a State-designated Scenic River? How are these two water bodies designated and what will be required if either body is so designated?**

The Centerville River and East Bay are not designated as wild and scenic rivers under the National Wild and Scenic Rivers System (established by the Wild and Scenic Rivers Act).

TOB2 18 **On page 19, Section 11.E ["Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction?"] is answered "No". In light of clear Conservation Commission jurisdiction over some of these areas, zoning designating areas as GP, WP, and Zone I and 11, should not the answer be "Yes"? Additionally, the Three Bays Watershed is a "Nitrogen Sensitive Area" given great scrutiny by MassDEP as part of the Town's approved Comprehensive Wastewater Management Plan. Finally, MassDEP is expected to drastically revise its septic system regulations in January 2023, likely resulting in the Three Bays Area being designated as special areas necessitating greatly intensified protection from nitrogen and other pollutants. If the answer is "yes", what additional studies are indicated and how will such designations affect the proposed project?**

The answer to Section II.E in the ENF was correct. To the Proponent's knowledge, no such restrictions are present. The Conservation Commission has jurisdiction over those areas protected under the state WPA and the Barnstable wetlands bylaw, which do not necessarily include areas designated in local zoning as GP, WP, and Zone I and Zone II. Moreover, even if the Conservation Commission has regulatory authority, that does not mean that the area is subject to a restriction. The Proponent agrees that the water quality in the Three Bays Area is impaired, particularly because of loadings from septic systems. It further understands that MassDEP has recently promulgated regulations aimed at reducing nitrogen loads for coastal estuaries and embayments on Cape Cod. The Project will help address targeting septic systems that are this issue by helping to expedite and lower the cost of sewering in Osterville, as explained in greater detail in Sections 1.9 and 6.1. Those regulations also will not require restrictions as described in question II.E of the ENF form.

TOB2 19 **On page 20, "Economic Development", how does Avangrid's announcement that the proposed project is uneconomic affect the project's permitting trajectory and the amount of time that the Town should await final commitments before it may reasonably pursue other potential projects seeking landfall in Barnstable?**

Avangrid has stated that the Project is uneconomic under the existing power purchase agreement. Avangrid intends to submit a new bid for the Project in an upcoming offshore wind solicitation, and anticipates learning whether its bid is successful in mid-2024. Avangrid maintains the commitments for economic development associated with Commonwealth Wind/NE Wind 2 Connector, and these will be further committed to in an HCA with the Town.

TOB2 20 **On page 21, the proponent has answered questions 1 A & B in the negative or "unknown" category. Given the admitted presence of piping plovers and least terns in the immediate area, the answer should be "yes". All appropriate studies, avoidance techniques, and mitigation solutions should be publicly vetted by experts as part of the DEIR and EIR.**

The Proponent has and will continue to consult with NHESP on rare species habitat within the Project area. As indicated in its comment letter on the ENF, NHESP has confirmed the presence of piping plover and least tern habitat in the vicinity of the paved parking lot at the landfall site. The Proponent met with staff from NHESP in December 2022 to discuss potential TOY restrictions for plover and least terns. Rare species habitat is discussed in Section 7.2, and a Draft Piping Plover & Least Term Protection Plan is provided as Attachment I.

TOB2 21 **On page 26, D.3 [“Is any part of the Project fill or structure in a velocity zone or regulatory floodplain”] should be answered "yes" with respect to the velocity zone. The cable will be elevated atop the culvert and causeway and therefore not technically "buried". Additionally, in terms of consistency, the Town published in 2009 the "Coastal Resource Management Plan" covering the Three Bays Area, including Dowse's Beach and East Bay. Among the subjects addressed was "Erosion Control" and "Design Criteria". See section 7.3.2 - 7.3.2.2, page 7 - 9. Design criteria favored design height of hard structures to "allow sediment release during extreme storm events" and "Require 'rough face' surfaces with shallowest possible slope to displace wave energy and cut down on 'end effect' erosion without a footprint that encroaches on resource areas." Finally, the Plan called for "Construct[ion] of hard structures as far landward from MHW (mean high water) as possible."**

A coastal resiliency analysis is provided in Section 10.1.3, and the Project’s coastal resiliency is discussed in Section 10.1. Use of the paved causeway leading to the landfall site, which would involve a buried concrete duct bank (not a duct bank elevated above the causeway) is described in Section 2.3.5.1.

Although a portion of the Project is located within a velocity zone at the landfall site parking lot and causeway, there are no aboveground structures or fills proposed, nor are there any proposed changes to the topography of the V-Zone. This includes the area where the buried duct bank will cross the convert that conducts tidal flow between East Bay and Phinneys Bay. Any required restoration of the road shoulders along the causeway will be completed in a manner that recognizes the importance of preventing erosion while maintaining a resilient roadway that provides valuable public access to the water.

TOB2 22 **The addition of concrete conduits atop the causeway does not reflect the proponent's concerns about rising sea level at the Dowse's site. Nor does the ENF acknowledge the high degree of vulnerability of the causeway and the proposed conduit which is located in a high velocity flood zone and a Category 1 (the worst) Hurricane Zone with expected flooding to elevation 15', compounded by massive wave heights atop the elevated sea surface.**

Please see the response to TOB2 21.

TOB2 23 **Clearly the ENF does not address the obvious risks posed, nor does it attempt to find and seriously analyze numerous other locations that might actually assure uninterrupted delivery of green energy to the grid. This deficiency must be rectified with exhaustive alternatives analysis.**

An extensive alternatives analysis is presented in Section 4.0, which shows that the proposed landfall site is the best location of many alternatives studied.

TOB2 24 **On page 29, there does not appear to be sufficient analysis to confidently determine whether eel grass beds will be adversely affected by dredging nor is there sufficient disclosure of the presence of eel grass, the quantities, and its relative health. Only with this information can one determine whether the seaward cable exit point is appropriate or should be moved to another location.**

As described in Section 3.4.3, there is no mapped eelgrass within the Project's OECC, and the Proponent’s marine surveys have not identified any eelgrass beds within the Project's OECC. In addition, the offshore-to-onshore transition will be accomplished using HDD, which will avoid direct impacts to the nearshore area.

TOB2 25 **The Town embarked on years of litigation to ban Cape Wind from building its 130 wind towers in Nantucket Sound in close proximity (one-quarter of a mile in one measurement) to the only deep-water channel between Vineyard Sound and Nantucket. This route exposed the Sound and more than 400 miles of shoreline to the risk of a collision between fuel barges and the wind towers, an accident that would have released up to 1,000,000 gallons of petroleum products. Having in mind the devastation resulting from the Bouchard spill in Buzzards Bay which dumped "only" 100,000 gallons of fuel oil onto the beaches, the risk posed by the Cape Wind project was at least 10x**

greater. Those risks were readily acknowledged by Vineyard Wind (VW) and by Park City Wind (PCW). The Host Community Agreements for both projects contain a ban on allowing their respective cable connections to the grid to be utilized by any developer who proposes to construct a wind farm in Nantucket Sound. The public interests of the Nantucket Sound communities, the Commonwealth, and the parties have been well served by such a ban. That ban should be incorporated into any relevant permitting for this project as any failure to adopt that standard would be an outcome completely unacceptable to the Town.

Avangrid understands the Town previously opposed the former Cape Wind project, which was to be located in Nantucket Sound. Avangrid assures the Town that any energy generating facility proposed to be developed in Nantucket Sound will not be allowed to connect to the Project's offshore export cables. We expect this assurance to be memorialized in the Third Host Community Agreement (HCA) with the Town, as it was in the Host Community Agreements for Vineyard Wind and Park City Wind.

TOB2 26 **An exhaustive study of alternative cable landing and mobilization areas is needed.**

An extensive alternatives analysis is provided in Section 4.0. Section 4.4 of that analysis specifically describes landfall sites considered for the Project.

TOB2 27 **For the Dowses route, consider Horizontal Directional Drilling (HDD) landing and mobilization in vicinity of East Bay Road.**

The Proponent evaluated the possibility of making cable landfall in the vicinity of East Bay Road, and determined that the available space is insufficient. A comprehensive alternatives analysis is provided in Section 4.

TOB2 28 **For non-Dowses routes, examine other locations including Centerville River, West Bay, etc.**

Section 4 contains an extensive alternatives analysis, including an array of landfall sites that were considered for the Project.

TOB2 29 **Consider splitting cable landings between PCW route and a westerly route.**

Two offshore export cables for the NE Wind 1 Connector will make landfall at Craigville Public Beach. Infrastructure associated with those cables will occupy a portion of the paved parking lot, limiting the space available for additional cable landings. Even more significantly, the NE Wind 1 Connector will utilize the most favorable onshore route from the Craigville Public Beach Landfall Site to the West Barnstable Substation, leaving inadequate onshore route options for a project such as NE Wind 2 Connector. Even if it would be feasible to split the cable landfalls for NE Wind 2 Connector between the landfall site at Craigville Public Beach and Dowses Beach, it would entail mobilization and temporary construction impacts at two locations instead of just one, and would also entail duct bank construction along two distinct routes rather than just one.

TOB2 30 **Consider joining CW and PCW routes.**

Please see the response to TOB2 29. An engineering analysis determined it would not be feasible to co-locate duct banks for the two projects due to their size. An extensive alternatives analysis is provided in Section 4.

TOB2 31 **All landing and upland areas being considered are owned by the Town. Require a thorough examination of private property that would otherwise satisfy location criteria.**

Section 4.4 describes landfall site alternatives for the proposed Project, some of which are privately owned.

TOB2 32 **Causeway is in a high velocity "VE" flood plain zone. Expected flood elevation is at Elevation 15, per Flood Plain regulations. The Causeway is in a Category I (i.e., the worst) hurricane surge zone.**

Nearly all of the south shore of Cape Cod is mapped as a VE flood zone, as illustrated in the Cape Cod Commission's Cape Cod Coastal Planner.[2] As a result, it would be extremely difficult for a water-dependent project such as the NE Wind 2 Connector, which needs to transition from offshore to onshore, to avoid this type of flood zone. Section 10.1.3 summarizes results from a coastal sediment transport modeling analysis conducted to predict flooding and erosion at the landfall site and adjacent causeway resulting from 2030, 2050, and 2070 sea level rise predictions combined with 50-, 100-, and 200-year coastal storms (see Attachment Q for the technical report). The analysis included predicted flooding and erosion at the causeway, culvert, and duct back. The Project's climate change resiliency is discussed in Section 10.1.

TOB2 33 **An exhaustive study of the viability of both the causeway, the culvert, and the duct bank in Category 1, 2, and 3 hurricanes {or higher categories, if warranted) must be undertaken.**

Please see the response to TOB2 32.

TOB2 34 **Causeway, according to witnesses, is regularly submerged in lunar and storm conditions.**

Please see the response to TOB2 32.

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2 https://www.capecodcoast.org

TOB2 35 **DEP and/or CZM should identify "significant" erosion potential at the Dowse's site, especially in hurricane conditions.**

Please see the response to TOB2 32.

TOB2 36 **Construction atop a culvert poses a number of issues: Unclear what added weight of the conduit will do to integrity of culvert.**

Construction along the causeway is described in Section 2.3.5.1. Based on feedback from the Town of Barnstable, the Project design was refined to include a buried independent structural span constructed of pre-cast concrete above the existing box culvert but beneath the pavement. The structure will function independently from the existing box culvert, allowing it to be maintained and/or replaced. In addition, the design will include a spare sleeve for the Town's future use, such as water service to the Dowses Beach bath house.

TOB2 37 **Construction atop a culvert poses a number of issues: Unclear how normal maintenance, repair, and replacement of culvert would be accomplished if the conduit is built atop it, at what added costs, and at whose expense?**

Please see the response to TOB2 36.

TOB2 38 **Construction atop a culvert poses a number of issues: If the culvert fails under any circumstances, how would repairs/replacement be accomplished?**

Please see the response to TOB2 36.

TOB2 39 **Construction atop a culvert poses a number of issues: If the conduits on the causeway suffer a catastrophic failure under any circumstances, how would repairs/replacement be accomplished?**

Please see the response to TOB2 36.

TOB2 40 **Construction atop a culvert poses a number of issues: Will added water flow resistance be caused by the conduit atop the causeway? Would redirected water flow contribute to undermining the causeway and/or culvert, thereby causing washout and structural failure? Would existing height of water in either the abutting pond or in East Bay be altered temporarily or permanently in any circumstances and what would those effects be?**

The duct bank installation will be independent of the culvert. Construction will include installation of hollow-core slabs that will be supported by pile caps and bridge over the culvert. This infrastructure will not be secured to the culvert thereby allowing culvert replacement if needed in the future. The duct bank installation will not impact water flow between East Bay and the abutting pond.

TOB2 41 **Construction atop a culvert poses a number of issues: Require that the added bulk, weight, and resistance of conduit atop the causeway be fully modeled in a test tank to mimic hurricane conditions in order to predict erosion, culvert failure, or/or conduit failure.**

Please see the response to TOB2 36.

TOB2 42 **Construction atop a culvert poses a number of issues: Require at proponent's expense exhaustive peer review of all risks posed, and mitigation measures proposed, should the causeway be used for the proponent's cable.**

Please see the response to TOB2 36.

TOB2 43 **Dowses Beach Mobilization:**

- **Time lines**
- **Construction season**
- **Public access and Handicapped pier access; proponent's verbal assurances of uninterrupted beach and pier access appear at variance with proponent's visual aids that suggest complete denial of such access during construction. This conflict needs clarity and resolution.**
- **Surface restoration standards, interim and permanent**

Construction activities at the landfall site are described in Sections 2.2 and 12.2.

TOB2 44 **Roadways south of Main Street are quite narrow and the 9' width of the conduits, with associated trenching design, will close many roads. How long will road access be closed? What are plans for alternate routing during such closures?**

Temporary construction-period traffic management is discussed in Section 12.6. Draft Traffic Management Plans for the Preferred Route are included in Attachment C1. 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 for work on roadways under MassDOT jurisdiction. The TMP will be a living document such that any unanticipated change in construction location, timing, or method previously identified will result in revision of the TMP and approval by the appropriate authorities before any construction changes are implemented.

TOB2 45 **Upland Conduit Routes: For abutting residential and commercial properties, how will access be guaranteed?**

Temporary construction-period traffic management, including maintaining access for residential and commercial properties, is discussed in Section 12.6. The Proponent and contractors will employ various measures to ensure residents and business owners can access their properties during construction. These measures include avoiding work during certain times of day and using steel plates to bridge trenches along driveways. The Proponent's outreach team and contractors will work with property owners to determine the best method of maintaining access in a given location.

TOB2 46 **Conduit's complete occupancy of many roadways during construction will require relocation of all existing utilities in most roadways.**

1. How will this be accomplished?

2. How will abutters be assured of uninterrupted use of their homes and businesses?

3. Is compensation proposed for abutters whose use of their properties is interrupted? How will this be compensated and guaranteed?

4. What other abutter impacts may be expected?

The Proponent's future design phases will investigate and determine impacts to existing utilities. The duct bank installation will seek to minimize impacts to existing underground utilities, and as described in the response to TOB2 45, the Proponent will provide residents and business owners with access to their properties throughout construction.

TOB2 47 **The conduit occupation of the roadways will make installation, repair, and replacement of utilities considerably more expensive. It will also add costs to sewer installation. How will these costs be determined?**

The Proponent will coordinate with the Town and utility companies to afford sufficient access for future activities regarding utilities. In addition, as described in Section 1.9, the Proponent also intends to coordinate with the Town on the planned installation of a municipal sewer line along segments of the onshore cable route, thereby reducing overall disruption and helping to defray millions of dollars in sewer installation costs that the Town would otherwise incur.

TOB2 48 **Will the proponent be held responsible for such costs for the life of the conduit installation?**

The Proponent is happy to discuss financial assurance issues with the Town, either in the context of the HCA negotiations or local permit conditions or both.

TOB2 49 **Upland Conduit Routes: How can the payment of such costs be guaranteed?**

Please see the response to TOB2 48.

TOB2 50 **What thermal impacts may be expected in the immediate vicinity of the conduits? How will those impacts affect adjoining utilities in the narrow roadways? Order peer review of these impacts and costs at proponent's expense.**

Please see the response to MEPA 43.

TOB2 51 **Will the proponent be responsible for added costs to protect, repair, or replace such utilities negatively affected by thermal impact and/or other identifiable causes related to the project?**

The Proponent is coordinating with other utilities and is evaluating thermal and other potential effects on other utilities. To the extent the Project's proposed facilities are determined to have an impact on other utilities, then the Proponent would protect, repair and/or replace such utilities as required.

TOB2 52 **Vineyard Wind specifications for road restoration to Barnstable and MassDOT standards were apparently not included or inadequately identified in its road construction contract, leading to conflicts, delays, and enormous consumption of Town DPW staff time. How can these standards be assured via CW permitting and contract drafting and approvals? Will Avangrid agree to include such resolutions into its PCW road construction contracts or must there be supplemental proceedings initiated for the PCW permits?**

The Proponent expects to engage in discussions with the Town on these issues during host community agreement discussions.

TOB2 53 **Ideally, conduit and sewer construction should be accomplished by the same contractor in order to minimize conflicts and accelerate installation. How can this be accomplished via a single contract or via two contracts with the same contractor, one public and one private?**

The Proponent is open to discussions about ways to minimize conflicts and expedite the work, and believes that this would be most productively addressed via direct discussion with the Town.

TOB2 54 **Both the primary and noticed alternative routes call for stream crossings. However, the ENF provides little to no detail concerning potential negative impacts to protected wetlands interests, nor does it propose and analyzed construction and mitigation methods intended to avoid or mitigate such negative impacts. See ENF, page 24. Please provide this analysis.**

Section 5 discusses wetland resources in detail, including those located along the onshore duct bank routes. The onshore routes will not result in any direct impacts to streams.

TOB2 55 **Older Town studies of eelgrass presence and health identified relatively vibrant communities of eelgrass, especially in Nantucket Sound in the immediate vicinity of Dowse's Beach and extending westerly from there. As potential partial mitigation offered by this developer, are these identified areas capable of sustaining eelgrass that might be replanted in the vicinity, even a demonstration project?**

As described in Section 2.1.3, extensive marine surveys have been performed within the OECC for NE Wind 2 Connector, and no eelgrass beds have been identified. Since the Project is not expected to have any impacts to eelgrass beds, mitigation is not required to meet any performance standards in state or local regulations; the Proponent would be willing to discuss eelgrass mitigation as part of HCA discussions.

TOB2 56 **Electromagnetic and thermal impacts need to be thoroughly investigated. Regular testing pre-commissioning annually post-construction with reporting to the Town should be required.**

Please see the response to MEPA 43 regarding magnetic fields and thermal considerations. The EMF modeling represents conservative magnetic field results based on a 100% capacity of the wind farm. The Proponent is happy to discuss the Town's preferences with respect to EMF during HCA negotiations.

TOB2 57 **Proximity to Protection of Public Water Supply**

- **The ENF appears to incorrectly state that neither the primary nor noticed alternative upland cable route will pass near public water supply lands.**
- **In fact, the primary route will transect two (2) Zone I Wellhead Protection Areas as well as two (2) extended incursions into a very large Zone II Wellhead Protection Areas.**
- **The noticed alternative route will transect one Zone 1 and two Zone II areas.**
- **The projected upland routes will also pass very closely to potential Public Water Supply Areas under consideration for future well development.**
- **What research, if any, has the proponent conducted to identify risks and to propose mitigation measures to protect these Zones? Indeed, will any incursion into a Zone I be tolerated?**

The ENF was correct with regard to water supply resources relative to onshore Project elements. Onshore water quality and water supply protection is discussed in Section 6.1, and water supply resources (including Zone I and II areas) in the Project vicinity are shown on Figure 6-1.

TOB2 58 **Vineyard Wind and Park City Wind Host Community Agreements ("HCA") provided extensive protocols to identify all hazardous materials and fluids at their substations. The Town collaborated with these two developers in the design of industry-leading containment designs to protect groundwater from releases of dangerous fluids, including dielectric cooling fluids, diesel oil, etc. Indeed, Eversource, to its credit, has now voluntarily undertaken to retrofit its Independence Park sub-station with such protective designs and equipment. Will the agencies require such designs and construction in both the proponent's and Eversource's Oak Street substation, regardless of an HCA between the proponent and the Town?**

Containment at the Proponent's proposed substation is described in Section 2.4.2 and is consistent with what was proposed for the NE Wind 1 Connector. Upgrades at Eversource's West Barnstable substation will be designed and carried out by Eversource.

TOB2 59 **Construction sites often experience spills of diesel fuel, hydraulic fluid releases from broken hoses, etc. What conditions will attach to permits to require immediate response equipment on-site to contain releases in the shortest possible time? What training and stockpiled equipment will be available onsite to insure this instant response?**

Procedures for maintaining and refueling construction equipment are described in Section 12.5.3, and hazardous materials storage is discussed in Section 12.5.4.

TOB2 60 **Given the extreme sensitivity of the sole source receptor, will there be a permitting condition requiring an onsite, independent Licensed Site Professionals (LSP) at proponent's cost, present at all times during construction to identify and direct response to identified environmental threats? Will the LSP have authority identified in any relevant permit to order the immediate shut down of the project for good cause?**

Construction-period water quality considerations are described in Section 12.10.

TOB2 61 **The sole source aquifer on the Cape is often not more than 35 to 50 feet below the surface. Will permitting require testing to determine that depth both at Dowse's Beach, and along the entire upland route? Are there any site-specific design and construction precautions that may be needed to protect the aquifer?**

Onshore water quality and water supply protection is discussed in Section 6.1. Construction at the landfall site relative to the drinking water aquifer is discussed in Section 6.1, and a technical memo on the subject is provided as Attachment M.

TOB2 62 **The aquifer likely extends seaward from the beach. Given the number of access wells that need to be inserted along the path of the HDD, and given the depths at which the cable is proposed to be installed, will the jet-plowed cable, the HDD drilling, and/or the HDD enabled cable intrude into the aquifer? If so, there appears to be a high likelihood for saltwater intrusion into the aquifer. A full study of the possibility and consequences of such an intrusion and of the effects of the cable contact with the aquifer needs to be undertaken. If the study shows risks of damage to the aquifer, what options are available, including raising the elevation of the cable, to prevent such damage?**

Construction at the landfall site relative to the drinking water aquifer is discussed in Section 6.1, and a technical memo on the subject is provided as Attachment M.

TOB2 63 **The Town requests that an alternatives analysis be provided for the new substation. It is unclear whether that study has been performed. It is a significant asset meriting a logical selection process to determine the most appropriate location. It appears that more than twelve acres will be clear cut to accommodate the new substation. What alternatives analysis has been conducted?**

An extensive alternatives analysis is provided in Section 4.0, and Section 4.6 specifically addresses substation sites.

TOB2 64 **Will the proponent follow the hazardous product identification, containment, and emergency notification protocols adopted for Vineyard Wind and Park City Wind?**

For construction of the NE Wind 2 Connector facilities, the Proponent will follow the hazardous product identification, containment, and emergency notification protocols adopted for the NE Wind 1 Connector.

TOB2 65 **[See previous comment]: Will these protocols be incorporated as conditions of any and all relevant permits issued for this project?**

The Proponent anticipates these protocols will be incorporated into a future HCA and may be incorporated into relevant permits.

TOB2 66 **Will Eversource be required to update its substation with such containment and other protocols developed for Vineyard Wind and Park City Wind substations and for Eversource's Independence Park substation? If so, will the proponent bear the costs of doing so?**

As described in the response to TOB2 58, upgrades at Eversource’s West Barnstable substation will be designed and carried out by Eversource.

TOB2 67 **Performance and Decommissioning Assurances:**

a. It is vital to identify the milestones and performance obligations of each stage of the project. How will that be accomplished? What will be the consequences for failing to comply with such obligations?

b. Adequate bonding is deemed by the Town vital to assure completion of the project once begun and removal and restoration of town property once the proposed project ceases operations.

a. How will the appropriate insured amount of each be calculated in present value?

b. How will the insured amount be increased over the life of the project to accurately reflect cost growth over time?

c. How will recovery of such amounts be guaranteed?

d. Will the bond issuer be U.5.-based and licensed to do business in the Commonwealth?

e. Will bond terms and conditions be subject to review and reasonable commercial approval by the Town prior to commencement of construction?

The schedule and major milestones for the Project will be dictated largely by power purchase agreements for the output from the Project and by conditions in permits. As part of HCA discussions, the Proponent would share its expectations regarding the schedule for onshore construction. The Proponent also would discuss financial assurance issues with the Town in the context of the HCA negotiations. In the HCA for NE Wind 1 Connector, the Town required Park City Wind, LLC to include the Town of Barnstable as an additional named insured. As discussed in Section 2.8 (Decommissioning), BOEM will require a financial assurance mechanism for decommissioning offshore components of Commonwealth Wind/NE Wind 2 Connector.

TOB2 68 **Economic Uncertainty**

a. Avangrid has asserted that its Park City and Commonwealth Wind projects are uneconomic in today's high interest rate and supply chain environment.

b. What detailed, independent expert evaluation and conditions can be ordered to assure that the project, once begun, will be completed? Will the DPU/EFSB be directed to complete this investigation?

c. Will appropriate irrevocable financial assurances be required before the construction commences? Would Avangrid be required to directly guarantee completion of this project, once begun?

This MEPA review pertains to the NE Wind 2 Connector, the state-jurisdictional components of transmission from Commonwealth Wind. The Proponent has stated that the current PPAs in place for Commonwealth Wind are at prices that no longer support financing of that project due to changes in global economic conditions. These challenges are being felt by all offshore wind projects in the U.S., and Commonwealth Wind remains one of the most, if not the most, cost effective offshore wind projects under development in the country. The Proponent expects that the Commonwealth Wind project will move forward under new or amended PPAs. Regardless, construction will only occur after obtaining third-party financing, and financing will only occur if the Commonwealth Wind project is economic. This financing process will entail months of due diligence by a syndicate of banks as well as an independent engineer, and all parties will need to be satisfied that the project can be built and be economically successful. As a result, statements regarding the ability to finance the Commonwealth Wind project under the current PPAs have no bearing on whether construction would begin but not be completed. Moreover, the Proponent expects that any future or amended PPAs would contain financial assurances. Other processes would also include financial commitments and assurances, for instance participation in the forward capacity auction entails potential for significant financial penalties.

TOB2 69 **In the event that the parties reach agreement on a Host Community Agreement ("HCA") for this project, will the HCA be incorporated in whole or in relevant part to any permits that may issue for this project, including from the DPU and EFSB?**

The Proponent expects that any HCA reached with the Town of Barnstable would be submitted to the Energy Facilities Siting Board (EFSB), the Cape Cod Commission (CCC), and (depending on timing) MEPA. The EFSB and the CCC will decide how to treat the HCA. Regardless of whether the HCA is directly incorporated into any permits, the HCA will be a contractual commitment of the Company and the Company will stand behind commitments made in an HCA.

TOB2 70 **Because the project is expected to be in commission for twenty-five years or more, requiring constant interaction between the proponent and the Town, will the DPU and/or EFSB order periodic compliance filings and hold open the opportunity for the parties to bring matters in dispute to either agency for resolution during and after the operational life of the project?**

The Proponent expects there will be frequent interactions with the Town throughout the life of the Project regardless of whether EFSB or DPU will impose formal consultation requirements (such a clause was not included in the Final Decision for the Vineyard Wind Connector). However, it is worth noting that the Final Decision for the Vineyard Wind Connector did require the Company or its successors in interest to "to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue." The EFSB's Final Decision for the Vineyard Wind Connector further provides that "the Company or its successors in interest are obligated to provide the Siting Board with sufficient information on changes to the proposed Project to enable the Siting Board to make these determinations." Periodic consultation provisions could be an element of the HCA, and the HCAs for the Vineyard Wind Connector and NE Wind 1 Connector both included dispute resolution procedures.

TOB2 71 **The Town expects to require the advice of independent experts on a potential variety of subjects now and over the life of the project. Will the proponent be required to pay the cost of such expert consultants and, if so, under what terms and conditions?**

The Proponent is open to direct discussions with the Town about this issue.

capecod
CHAMBER OF COMMERCE

November 29, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

RE: New England Wind 2 Connector (EEA No. 16611)

Dear Mr. Strysky,

I write to lend my voice in support of the Commonwealth Wind project, along with its grid interconnection in Barnstable (New England Wind 2 Connector). I thank you for your consideration of my letter and for soliciting public feedback regarding this project. CCPN 01

As I understand it, this is AVANGRID's third such offshore wind project underway in Massachusetts. Commonwealth Wind is not dissimilar to the previous projects that have proposed landings in Barnstable (Vineyard Wind 1 and Park City Wind) and in fact will use a similar route under the seabed, will use the same horizontal directional drilling installation process, and will connect to the energy grid in Barnstable via a cable landing under the Dowses Beach parking lot.

Grid-scale offshore wind development has been long overdue in Massachusetts. Commonwealth Wind will generate more than 1,200 megawatts of clean energy directly to New England's grid. This infusion of energy will help shield New Englanders from the volatility of the winter energy price surges. It is also a critical step towards meeting newly state mandated carbon emissions reduction benchmarks starting in 2030.

1,200 megawatts are enough to power 700,000 homes, a large chunk of our overall power need in the state. This is energy our grid desperately needs. Additionally, Commonwealth Wind will reduce greenhouse gas emissions equal to taking 460,000 internal combustion engine cars off the road each year. Without successfully bringing online offshore wind, Massachusetts will undoubtedly fail to meet its greenhouse gas reductions as well as other targeted clean energy goals.

I have complete confidence that AVANGRID will carefully do all the required due diligence pertaining to environmental safety and impacts regarding their landing under the Dowses Beach parking lot. Thus far they have proven to be actively seeking input from stakeholders and have assured the public through this filing that there will be no construction within the beach, dunes and marsh, and that all construction will be limited entirely to paved areas under the parking lot at Dowses Beach.

I urge you to approve New England Wind 2 Connector.

Sincerely,

Paul Niedzwiecki,
Chief Executive Officer

CAPE COD CHAMBER OF COMMERCE (CCPN)

CCPN 01 **I write to lend my voice in support of the Commonwealth Wind project, along with its grid interconnection in Barnstable (New England Wind 2 Connector). I thank you for your consideration of my letter and for soliciting public feedback regarding this project... I have complete confidence that AVANGRID will carefully do all the required due diligence pertaining to environmental safety and impacts regarding their landing under the Dowses Beach parking lot. Thus far they have proven to be actively seeking input from stakeholders and have assured the public through this filing that there will be no construction within the beach, dunes and marsh, and that all construction will be limited entirely to paved areas under the parking lot at Dowses Beach.**

The Proponent appreciates this support and looks forward to continue working with the community to minimize impacts while providing benefits. The Project is being designed in accordance with applicable regulations, and all practicable measures will be taken to minimize impacts. All construction and staging activities at the landfall site will occur within existing paved portions of the parking lot.

Senator Julian Cyr and state legislators representing
Cape Cod and Islands region - JCSR

The General Court of the Commonwealth of Massachusetts

CAPE COD & ISLANDS LEGISLATIVE DELEGATION

State House, Boston 02133-1053

★ ★ ★

Senator Julian Cyr · Senator Susan Moran

Representative Sarah K. Peake · Representative Kip Diggs · Representative David T. Vieira

Representative Timothy R. Whelan · Representative Steven G. Xiarhos · Representative Dylan Fernandes

November 28, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

Submitted via email

RE: New England Wind 2 Connector – Barnstable, Edgartown, Mashpee, and Nantucket (EEA No. 16611)

Dear Mr. Strysky,

Thank you for the opportunity to comment on the New England Wind 2 Connector filing with the Massachusetts Environmental Policy Act Office. As the state legislators representing the Cape Cod and Islands region, we write to express our strong support for both AVANGRID's third project, Commonwealth Wind, and its grid interconnection in Barnstable, New England Wind 2 Connector.

New England Wind 2 Connector shares many similarities to AVANGRID's first two projects (Vineyard Wind 1 Connector and New England Wind 1 Connector) which have been reviewed previously by the Commonwealth. These similarities include cables traversing a similar shared corridor below the seabed through state federal, Edgartown, Nantucket, and Barnstable waters, using the same installation methods, and making landfall and connecting to the electric grid in the Town of Barnstable.

The Commonwealth of Massachusetts has led the nation in the pursuit of offshore wind. AVANGRID's Commonwealth Wind project will continue this leadership by bringing more than 1,200 megawatts of renewable offshore wind energy to the New England electric grid and increasing the reliability and diversity of the New England energy supply. This renewably-sourced electricity will power over 750,000 homes in Massachusetts, reduce the region's reliance on natural gas and oil for electricity generation, and reduce year-round price volatility. The project will reduce greenhouse gas emissions by over 2.35 million US tons per year, the equivalent of taking over 460,000 internal combustion engine cars off the road. Further, the project is a critical component of meeting the Commonwealth's 2030 mandated carbon reduction benchmark under the 2021 Climate Roadmap Act.

At the local level, AVANGRID has successfully demonstrated experience performing the necessary due diligence in their environmental planning for landing the New England Wind Connector 2 within the Dowses Beach parking lot in Barnstable, MA. Construction work will be contained to only paved areas of the beach's public parking lot and causeway/driveway with no construction taking place within the public beach shoreline, in the dunes, in the marsh, or other environmentally sensitive ecosystems. The method of Horizontal Directional Drilling under the beach to avoid impacts to valuable coastal resources is proven; the same method is currently being used during construction for the Vineyard Wind 1 Connector project just a few miles east of Dowses Beach.

AVANGRID has fostered a robust relationship with the town of Barnstable, having signed host community agreements with the town for the Vineyard Wind 1 and Park City Wind projects totaling millions of dollars of commitment. The Barnstable Town Council recently voted unanimously to begin negotiations on a similar agreement for Commonwealth Wind/NE Wind 2 Connector. The project further benefits our region through AVANGRID's partnership with Vineyard Power which includes a community benefits agreement with millions of dollars of investment to support Martha's Vineyard's community goal of achieving 100% of its electricity from renewable sources and elimination of fossil fuels.

We urge your favorable review and approval of the New England Wind 2 Connector project. JCSR 01

Respectfully,

Julian Cyr
Assistant Majority Whip
State Senator
Cape & Islands

Susan L. Moran
State Senator
Plymouth and
Barnstable

Sarah K. Peake
Second Assistant Majority Leader
State Representative
4th Barnstable

Timothy R. Whelan
State Representative
1St Barnstable

Kip Diggs
State Representative
2nd Barnstable

David T. Vieira
State Representative
3rd Barnstable

Steven Xiarhos
State Representative
5th Barnstable

Dylan Fernandes
State Representative
Barnstable, Dukes, &
Nantucket

STATE SENATOR JULIAN CYR, STATE SENATOR SUSAN L. MORAN, STATE REPRESENTATIVE SARAH K. PEAKE, STATE REPRESENTATIVE TIMOTHY R. WHELAN, STATE REPRESENTATIVE KIP DIGGS, STATE REPRESENTATIVE DAVID T. VIEIRA, STATE REPRESENTATIVE STEVEN XIARHOS, STATE REPRESENTATIVE DYLAN FERNANDES (JCSR)

JCSR 01 **Thank you for the opportunity to comment on the New England Wind 2 Connector filing with the Massachusetts Environmental Policy Act Office. As the state legislators representing the Cape Cod and Islands region, we write to express our strong support for both AVANGRID's third project, Commonwealth Wind, and its grid interconnection in Barnstable, New England Wind 2 Connector…**

We urge your favorable review and approval of the New England Wind 2 Connector project.

The Proponent sincerely appreciates this strong support from Senator Cyr and State Representatives Moran, Peake, Whelan, Diggs, Vieira, Xiarhos, and Fernandes.

View Comment

Comment Details

EEA #/MEPA ID	First Name	Address Line 1	Organization
16611	John	P.O. 520	OVA/OBPA
Comments Submit Date	**Last Name**	**Address Line 2**	**Affiliation Description**
11-29-2022	Crow	--	Individual
Certificate Action Date	**Phone**	**State**	**Status**
11-29-2022	--	MASSACHUSETTS	Opened
Reviewer	**Email**	**Zip Code**	
Alexander Strysky-(857)408-6957, alexander.strysky@mass.gov	looney75@comcast.net	02655	

Comment Title or Subject

Topic: OVA/OBPA Comments New England Wind 2 Connector ENF

Comments

Segoe UI 10 pt Paragraph

Please read the full comments from the Osterville Village Association/Osterville Business and Professional Association that are attached.

The comments ask MEPA to:

1.Dismiss the ENF or suspend this review until Avangrid has renegotiated the contracts it says is required for the Commonwealth Wind Project to be viable.

2. Take the year delay Avangrid announced it needs, plus the time Avangrid told investors power contract renegotiations would take to assess and further the environmentally sensitive way for the Commonwealth to develop offshore wind.

3.Dismiss the Avangrid ENF without prejudice for its omission of material information and request a refiling when appropriate with complete and supportable recitation of full facts to enable MEPA to decision-make on an accurate record.

Thank you for reading the full comments sent with this limited summary of the action we request of MEPA.

Attachments

Osterville ENF comments Nov 29 2022 .pdf(null)

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November 29, 2022

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

Subject: OVA/OBPA Comments
New England Wind 2 Connector ENF

Dear Secretary Card:

On September 30, 2022, Commonwealth Wind, LLC, which is a subsidiary of Avangrid Renewables, LLC, ("Avangrid"), which is a subsidiary of Avangrid, Inc, which is a subsidiary of Iberdrola S.A., submitted an Environmental Notification Form (ENF) for the New England Wind 2 Connector (the "Project").

Commonwealth Wind is the third project Avangrid proposes to land at public beaches in, and run through the streets of, Barnstable. This is commonly referred to as the environmentally aggressive "Spaghetti Approach" to offshore wind development, in contrast to environmentally sensible, planned development.

If and when Avangrid executes the changes on many fronts its parent, Iberdrola, says it needs, including power contract renegotiations, because Commonwealth Wind is not economically viable, Avangrid proposes to 1) land the Project at Dowses Beach in Osterville, Massachusetts;[1] and 2) depart from its prior decision to avoid a business district and route its infrastructure through Osterville's dense Business District, community center and year-round residential areas.

We are writing to you today as President and Vice President of the Osterville Village Association ("OVA") and Chairman of the Osterville Business and Professional Association ("OBPA"). The OVA is a non-profit, non-partisan, volunteer civic association that helps year-round and seasonal residents work together in the best interest of the village. The OVA has an 81-year history of civic involvement and has many hundreds of members, making it one of the largest in the State of Massachusetts. The OBPA is a permanent standing subcommittee of the OVA representing the interests of Osterville business owners and professionals.

This comment asks MEPA to:

- Dismiss the ENF or suspend this review until Avangrid has renegotiated the contracts it says is required for the Commonwealth Wind Project to be viable

[1] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/AVANGRID%202022%20Long-Term%20Outlook%20Update%20%26%20Works.pdf?ver=1664913826222 page 25.

- Take the year delay Avangrid announced it needs, plus the time Avangrid told investors power contract renegotiations would take to assess and further the environmentally sensitive way for the Commonwealth to develop offshore wind
- Dismiss the Avangrid ENF without prejudice for its omission of material information and request a refiling when appropriate with complete and supportable recitation of full facts to enable MEPA to decision-make on an accurate record

I. Avangrid Has Represented to The Investment Community That Both Connecticut's Park City Wind and Massachusetts's Commonwealth Wind Power Purchase Agreements Must Be Renegotiated in Order For Commonwealth Wind To Be Viable; MEPA Should Dismiss Or Alternatively Suspend The ENF Review Until Such Time Avangrid Has Renegotiated Power Contracts

OVA 01

This should be a simple decision for your office.

On September 22, 2022, Avangrid's ultimate owner, Iberdrola, announced that it requires a one-year delay in the Project. Avangrid further explained to the investment community that the Commonwealth Wind project "numbers do not work."[2] Avangrid has repeatedly stated to the investment community that Commonwealth Wind is not viable, and that the company requires multiple power contract renegotiations to achieve economic viability.

Specifically, Avangrid explained that it:

- Seeks new investor partners for the Project and for Park City Wind, a key strategic initiative (Transcript, Long-Term Outlook Update, September 22, 2022, page 21)
- Does not have enough resources to do "everything it has on the table" (Transcript, Long-Term Outlook Update, September 22, 2022, page 25)
- Needs to renegotiate power purchase agreements with Massachusetts **and** Connecticut authorities (Transcript, Long-Term Outlook Update, September 22, 2022, page 19)
- Is exploring new turbines to improve the projects' business case (Transcript, Long-Term Outlook Update, September 22, 2022, page 28)

Iberdrola "thinks" it "should be able to put it on the right track" (Transcript, Long-Term Outlook Update, September 22, 2022, page 25). This is, presumably, after this moment in time that is, in the company's judgment, "not the right time to contract for certain things" (Transcript, Long-Term Outlook Update, September 22, 2022, page 25).

On October 26, 2022, multiple investor analysts pressed Iberdola for clarity about whether it required renegotiated power contracts to proceed with the Project. [3] Iberdrola was unequivocal in its answer:

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[2] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/AVANGRID%202022%20Long-Term%20Outlook%20Update%20%26%20Works.pdf?ver=1664913826222 page 25.

[3] https://seekingalpha.com/article/4549524-avangrid-inc-agr-q3-2022-earnings-call-Transcript

"Pedro Azagra
The answer is we need to -- those revisions in order to continue with the project. We just need that.
Julien Dumoulin-Smith
Yes. You need them to move forward, right? I'm hearing you, right.
Pedro Azagra
Yes. No doubt."[4]

Avangrid further told the investment community that its required renegotiation process will take about nine months.[5]

Power contract adequacy is central to Avangrid's ENF. The ENF at page 37 notes that Avangrid 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." The ENF explanation of Project Need and Benefits in Appendix A leads with a description of the power contracts. The ENF predates Avangrid's declaration that the power contracts to which it had agreed are no longer adequate to support the Project. A PPA that the company has announced unequivocally requires renegotiated pricing in order to move forward is not an operative PPA.

Request: MEPA should dismiss the ENF without prejudice until Avangrid has concluded the power contract renegotiations in Massachusetts and Connecticut Avangrid has stated it needs to make Commonwealth Wind and Park City Wind viable - "a full negotiation", according to company leaders.[6] In the alternative, MEPA should suspend the ENF until such time Avangrid completes the renegotiations it says are required for Commonwealth Wind to move forward.

MEPA should not countenance the variable messages Avangrid rolls out depending on its audience and need of the moment.

Avangrid is either straightforward 1) to investors when it confirms that its current contracts are not financially viable and must be renegotiated ***or*** 2) to Massachusetts agencies when it says it will move forward with Commonwealth Wind and that MEPA should expend taxpayer-funded employee time and public resources in reviewing the Project. The company is being straight with one or the other - not both. Is this the company MEPA wishes to trust to be straight with it about environmental implications, mitigation and management? Reading its ENF suggests the answer is MEPA should not.

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[4] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Avangrid%20Investors%20Highlights%20Oct%2026%202022%20.pdf?ver=1668965992347 Page 12.
[5] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Avangrid%20Investors%20Highlights%20Oct%2026%202022%20.pdf?ver=1668965992347 Page 10.
[6] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/AVANGRID%202022%20Long-Term%20Outlook%20Update%20%26%20Works.pdf?ver=1664913826222) page 31.

In Barnstable, Avangrid has explained to the public its desire to move ahead with environmentally disruptive *onshore part* of the Project despite telling investors that the Project *as a whole* is not economically viable. Avangrid said " …we have not delayed the construction schedule for onshore work, and meeting that schedule is vital for the project…" (email from Avangrid employee to OVA Board dated October 14, 2022), as if the on-shore component would move forward irrespective of the off-shore component. The Massachusetts Department of Public Utilities was the adult in the room in response to Avangrid's request to suspend review of the power contracts to which Avangrid recently agreed. MEPA needs to be the adult in the room to stop environmental disruption for a Project state electricity consumers would fund through a power purchase agreement with numbers that Avangrid says "do not work."

MEPA should require Avangrid to refile its ENF after it has executed the changes Avangrid says it needs for Commonwealth Wind to be viable - new investors, new power contracts, "a full negotiation." To do otherwise wastes taxpayers' funds that support MEPA staff time and wastes the communities' time and resources.

As reported in the *Providence Journal* on November 15th, 2022, Rhode Island is considering the suspension of another wind farm developer's application for transmission cable permits for the same reason - a lack of financial viability of its proposed project. The Rhode Island state agency recognized the fact that a lack of financial viability was a significant concern. The siting board chairman, Ronald Gerwatowski, stated, *"It is not reasonable and fair to those governmental agencies, including the EFSB, to spend time and resources evaluating an application for a project which may be hypothetical in nature due to an admission by the Applicant that the proposed project is not going to be financially viable."* [7] This is precisely the same as that faced by Massachusetts with respect to Avangrid and its non-viable Park City Wind and Commonwealth Wind projects.

II. MEPA Should Require a Full Assessment of Alternatives, Including the Lowest Environmental Impact Means To Connect Off-Shore Wind Facilities

OVA 02

Avangrid's proposed transmission pathway approach is commonly referred to as the environmentally aggressive "Spaghetti Approach" strewn across Cape Cod. It is apparently the most profitable development approach for Avangrid shareholders. It is not the right pathway for the environmental impact on the seabed and the shoreline. Nor is it the right pathway for Massachusetts consumers footing the bill.

The alternative analysis in the ENF is thin, inconsequential, and not meaningfully helpful to decision-makers. Avangrid should provide MEPA analysis about means to reduce the number of offshore platforms, cabling, seabed disturbance, and cables landing at the Massachusetts coast to reduce impacts on existing ocean uses and marine and coastal environments to the greatest practical extent.

[7] "Questions raised over offshore wind cable" by Alex Kuffner; November, 15, 2022, Providence Journal USA Today Network

If Avangrid is unwilling or unable, others should be afforded time to supplement the MEPA record accordingly. MEPA has ample time to pursue such analysis through an ENF suspension given Avangrid's need for a year and an unworkable power contract that is an underpinning of its filing.

Request: MEPA should require Avangrid to provide comparative analysis of alternatives that optimize off-shore and on-shore transmission necessary to integrate off-shore wind in a way that mitigates environmental impacts, and reduces overall consumers costs for generation, off-shore wind transmission, and onshore upgrades.[8] Requiring analysis to enable MEPA and others to assess means to mitigate environmental impacts of off-shore wind integration should be an easy call for MEPA, made even easier by Avangrid's conclusion that Commonwealth Wind is not economically viable, requires a year's delay and contract renegotiations to shift costs from Avangrid shareholders to Massachusetts consumers.

III. Avangrid's ENF Filing Is Replete with Material Omissions; MEPA Should Reject It, Or Independently Establish the Veracity Of Representations Of All Asserted Facts, Representations and Characterizations

Avangrid's ENF omits material information on a range of issues. The omissions are so material they amount to misleading information and cast a shadow over *all* ENF representations. A few examples illustrate the point.

- **Avangrid's ENF Omits its own 2020 *Less Preferable* Categorization of Dowses Beach**. In 2020, Avangrid categorized Dowses Beach as *Less Preferable* in relation to ***many*** other landing spots. This representation was in an Avangrid filing with the Energy Facility Siting Board in 2020.[9] That fact does not appear in its 2022 ENF filing. OVA 03

  Today, in local public forums, Avangrid repeatedly explains Dowses Beach *Less Preferable* categorization by stating it meant that in relation to the landing spots of its two other projects in Barnstable. This is not true. Avangrid's 2022 verbal explanation in local public forums when questioned about the *Less Preferable* categorization status does not align with Avangrid's own 2020 written assessment. Avangrid changes its story depending on its need and audience of the moment (as it does about the power contract and its ability to move forward). Avangrid's approach in this respect casts a pall over all of its ENF representations.

  In its 2020 Energy Facility Siting Board filing, Avangrid also did not include Dowses Beach in its "*Promising*" landing list. Avangrid categorized twelve *other* landing sites within, and outside of, Barnstable, as "*Promising*." Back in 2020, to the Energy Facility

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[8] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Transmission-Options-for-Offshore-Wind-Generat.pdf?ver=1668965992842; https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/20360_offshore_wind_transmission_-_an_analysis.pdf

[9] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Avangrid%20Analysis%20Volume%20I%20Dowses%20Not%20Preferab.pdf?ver=1664913826820 page 4-9.

Siting Board, Avangrid explained that Dowses Beach was not *"Promising"* "...due to potential impacts to environmental resources or poor egress (i.e., potentially inadequate road width, or routing through densely developed business districts or year-around residential areas)."[10] In 2020, Avangrid noted Dowses Beach has "less favorable egress" and "may require a bridge crossing."

What Avangrid said makes Dowses Beach a problem - poor egress and routing through densely developed business and year-round residential areas – was a matter of fact in 2020 and remains so in 2022.

The only thing that has changed since 2020 is Avangrid's advocacy. In its 2022 ENF, Avangrid has gone so far to recast the environmentally fragile egress to the parking lot at Dowses Beach as to make up a name for the delicate passage. According to the ENF, the fragile causeway is now an "onshore transmission route along Dowses Beach Road."[11] There is no such road. Avangrid's fabrication that the environmentally fragile causeway between East Bay and Phinney's Bay is a road and naming it underscores that the ENF puts advocacy over facts.

- **Avangrid's ENF Omits that its Shareholders' Preferred Route is the Village Business District, Community Center, and Dense Year-Round Residential Area.** In its ENF, Avangrid chose to leave out relevant and significant information about the company's preference to route its Project through Osterville's Main Street, its dense Business District and community center with dense housing. OVA 04

  In the ENF, Avangrid characterizes the difference between the two routes by saying that there are "more businesses" in its preferred route – straight through the Business District - than its alternative route. While Avangrid's characterization is true – busy and dense business centers have more businesses than non-business districts – Avangrid's comparison of the two routes so omits facts as to materially mislead MEPA.

  While it is generally unconstructive to assign motives, in this case the way Avangrid described the difference - more businesses in one than the other – can only be a deliberate intent to minimize the profound difference in routes and consequent impacts on public health, safety, traffic and serious adverse local economic impacts.

  The Business District is the center of Osterville's organized and informal village activities on a year-round basis. The village center is active all year long. The businesses and restaurants depend on patrons all year long, and the local community requires those businesses to remain viable.

  In Avangrid's 2020 filing with the Energy Facility Siting Board, the company

[10] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Avangrid%20Analysis%20Volume%20I%20Dowses%20Not%20Preferab.pdf?ver=1664913826820
[11] ENF page 2.

led its explanation of why it rejected landing at Kalmus Beach in Hyannis with concerns about business district impact: “First, an onshore route would have passed directly through downtown Hyannis, affecting many businesses in a high-traffic area.”[12] In 2022, Avangrid now *prefers* to adversely affect many businesses in a high-traffic area.

In addition to stores and restaurants, the Business District route includes Osterville’s only fire station, only public library (which holds itself out as a charging station for the community in power outages), only post office, only barber, only banks, only gas stations, only community playing fields, five religious facilities, and more. The potential for traffic congestion is exceptionally high.

The Business District route also has community health and safety implications. The only fire station in the village with ambulance service is on the Main Street Avangrid shareholders prefers to disrupt. It is the primary and quickest route for ambulances to go from Osterville to Cape Cod Hospital in Hyannis. Osterville’s public water supply, and a Watershed Protection District, is located on Avangrid’s preferred route as well.

At every level, Avangrid’s preferred route is the route to avoid.

Avangrid is aware of the Osterville Business and Professional Association’s (“OBPA”) express opposition to Avangrid landing power infrastructure at Dowses Beach, and opposition to running it through the Business District. Osterville businesses are emerging from the adverse economic impact of the pandemic and cannot withstand the optional business disruption Avangrid wishes to impose on them over the coming years.

Avangrid is also aware of the community sentiment expressed in standing room only meetings of the Osterville Village Association (OVA) and revealed in an OVA survey that showed Osterville residents opposed the landing at Dowses Beach (10:1). [13] The overwhelming majority of respondents who said if it did land at Dowses Beach, it should not be routed through the Business District.

Avangrid’s ENF filing identifying it prefers to disrupt Osterville’s Business District reflects its lack of concern about the local community, local business devastation, traffic impacts, access to services, and health and safety impacts. The way the ENF mutes the impact by saying only that the route has more businesses than the non-business route is materially misleading to MEPA and appalling to locals.

- **Avangrid blurs information about Project benefits to the affected community with distant geographic areas.** As just one example, on page 19 of the ENF, Avangrid notes the Town of Barnstable’s Comprehensive Plan includes the Town’s goals to promote sustainable development and infrastructure and encourage the growth of new economic OVA 05

[12] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Avangrid%20Analysis%20Volume%20I%20Dowses%20Not%20Preferab.pdf?ver=1668965992655 page 4-8.
[13] https://img1.wsimg.com/blobby/go/dd4fb773-a547-44d5-8b5f-115be9beea71/downloads/Survey%20Result%20.pdf?ver=1668965992422

sectors, such as marine and environmental technology and renewable energy that would increase employment opportunities. The ENF asserts that the Project supports economic development goals. In fact, the Project sends its jobs and economic development benefits to distant communities. On its Commonwealth Wind web site (https://www.commonwealthwind.com), Avangrid touts job creation and economic development implications off-Cape, around Brayton Point, Salem Harbor, and New Bedford. According to Avangrid's websites and public relations materials, Osterville, Barnstable, and Cape Cod are **not** among the communities to whom jobs and growth of new economic sector benefits will flow.

- **Avangrid's ENF omits that its Project will block access to the ADA Accessible Fishing Pier at Dowses Beach.** It is generally understood that Avangrid's desire to block access to the ADA Accessible Fishing Pier at Dowses Beach that services seniors and handicapped residents on a year-round basis will be challenged through local, state, and federal venues. That Avangrid's ENF fails to even mention its plan to block ADA-friendly pier is yet another example of a materially important omission. OVA 06

  Request: To assure MEPA makes its decisions based on wholly accurate facts, MEPA should reject the ENF filing, or alternatively, independently verify every representation in it. MEPA should also require Avangrid to provide alternative analysis of all other potential landing spots listed in its 2020 EFSB filing. OVA 07

  MEPA should take administrative notice of Avangrid's Commonwealth Wind and Park City Wind websites and the information Avangrid provides to the public about growth of new economic sectors and jobs. Those websites, written by Avangrid, affirm that here again, Avangrid adapts its representations based on its current audience and advocacy needs. OVA 08

  MEPA should 1) disregard Avangrid's claims in the ENF about the growth of new economic sectors that would increase employment opportunities in furtherance of Barnstable's Comprehensive Plan, 2) direct Avangrid to a) provide data to support any economic development or jobs claims about growth of new economic sectors or jobs in Barnstable and b) reconcile it's ENF claims with its representations on its websites.

Conclusion

As the public relied on the Department of Public Utilities to do the right thing in the face of Avangrid's effort to shift costs it agreed to assume over to consumers, so too does the public rely on MEPA to do the right thing to protect our environment and to base decisions on well vetted fact, not on the morphing advocacy that is the ENF.

Please dismiss or suspend the ENF for the reasons described above. If MEPA proceeds to invest publicly funded resources to assess the ENF of this unviable Project, MEPA should independently verify each factual representation given its material omissions.

Thank you for considering these views.

Regards,

John Crow, President
Osterville Village Association

Peter Hansen, Vice President
Osterville Village Association

Gail Nightingale, Chairman
Osterville Business and Professional Association

OSTERVILLE VILLAGE ASSOCIATION AND OSTERVILLE BUSINESS AND PROFESSIONAL ASSOCIATION (OVA)

OVA 01 **Avangrid Has Represented to The Investment Community That Both Connecticut's Park City Wind and Massachusetts's Commonwealth Wind Power Purchase Agreements Must Be Renegotiated in Order For Commonwealth Wind To Be Viable; MEPA Should Dismiss Or Alternatively Suspend The ENF Review Until Such Time Avangrid Has Renegotiated Power Contracts...**

Power contract adequacy is central to Avangrid's ENF. The ENF at page 37 notes that Avangrid 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." The ENF explanation of Project Need and Benefits in Appendix A leads with a description of the power contracts. The ENF predates Avangrid's declaration that the power contracts to which it had agreed are no longer adequate to support the Project. A PPA that the company has announced unequivocally requires renegotiated pricing in order to move forward is not an operative PPA.

Please see the response to TOB2 68.

OVA 02 **MEPA Should Require a Full Assessment of Alternatives, Including the Lowest Environmental Impact Means To Connect Off-Shore Wind Facilities. The alternative analysis in the ENF is thin, inconsequential, and not meaningfully helpful to decision-makers. Avangrid should provide MEPA analysis about means to reduce the number of offshore platforms, cabling, seabed disturbance, and cables landing at the Massachusetts coast to reduce impacts on existing ocean uses and marine and coastal environments to the greatest practical extent... Request: MEPA should require Avangrid to provide comparative analysis of alternatives that optimize off-shore and on-shore transmission necessary to integrate off-shore wind in a way that mitigates environmental impacts, and reduces overall consumers costs for generation, off-shore wind transmission, and onshore upgrades...**

An extensive alternatives analysis is presented in Section 4.0.

OVA 03 **Avangrid's ENF Omits its own 2020 Less Preferable Categorization of Dowses Beach. In 2020, Avangrid categorized Dowses Beach as Less Preferable in relation to many other landing spots. This representation was in an Avangrid filing with the Energy Facility Siting Board in 2020. That fact does not appear in its 2022 ENF filing.**

Please see the response to MEPA 18.

OVA 04 **Avangrid's ENF Omits that its Shareholders' Preferred Route is the Village Business District, Community Center, and Dense Year-Round Residential Area. In its ENF, Avangrid chose to leave out relevant and significant information about the company's preference to route its Project through Osterville's Main Street, its dense Business District and community center with dense housing...**

Section 2 provides a thorough Project description, and an extensive alternatives analysis is provided in Section 4.

OVA 05 **Avangrid blurs information about Project benefits to the affected community with distant geographic areas. As just one example, on page 19 of the ENF, Avangrid notes the Town of Barnstable's Comprehensive Plan includes 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 ENF asserts that the Project supports economic development goals. In fact, the Project sends its jobs and economic development benefits to distant communities. On its Commonwealth Wind web site (https://www.commonwealthwind.com), Avangrid touts job creation and economic development implications off-Cape, around Brayton Point, Salem Harbor, and New Bedford. According to Avangrid's websites and public relations materials, Osterville, Barnstable, and Cape Cod are not among the communities to whom jobs and growth of new economic sector benefits will flow.**

Project benefits, including economic development, are addressed in Section 1.9. The Project is anticipated to provide economic development throughout the Commonwealth, including Barnstable County and the Town of Barnstable, similar to the Vineyard Wind project which employed local contractors for onshore duct bank construction, construction of the Vineyard Wind substation, offshore vessel work for the offshore export cable, and survey vessels. The Proponent anticipates similar local economic opportunities for construction of the NE Wind 2 Connector onshore duct bank, substation construction, offshore export cable vessel work and survey vessels.

OVA 06 **Avangrid's ENF omits that its Project will block access to the ADA Accessible Fishing Pier at Dowses Beach. It is generally understood that Avangrid's desire to block access to the ADA Accessible Fishing Pier at Dowses Beach that services seniors and handicapped residents on a year-round basis will be challenged through local, state, and federal venues. That Avangrid's ENF fails to even mention its plan to block ADA-friendly pier is yet another example of a materially important omission.**

Please see the response to MEPA 56.

OVA 07 **To assure MEPA makes its decisions based on wholly accurate facts, MEPA should reject the ENF filing, or alternatively, independently verify every representation in it. MEPA should also require Avangrid to provide alternative analysis of all other potential landing spots listed in its 2020 EFSB filing.**

An alternatives analysis is provided in Section 4.0. Section 4.4 of that analysis specifically describes landfall sites considered for the Project.

OVA 08 **MEPA should take administrative notice of Avangrid's Commonwealth Wind and Park City Wind websites and the information Avangrid provides to the public about growth of new economic sectors and jobs. Those websites, written by Avangrid, affirm that here again, Avangrid adapts its representations based on its current audience and advocacy needs. MEPA should 1) disregard Avangrid's claims in the ENF about the growth of new economic sectors that would increase employment opportunities in furtherance of Barnstable's Comprehensive Plan 2) direct Avangrid to a) provide data to support any economic development or jobs claims about growth of new economic sectors or jobs in Barnstable and b) reconcile it's ENF claims with its representations on its websites.**

Please see the response to OVA 05.

Environmental League of Massachusetts - ELM

November 29, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

RE: New England Wind 2 Connector (EEA No. 16611)

Dear Mr. Strysky,

Thank you in advance for taking the time to consider our comments on the Environmental Notification Form (ENF) for the New England Wind 2 Connector, currently before the Massachusetts Environmental Policy Act Office. As members of the MA State Committee of New England for Offshore Wind, we are eager for Massachusetts to advance a large-scale, responsible offshore wind industry. As a key part of the Commonwealth's strategy for achieving its mandated emissions reductions of 50% by 2030, we are eager to see the permitting process for the New England Wind project move forward in a timely and thorough manner.

This Connector application comes on the heels of two other Avangrid projects – Vineyard Wind 1 Connector and New England Wind 1 Connector – which have been approved by the state. This project builds on the first two projects: it will use the same installation methods, follow a similar shared corridor below the seabed, and connect to the grid in Barnstable.

These offshore wind projects are a key element to Massachusetts' overall strategy to meet its mandated climate goals and reach net zero by 2050. Offshore wind will be the linchpin of our decarbonization efforts in New England. The Massachusetts 2050 Decarbonization Roadmap found that New England would need a *minimum* of 30 gigawatts of offshore wind to power the economy by 2050.

Commonwealth Wind will provide more than 1,200 megawatts of local, renewable energy to the New England electricity grid. Alongside the other projects, it will also drive the creation of high-quality jobs, including for New England's unionized workforce, reduce pollution, and play a pivotal role in helping to stabilize energy prices and reducing energy costs for consumers by decreasing our region's overreliance on fossil fuels. Commonwealth Wind will provide electricity to approximately 700,000 homes across the state and will reduce our greenhouse gas emissions by 2.35 million US tons per year, the equivalent of taking more than 460,000 cars off the road.

Avangrid has demonstrated in its other projects and continues to demonstrate with New England Wind 2 Connector that it has performed due diligence with respect to environmental safety plans for landing cables under Dowses Beach in Barnstable. Construction work will be entirely limited to the paved areas of the beach's parking lot with the only permanent structures being two manhole covers. Beyond the parking lot, Avangrid will be laying cables under existing roads to the point of interconnection with the electric grid. Roads will be repaved afterwards, and any disruption from construction will be temporary. No construction will occur along the coastal beach or dunes, as a result of the company employing the horizontal directional drilling (HDD) methodology, which minimizes impacts to these coastal resources by burying the cable deep beneath the surface. The directional drill will start about a mile offshore and go 50 feet under the beach, which is accreting, not eroding. Work will be done outside of the Piping Plover nesting season, or if that becomes unavoidable, there will be careful monitoring to avoid disturbance to any birds nesting near the work. We also support offshore wind projects contributing to proactive wildlife monitoring and mitigation programs as a component of responsible development of this new industry.

Avangrid has the proven expertise and has demonstrated their desire to be a partner with the Town of Barnstable through its Host Community Agreements. We urge you to thoroughly and expeditiously review and approve New England Wind 2 Connector. ELM 01

Respectfully,

Susannah Hatch
Environmental League of Massachusetts

Amber Hewett
National Wildlife Federation

Paul Niedzwiecki
Cape Cod Chamber of Commerce

Don Keeran
Association to Preserve Cape Cod

Rosemary Carey
350 Cape Cod

Patricia A. Gozemba
Salem Alliance for the Environment

Michael Hess
Iron Workers Local 7

Nicole DiPaolo
BlueGreen Alliance

Jim Mulloy
350 Mass

Amanda Barker
Green Energy Consumers Alliance

John Carlson
Ceres

Cynthia Luppi
Clean Water Action

Heidi Ricci
Mass Audubon

Susan Starkey
Faith Communities Environmental Network

Ben Howard
Bemis

Laura Gardner
Climate Reality Massachusetts Southcoast

Fran Schofield
Cape Cod Climate Change Collaborative

ENVIRONMENTAL LEAGUE OF MASSACHUSETTS, NATIONAL WILDLIFE FEDERATION, CAPE COD CHAMBER OF COMMERCE, ASSOCIATION TO PRESERVE CAPE COD, 350 CAPE COD, SALEM ALLIANCE FOR THE ENVIRONMENT, IRON WORKERS LOCAL 7, BLUEGREEN ALLIANCE, 350 MASS, GREEN ENERGY CONSUMERS ALLIANCE, CERES, CLEAN WATER ACTION, MASS AUDUBON, FAITH COMMUNITIES ENVIRONMENTAL NETWORK, BEMIS, CLIMATE REALITY MASSACHUSETTS SOUTHCOAST, AND CAPE COD CLIMATE CHANGE COLLABORATIVE (ELM)

ELM 01 **Avangrid has the proven expertise and has demonstrated their desire to be a partner with the Town of Barnstable through its Host Community Agreements. We urge you to thoroughly and expeditiously review and approve New England Wind 2 Connector.**

The Proponent sincerely appreciates this strong support.

APCC
Association to
Preserve Cape Cod
Preserving the Very Nature of Cape Cod

October 27, 2022

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

RE: New England Wind 2 Connector Environmental Notification Form, EEA #16611

Dear Secretary Card:

The Association to Preserve Cape Cod (APCC) has reviewed the Environmental Notification Form (ENF) for the New England Wind 2 Connector offshore wind development project and submits the following comments.

Founded in 1968, APCC is the leading nonprofit environmental advocacy and education organization for the Cape Cod region, working for the adoption of laws, policies and programs that protect, preserve and restore Cape Cod's natural resources.

APCC strongly supports the environmentally responsible development of offshore wind to help meet Massachusetts' ambitious 2050 net zero goals. It is imperative that we replace our nation's dependence on fossil fuels with clean, renewable energy from different sources. Modern advancements in deep water offshore wind technology have positioned it to be one of the most viable and critically important sources for large-scale green energy production for the Northeastern U.S.

The New England Wind 2 Connector, which is the portion of the Commonwealth Wind project under Massachusetts regulatory jurisdiction, is the largest renewable energy project proposed in the New England region and fills a major role in achieving Massachusetts' commitment to offshore wind energy production. The project will provide 1,232 megawatts of clean energy, which will reduce ISO-NE CO_2e emissions by approximately 2.35 million tons per year, according to the ENF. NOx emissions would be reduced by 1,255 tons per year and SO_2 emissions by

666 tons per year across the New England grid. The anticipated 1,232 megawatts to be produced by the project represents nearly double the peak load for the entire Cape Cod region, according to the ENF. Cleary, the project offers substantial benefits for Cape Cod, the Commonwealth of Massachusetts, New England, and the nation in efforts to mitigate climate change.

While the development of offshore wind projects such as New England Wind 2 represents a vital regional interest, it is also important that a comprehensive review of this and other wind projects be undertaken to ensure that environmental impacts will be avoided to the greatest extent possible and satisfactorily mitigated when avoidance is not possible. APCC recommends that the following issue areas be addressed in the Draft Environmental Impact Report (DEIR) for New England Wind 2.

Offshore Export Cable Corridor

APCC anticipates that further detailed analysis of the offshore cable corridor will be included in the DEIR. Since the proposed routing of the offshore cable closely aligns with the extensively analyzed routing for Vineyard Wind and New England Wind 1, it is assumed that minimal and temporary impacts to the seabed and habitat are to be expected. APCC recommends that the EIR review process provide additional information to reconfirm this assumption. It should also provide further study of any potential impacts from the small segment of offshore cable that deviates from the established corridor route in order to reach the proposed onshore landing site at Dowses Beach. APCC 01 APCC 02

Dowses Beach Landfall Site

APCC recommends that the DEIR include additional information about the proposed horizontal directional drilling and associated activity at the landfall site, which the ENF states will be used to avoid impacts to coastal resources, coastal dune and coastal beach. APCC 03

Onshore Transmission Cable Route

According to the ENF, both the preferred and the noticed alternative onshore transmission cable routes are located entirely within public roadway layouts or within the Dowses Beach parking lot. However, it appears the noticed alternative crosses a wetland (Bumps River) on Bumps River Road, as well as a perennial stream on Lumbert Mill Road. Both the preferred and noticed alternative routes appear to cross perennial streams on Old Falmouth Road and Oak Street. Project maps in the ENF also appear to show the cable route crossing mapped DEP hydrologic connections. APCC recommends that the DEIR should describe how impacts to these wetland resources will be avoided for both the preferred and noticed alternative routes. APCC 04

The ENF notes that the project applicant is receptive to working with the town of Barnstable to coordinate laying the onshore cable in conjunction with the town's installation of sewer lines along the route. As is the case with Vineyard Wind and New England Wind 1, enabling the town to take advantage of the wind project's onshore cable construction work on roadways would save the town millions of dollars in municipal sewer construction costs. APCC strongly encourages the project applicant and the town of Barnstable to work together in order to take advantage of the opportunity to install sewer lines along the proposed route of the New England 2 project in Osterville, which would help accelerate the timeline for sewering sections of town that are in great need of municipal wastewater infrastructure to address the area's serious water quality issues. APCC 05

Substation

The new project substation is proposed for a 15.2-acre site that is located within an Aquifer Protection Overlay District and bordered by Article 97 lands. The ENF states that the project applicant is committed to providing a 110 percent containment system and sumps to capture potential spills at the substation site, including allowances for containing an extreme rain event. This appears to be consistent with the plans proposed for the Vineyard Wind and New England Wind 1 projects. The project applicant has also proposed to adopt a Spill Prevention, Control and Countermeasures Plan and other spill response measures to address potential spill risks to groundwater. Additionally, the ENF proposes a stormwater management system at the substation to capture, treat and recharge stormwater runoff at the site.

APCC anticipates that the spill prevention and stormwater plans are to be designed with comparable effectiveness to the plans for Vineyard Wind and New England Wind 1, and we look forward to reviewing more specific details on the plans in subsequent project filings through MEPA and through the Cape Cod Commission's Development of Regional Impact (DRI) review process. APCC 06

The ENF states that construction of the substation will require significant clearing of the identified 15.2-acre site, which is currently undeveloped and tree-covered. To mitigate the land clearing, Cape Cod Commission DRI review requires a specified acreage of land to be set aside and permanently protected as open space either through direct acquisition of land or a monetary contribution by the project applicant. APCC encourages the project applicant to work with the town of Barnstable and the Barnstable Land Trust to identify land of appropriate acreage and natural resource value to satisfy the DRI open space requirement. APCC 07

The ENF has identified three potential grid interconnect routes for cable to run from the project's new substation to the existing Eversource substation. Of those routes, it appears that grid interconnect route option 1 goes through Article 97 lands, while options 2 and 3 appear to APCC 08 avoid Article 97 land. APCC supports the choice of a route that does not run through or otherwise impact Article 97 land.

Protection of Avian Species and Marine and Coastal Bird Habitat

Dowses Beach has been identified as habitat for piping plover and least tern, both state-listed rare species. The ENF indicates that the project applicant will continue to consult with the Natural Heritage and Endangered Species Program and anticipates utilizing measures to protect these bird species that were adopted for the Vineyard Wind and New England 1 landfall sites. APCC looks forward to more information in the DEIR about the project's shorebird protection efforts that would protect birds at the landfall site as well as during offshore project construction activity, including additional information about the adoption of a Piping Plover Protection Plan and time-of-year restrictions on construction. APCC 09

The New England Wind Massachusetts Coastal Zone Management Act Consistency Certification that is included in the ENF states that the project applicant is "developing a framework for a post-construction bird monitoring program in relation to Vineyard Wind 1 that can be adapted to New England Wind. This framework is being developed through consultation with federal, state, and local agencies, and with input from other stakeholders." APCC welcomes the adoption of such a program and its applicability to New England Wind 2. APCC recommends that the DEIR provide more information on the role of New England Wind 2 in the development and implementation of the bird monitoring program. APCC 10

Protection of Marine Mammals and Marine Turtles

Much of the attention for protection of marine mammals and marine turtles, especially ensuring protection of the North Atlantic right whale, has been focused on the offshore wind industry's activities in federal waters through the federal review and permitting process. The New England Wind 2 ENF provides little information about the project's efforts to avoid impacts to marine mammal and turtle species. APCC 11

While much of the project's marine mammal and turtle protection and mitigation efforts fall within federal jurisdiction, APCC recommends that the DEIR include discussion about proposed marine species protection plans and monitoring programs intended to ensure continued protection of marine mammal and turtle species during construction and ongoing operation of the project, especially how those proposed plans and programs are to be applied in waters under the Commonwealth's jurisdiction. APCC 12

Conclusion

New England Wind 2 will play an important role in our nation's conversion to clean, renewable energy, and will help Massachusetts fulfill its commitment to achieving net zero emissions by

2050. The offshore wind industry can successfully help achieve our collective renewable energy production objectives while also effectively demonstrating its commitment to protecting marine and land-based environmental resources. APCC looks forward to reviewing more project details in the issue areas discussed above as the EIR process moves forward.

Sincerely,

Andrew Gottlieb
Executive Director

482 Main Street | Dennis, MA 02638
Tel: 508-619-3185 | info@apcc.org | www.apcc.org

ASSOCIATION TO PRESERVE CAPE COD (APCC)

APCC 01 **APCC anticipates that further detailed analysis of the offshore cable corridor will be included in the DEIR. Since the proposed routing of the offshore cable closely aligns with the extensively analyzed routing for Vineyard Wind and New England Wind 1, it is assumed that minimal and temporary impacts to the seabed and habitat are to be expected. APCC recommends that the EIR review process provide additional information to reconfirm this assumption.**

The commenter is correct, that the OECC for NE Wind 2 Connector very closely aligns with the OECC already reviewed for NE Wind 1 Connector, the only exception being the addition of the spur that provides access to the landfall site. As described in detail in Section 5.1 and 12.1, the installation techniques are the same between the two projects, and the impacts are very similar as well.

APCC 02 **It should also provide further study of any potential impacts from the small segment of offshore cable that deviates from the established corridor route in order to reach the proposed onshore landing site at Dowses Beach.**

The OECC description and quantification of impacts provided in Sections 2.1.3 and 5.1, respectively, include the OECC spur to the landfall site.

APCC 03 **APCC recommends that the DEIR include additional information about the proposed horizontal directional drilling and associated activity at the landfall site, which the ENF states will be used to avoid impacts to coastal resources, coastal dune and coastal beach.**

The landfall site and proposed HDD activities are described in detail in Sections 1.4.3, 5.2, and 12.2.

APCC 04 **According to the ENF, both the preferred and the noticed alternative onshore transmission cable routes are located entirely within public roadway layouts or within the Dowses Beach parking lot. However, it appears the noticed alternative crosses a wetland (Bumps River) on Bumps River Road, as well as a perennial stream on Lumbert Mill Road. Both the preferred and noticed alternative routes appear to cross perennial streams on Old Falmouth Road and Oak Street. Project maps in the ENF also appear to show the cable route crossing mapped DEP hydrologic connections. APCC recommends that the DEIR should describe how impacts to these wetland resources will be avoided for both the preferred and noticed alternative routes.**

The onshore transmission cables will be placed within a buried duct bank that will be installed within public road layouts. The duct bank will consist of 12 conduits, typically arranged in a three-by-four configuration encased in concrete. At certain locations, however, it is expected that this configuration will be modified to six-by-two to avoid potential with buried utilities. This practice will apply at the perennial and intermittent stream crossings and any other conveyances, so that the duct bank can be installed above existing culverts at the referenced watercourses. Refer to Section 12.3 for further information regarding construction of the onshore transmission system.

APCC 05 **APCC strongly encourages the project applicant and the town of Barnstable to work together in order to take advantage of the opportunity to install sewer lines along the proposed route of the New England 2 project in Osterville, which would help accelerate the timeline for sewering sections of town that are in great need of municipal wastewater infrastructure to address the area's serious water quality issues.**

The Proponent will continue to work with the Town to take advantage of this opportunity. One of the benefits of the Preferred Alternative is its potential to coordinate accelerated sewer installation in Osterville (see Section 1.9).

APCC 06 **APCC anticipates that the spill prevention and stormwater plans are to be designed with comparable effectiveness to the plans for Vineyard Wind and New England Wind 1, and we look forward to reviewing more specific details on the plans in subsequent project filings through MEPA and through the Cape Cod Commission's Development of Regional Impact (DRI) review process.**

Stormwater management at the proposed substation site is described in Section 2.4.3, and a draft Stormwater Management Report is provided in Attachment F. A draft Spill Prevention Control and Countermeasure (SPCC) Plan will be further developed as permitting progresses, and a draft is included in Section 12.10.4.

APCC 07 **The ENF states that construction of the substation will require significant clearing of the identified 15.2-acre site, which is currently undeveloped and tree-covered. To mitigate the land clearing, Cape Cod Commission DRI review requires a specified acreage of land to be set aside and permanently protected as open space either through direct acquisition of land or a monetary contribution by the project applicant. APCC encourages the project applicant to work with the town of Barnstable and the Barnstable Land Trust to identify land of appropriate acreage and natural resource value to satisfy the DRI open space requirement.**

The Project will comply with the Cape Cod Commission's Open Space Technical Bulletin, which requires providing high-quality open space on-site or in a Natural Area off-site at the appropriate ratio.

APCC 08 **The ENF has identified three potential grid interconnect routes for cable to run from the project's new substation to the existing Eversource substation. Of those routes, it appears that grid interconnect route option 1 goes through Article 97 lands, while options 2 and 3 appear to avoid Article 97 land. APCC supports the choice of a route that does not run through or otherwise impact Article 97 land.**

The grid interconnection routes are described in Sections 2.5 and 4.7, and Article 97 jurisdiction is described in Section 2.7. The only grid interconnection route that would not require Article 97 approval would be grid interconnection route option 3 (G3) (see Section 4.7.3), but among other issues that route would involve construction within the Route 6 state highway layout and therefore is not proposed for the Project.

APCC 09 **Dowses Beach has been identified as habitat for piping plover and least tern, both state-listed rare species. The ENF indicates that the project applicant will continue to consult with the Natural Heritage and Endangered Species Program and anticipates utilizing measures to protect these bird species that were adopted for the Vineyard Wind and New England 1 landfall sites. APCC looks forward to more information in the DEIR about the project's shorebird protection efforts that would protect birds at the landfall site as well as during offshore project construction activity, including additional information about the adoption of a Piping Plover Protection Plan and time-of-year restrictions on construction.**

Rare species and mapped habitat are discussed in Section 7.2. The Proponent has developed a draft Piping Plover and Least Tern Protection Plan (PP&LTPP, see Attachment I) for construction activities at the landfall site very similar to the Piping Plover Protection Plans (PPPPs) that were created in consultations with NHESP during permitting of the Vineyard Wind Connector and subsequently the NE Wind 1 Connector; NHESP issued no take determinations for the Vineyard Wind Connector and NE Wind 1 Connector that relied in part on the PPPPs.

APCC 10 **The New England Wind Massachusetts Coastal Zone Management Act Consistency Certification that is included in the ENF states that the project applicant is "developing a framework for a post-construction bird monitoring program in relation to Vineyard Wind 1 that can be adapted to New England Wind. This framework is being developed through consultation with federal, state, and local agencies, and with input from other stakeholders." APCC welcomes the adoption of such a program and its applicability to New England Wind 2. APCC recommends that the DEIR provide more information on the role of New England Wind 2 in the development and implementation of the bird monitoring program.**

Offshore avian resources are discussed in Section 7.3. The Proponent is currently finalizing its Draft Bird and Bat Monitoring Framework for New England Wind, of which NE Wind 2 Connector is a part. In developing this framework, which is focused on the area of WTGs and ESPs in federal waters, the Proponent has met with federal and state agencies as well as other stakeholders.

APCC 11 **Much of the attention for protection of marine mammals and marine turtles, especially ensuring protection of the North Atlantic right whale, has been focused on the offshore wind industry's activities in federal waters through the federal review and permitting process. The New England Wind 2 ENF provides little information about the project's efforts to avoid impacts to marine mammal and turtle species.**

Sections 7.4 and 7.5 discuss marine mammals and sea turtles, respectively, along with measures to avoid and minimize impacts.

APCC 12 **While much of the project's marine mammal and turtle protection and mitigation efforts fall within federal jurisdiction, APCC recommends that the DEIR include discussion about proposed marine species protection plans and monitoring programs intended to ensure continued protection of marine mammal and turtle species during construction and ongoing operation of the project, especially how those proposed plans and programs are to be applied in waters under the Commonwealth's jurisdiction.**

Sections 7.4 and 7.5 discuss marine mammals and sea turtles, respectively, along with measures to avoid and minimize impacts.

November 29, 2022

Alex Strysky, MEPA Analyst
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: New England Wind Connector 2 Project / EEA Number 16611

Dear Mr. Strysky,

I am writing to submit comments on behalf of the Cape Cod Technology Council, Inc. ("CCTC") on the Environmental Notification Form ("ENF") submitted for the New England Wind Connector 2 Project, currently before the Massachusetts Environmental Policy Act Office. Founded in 1996, the CCTC is a membership based non-profit organization whose mission is to promote technology, education and economic development on Cape Cod, the Islands, and Southeastern Massachusetts. Our membership includes local Cape, Islands, and Southeastern Massachusetts businesses, technology innovators, educational organizations, government entities, working professionals, and community leaders.

The CCTC supports the development of innovative solutions to meet the anticipated energy needs of the Commonwealth of Massachusetts. One of the most promising of these solutions is wind energy. CCTC 01 AVANGRID's New England Wind Connector 2 Project has the potential to meet these needs while advancing the state of wind energy technology.

AVANGRID's Commonwealth Wind offshore wind projects offer significant benefits, including:

- Generation of more than 1,200 megawatts of clean, renewable offshore wind energy supplied directly to New England's grid; and
- Providing electricity to approximately 700,000 homes across the state and reduction of greenhouse gas emissions by 2.35 million US tons per year, the equivalent of taking more than 460,000 cars off the road.

In light of the long-term economic and environmental benefits offered by off-shore wind projects such as New England Wind Connector 2 Project , the CCTC trusts that the EEA will carefully review and appropriately act on the ENF.

The CCTC appreciates your consideration of our views. Please contact us if you have any questions.

Respectfully,

Robbin Orbison

Robbin Orbison, *President*

Via E-Mail: [*alexander.strysky@mass.gov*](mailto:alexander.strysky@mass.gov)

CAPE COD TECHNOLOGY COUNCIL (CCTC)

CCTC 01 **The CCTC supports the development of innovative solutions to meet the anticipated energy needs of the Commonwealth of Massachusetts. One of the most promising of these solutions is wind energy. AVANGRID's New England Wind Connector 2 Project has the potential to meet these needs while advancing the state of wind energy technology.**

The Proponent appreciates the support of the CCTC and looks forward to continue working with the community to minimize impacts while providing benefits.

Vineyard Power Cooperative - VPC

VINEYARD POWER

OUR ISLAND • OUR ENERGY

November 28, 2022

Alex Strysky
Environmental Analyst – MEPA Office
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: New England Wind 2 Connector (EEA No. 16611)

Dear Mr. Strysky,

On behalf of Vineyard Power Cooperative, I would like to thank the Executive Office of Energy and Environmental Affairs (EEA) for the opportunity to provide comments in response to the New England Wind 2 Connector (EEA Number 16611).

The New England Wind 2 Connector project is another important transmission project for our Commonwealth and the region which is necessary to deliver approximately an additional 1,200 megawatts (MW) of clean electricity into our grid. Building on the successful relationships built with the local communities over the course of permitting and developing their first two projects (Vineyard Wind 1 Connector and New England Wind 1 Connector), Avangrid has demonstrated that project impacts due to construction will be minimized using carefully sited buried transmission, time-of-year restrictions for both marine and upland construction, coordination with municipal infrastructure construction, and proven traffic, erosion control and stormwater mitigation measures.

Once completed the project will result in an annual reduction of approximately 2.35 million tons of carbon dioxide equivalent (CO2e) emissions across New England, the equivalent of removing approximately 460,000 cars from the road each year. Projects at this scale are essential if local towns, the Commonwealth, and the Nation are to achieve ambitious goals laid out by local governing bodies, Governor Baker and our State Legislature and President Biden.

On behalf of our approximately 3,500 members, Vineyard Power Cooperative expresses our full support for all aspects of the New England Wind 2 Connector project. The project's benefits far outweigh the negative impacts we face if we continue to rely on fossil fuels. VPC 01

Thank you for providing an opportunity to provide feedback on this project.

Sincerely,

Richard Andre
President – Vineyard Power Cooperative

P.O. Box 1077, West Tisbury, MA 02575
t. 508.693.3002; info@vineyardpower.com
www.vineyardpower.com

VINEYARD POWER COOPERATIVE (VPC)

VPC 01 **On behalf of our approximately 3,500 members, Vineyard Power Cooperative expresses our full support for all aspects of the New England Wind 2 Connector project. The project's benefits far outweigh the negative impacts we face if we continue to rely on fossil fuels.**

The Proponent appreciates the support of the VPC and looks forward to continue working with the community to minimize impacts while providing benefits.

From:	Janet Williams
To:	Strysky, Alexander (EEA)
Subject:	Letter of Support: Commonwealth Wind
Date:	Tuesday, December 6, 2022 6:53:28 AM
Attachments:	Commonwealth Wind Letter of Support.11.23.22.pdf

Please accept the attached letter of support with respect to the New England Wind Connector 2 (EEA No. 16611).

Please contact me if you have any questions. Thank you.

Sincerely,
Janet E. Williams, Vice President
Board of Directors, Cape Cod Climate Change Collaborative

VIA EMAIL ONLY
Alexander.strysky@mass.gov

November 23, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

RE: New England Wind Connector 2 (EEA No. 16611)

Dear Mr. Strysky,

Thank you in advance for taking the time to consider our comments on the New England Wind Connector 2, currently before the Massachusetts Environmental Policy Act Office. We wish to voice our strong support for both AVANGRID's third project, Commonwealth Wind, as well as its grid interconnection in Barnstable, New England Wind Connector 2.

We are writing on behalf of the Cape Cod Climate Change Collaborative, a non-profit 501(c)(3) organization whose mission is to reduce ways in which the Cape & Islands region contributes to climate change and to protect our region from its potentially devastating impacts.

Both AVANGRID's Vineyard Wind 1 Connector and New England Wind 1 Connector have been approved by the state, and New England Wind Connector 2 builds upon the first two projects; New England Wind Connector 2 will use the same installation methods, follow a similar shared corridor below the seabed, and connect to the grid in the town of Barnstable.

AVANGRID's offshore wind projects are a vital element of the Commonwealth's overall clean energy strategy. Commonwealth Wind will generate more than 1,200 megawatts of clean, renewable offshore wind energy and supply it directly to New England's grid. Constraints on our existing electric grid are well documented and lead to both price volatility for consumers as well as reliance on oil and natural gas for electric generation. Commonwealth Wind will provide electricity to approximately 700,000 homes across the state and reduce our greenhouse gas emissions by 2.35 million US tons per year, the equivalent of taking more than 460,000 cars off the road.

Cape Cod Climate Change Collaborative
capecodclimate.org | capecodclimate@gmail.com
Mail to: c/o Glivinski & Associates, Inc., 261 Whites Path. Suite 5, South Yarmouth, MA 02664

In its other projects, AVANGRID has demonstrated and will continue to demonstrate with New England Wind Connector 2, that it has performed all necessary due diligence with respect to environmental safety plans for landing cables under Dowses Beach in Barnstable.

Construction work will be entirely limited to paved areas of the beach's parking lot. No construction will occur along the coastal beach or dunes as a result of the company employing horizontal directional drilling (HDD) methodology which avoids impacts to these coastal resources by burying the cable deep beneath the surface.

AVANGRID has proven expertise and demonstrated its desire to partner with the town of Barnstable. Barnstable's Town Council just recently voted unanimously to begin Host Community Agreement negotiations for Commonwealth Wind. I

We urge you to expeditiously review and approve New England Wind Connector 2. 5C 01

Respectfully,

Dorothy A. Savarese

Dorothy Savarese, President of the Board

CAPE COD CLIMATE CHANGE COLLABORATION (5C)

5C 01 **We wish to voice our strong support for both AVANGRID's third project, Commonwealth Wind, as well as its grid interconnection in Barnstable, New England Wind Connector 2…**

We urge you to expeditiously review and approve New England Wind Connector 2.

The Proponent sincerely appreciates this strong support for the Project.

From: Susanne Conley
To: Strysky, Alexander (EEA)
Subject: Public Response to New England Wind 2 Connector ENF EEA#16611
Date: Wednesday, November 23, 2022 12:30:29 PM
Attachments: Public Response to NE Wind 2 Connector.pdf

Dear Alex:

First, thank you so much for being in Osterville on November 16 to hear from members of our community regarding the Commonwealth Wind proposal to land electrical cables at Dowses Beach. I'm attaching a copy of our *ad hoc* community activist group's public response to the New England Wind 2 Connector ENF. "Save Greater Dowses Beach" is an unincorporated association with 234 members. Please let me know if you have any questions. Thank you.

Best regards,

Susanne Conley
508 922 4342

TO: Mr. Alexander Strysky, MEPA

From: Susanne H. Conley,
on behalf of the group Save Greater Dowses Beach

Re: Public Comment to the New England 2 Wind Connector ENF
EEA# 16611

I write as the representative of an *ad hoc* community activist group, "Save Greater Dowses Beach." Our group is dedicated to the prevention of the Dowses beach estuarine area from being used by Avangrid Renewables, under the auspices of "Commonwealth Wind, LLC," for the landing of electrical export power cables from a future offshore wind farm. The reasons for our opposition are many and are described herein.

The Environment

Background.

We refer to "greater" Dowses beach because it is a complex, multi-faceted estuarine environment. Specifically, the area is comprised of a barrier spit fronting Nantucket Sound, a lengthy dune system, an inlet, a breakwater, a handicapped accessible fishing pier, a paved parking area, a sandy back beach, the mouth of the Centerville River, a large bay (East Bay) with a mooring ground, a smaller brackish bay (Phinney's Bay), and a narrow causeway that divides the two bays, except for a culvert for water exchange, and that is the only means of resident access for automobiles, bicycles, and foot traffic.

Dowses beach provides important year-round recreational opportunities for all Barnstable residents, and is an historically and socially important aspect of life for the residents of Osterville Village. The greater Dowses Beach area was purchased by the Town of Barnstable in 1946 following extensive destruction to private homes caused by the hurricane of 1944. The Dowse family sold the beach and its environs for the sum of $40,000, or $611,000 in today's dollars. Should the property be sold to a private party in 2022, this Nantucket Sound waterfront property would be worth many times that sum — we therefore assume a significant measure of largesse on the part of the Dowse family that was intended to protect and preserve this natural heritage for residents of the town. While the deed documenting the sale of Dowses includes no restrictions, the Town notes that its acquisition would be for the purpose of "a bathing beach."

An often heard counterpoint to our group's opposition to the Commonwealth Wind project is that the area is not in a "natural" state. We agree that this acreage is not a greenfield. Rather, it has been partially engineered over the years to provide vehicular access, recreational opportunities, and erosion control. This does not mean that it is anything less than a critically important estuarine environment deserving of stringent coastal resource protection. The United States Environmental Protection Agency defines estuaries as "a partially enclosed, coastal water body where freshwater from rivers and streams mix with salt water from the ocean …." This describes the greater Dowses beach area exactly. The 2006 Massachusetts Estuaries Project report on the Centerville River Embayment system confirms that the area is integral to the "Centerville River/East Bay Estuary," and acknowledges the importance of the "barrier spit" (i.e. the Dowses fore beach) as protection for this estuarine system.

We offer this background information to a) present a clear picture of the greater Dowses beach environment, which we believe is not represented in the ENF, and b) to help MEPA understand SGDB 01
why there has been such a significant backlash among Osterville residents in particular, and

those of Barnstable in general, to the use of this beautiful, quintessential Cape Cod landscape for a 3-year long, industrial-scale construction project.

Objections.

According to the Environmental Notification Form filed on behalf of New England Wind 2 Connector by Epsilon Inc., the proponent considered nine (9) "Landfall Location Alternatives." All of these are sites located in the Town of Barnstable. As of this writing, Barnstable does not have a Host Community Agreement with Avangrid Renewables for the Commonwealth Wind project. The Barnstable Town Council did pass a motion on November 4, 2022, authorizing Mr. Mark Ells, Town Manager, to begin discussions with the proponent to craft a HCA. We believe SGDB 02
that the very limited exploration of landfall options exhibited by the company represents an approach of "least resistance." As we will discuss in detail, the Town of Barnstable has tried to leverage its Nantucket Sound public beaches to gain funding for its severely underfunded Comprehensive Wastewater Management Project (CWMP). Our group believes that this SGDB 03
relationship resulted in a very incomplete assay of the available grid connection options.[1] Frankly, the proponent seeks the cheapest, politically easiest solution for its need to export electrical power, and wants to do so at the expense of greater Dowses beach and all it means for a healthy environment, the wildlife it supports, and the people of Osterville.

In its summary of potential export cable landfall sites (ENF Table 3-1, p. 14), the proponent lists all nine (9) Barnstable locations it considered. Two of these, Prince's Cove and McCarthy's Landing are rejected in part because the project "would result in direct impacts to estuarine habitat…." In contrast, when evaluating the Centerville River/East Bay estuary that is fronted by Dowses beach and its dune system, the proponent claims the project "has [the] ability to avoid impacts to any environmentally sensitive areas…." Nowhere in the proponent's description of the Dowses beach area are the words "estuary" or "estuarine." This, we believe, is a self-serving SGDB 04
omission, as the true appeal of Dowses for the proponent is the public parking lot that exists between the fore and back beaches and the willingness of town management to accede to the company's demands.

In a glaring misrepresentation of the greater Dowses beach area, the proponent describes the route of its export cables as "Dowses Beach Road, left on East Bay Road, then right unto Wianno Avenue…." We believe the term "Dowses Beach Road" is intentionally deceptive. There is no such named roadway, as can be confirmed on the Town of Barnstable's official GIS map of SGDB 05
roadways. There is only an exceptionally narrow causeway, which replaced what was once a wooden walkway to the pre-1944 Dowse home. There is no named street at all, and to suggest such diminishes the special nature of this feature, which is to maintain the natural separation of East Bay and Phinney's Bay while allowing water exchange and tidal fluctuation to occur.

Of course, an important function of estuarine areas is to mitigate against high water as a result of changing global conditions and storm events. This in and of itself argues against subjecting such an environment to construction of any kind. Electrical export cable landings on a straight-line beach is one thing; doing so in a sensitive estuarine environment is quite another. We argue that SGDB 06
the proponent must find another, more suitable location, and explore potential sites beyond the Town of Barnstable.

[1] As an example of options not considered, Mayflower Wind's pivot from a beach landing on Cape Cod to one at Brayton's Point is instructive. Mayflower will utilize the infrastructure present in Somerset, MA at a decommissioned coal-burning power plant. A similar option was never considered, as far as we can tell, for that location or the Cape Cod Canal plant, also decommissioned but with the ability to interconnect with the NE power grid.

The Greater Dowses Beach Wildlife Habitat

Background.

When agencies such as the United States Environmental Protection Agency and the Massachusetts Department of Environmental Protection explain the importance of protecting estuarine environments, their role in providing habitat for wildlife is always cited. Those who know the Dowses beach area well need no convincing as to the importance of this area to many forms of life, including birds, fish, shellfish, and plants.

Cornell University's Ornithology Lab manages a well-respected website, "ebird.org," that chronicles bird species sightings made by accomplished birdwatchers. This site lists "Dowses Beach" as a "hotspot" for bird sightings and therefore the area attracts many birding amateurs and professionals throughout the year. A histogram downloaded from ebird.org allows one to document the extent to which bird species, both resident and transitory, make Dowses home throughout the year. The list includes shorebirds and upland species and is extensive. Between 2012 and 2022, watchers recorded a total of 168 bird species at the greater Dowses area. This number has remained relatively consistent over the course of the last 122 years. All bird sightings documented from 1900 to the present included 172 species, indicating a stable, flourishing "unofficial" bird sanctuary.

A review of a histogram showing sightings since 2012 reveals two important considerations. First, the greater Dowses area is an important home to birds throughout the year. While many species are year-round residents, including shorebirds such as the ring-billed and herring gulls, many others are winter visitors, such as more rare examples like the Iceland Gull and the Greater and Lesser Scaup. The 2022 "State of the Birds" report by the Natural Heritage and Endangered Species Program cites nine (9) species that are in the "Tipping Point" category on Cape Cod, meaning that these species have demonstrated seriously declining populations and are experiencing a high vulnerability of extinction. Of these, six (6) are visitors to the greater Dowses beach area, and include the Saltmarsh Sparrow, Least Tern, Whimbrel, Ruddy Turnstone, Least Tern, and Piping Plover. No fewer than twenty-seven (27) duck species spend winter months in Phinney's Bay, East Bay, and in the inlet between the Dowses fishing pier and Centerville's Long Beach adjacent to the mouth of the Centerville River. These species range from the common American Black Duck to the much more rare Ring-necked Duck. The importance of roosting areas free of disturbance for migratory shorebirds goes without saying. Included in the ten-year histogram of bird sightings is a reference to 27 additional taxa. While not specified, common sightings include sea and land turtles, deer, fox, coyote, and mink. Though not common, seals have been known to swim in the waters near the breakwaters at each end of the fore beach and have been found resting on the sand as late as November.

Fish and shellfish of many varieties are found in the Sound and in both bays. Those who utilize the fishing pier and the shoreline catch False Albacore, Bluefish, Striped Bass, Scup (Porgy) and various less common specimens such as Puffer Fish. East Bay teems with bait fish and schoolies year round, although occasional ice-overs make sight casting more difficult.

An especially sought after species of sea life in and around the pier, breakwater and East Bay shoreline are the abundant blue crabs, harvested by locals from May 1 to December 31 each year. Blue Crabs require moving water, which is why they inhabit the inlet area of the greater Dowses environment. Shellfish are equally plentiful in the sea, the inlet, and especially the bay. These include lightning whelk, whose egg casings wash ashore each winter in great numbers. Osterville's very name is derived from the oysters common to local waters. As is well-documented, a healthy shellfish population is essential to the removal of nitrogen in a marine environment. Another very vulnerable population, as described by the International

Union for the Conservation of Nature, is the American Horseshoe Crab. Dowses beach is an important spawning and molting area for these animals, whose decline is partially attributed to coastal zone development. The young, which molt multiple times throughout the year, do so in great numbers at Dowses beach; the adults do as well twice a year. At times, their discarded shells number in the hundreds from one end of the strand to the other.

Objections.
During a meeting with personnel from Avangrid Renewables, a member of the Osterville Village Association asked about the inevitable, long-term devastation to the significant Dowses bird population during construction. The answer, verbatim, was "Oh, we've got the piping plovers covered." Such a response indicates at best a lack of understanding of the greater Dowses area as an important sanctuary for many forms of wildlife, and at worst a completely cavalier attitude about the decimation a 3-year long construction project would have on land and sea-based wildlife in this estuarine environment. We assume the piping plovers are "covered" because Avangrid Renewables considers them a "summer bird" (they claim they will only conduct work at Dowses in the "off-season") when the truth is much more complex.
We believe the HDD operation on and under the seabed will divert the natural movement patterns of local fish stock, greatly decimate shellfish numbers, and negatively impact the considerable local horseshoe crab population. The installation of three (3) conduits for the onshore export cables will occur under the beach from one end to the other, causing vibration, displacement, and noise, all of which are anathema to shorebirds. The pits in the parking lot will in all likelihood prove disruptive and potentially hazardous for land animal movement. The ditching of the causeway will certainly prevent cross-bay spawning for species of fish that use the calm waters of Phinney's Bay to reproduce each spring. All of this is unnecessary disruption of a unique wildlife habitat because Avangrid Renewables has focused all of its attention on the Town of Barnstable's Nantucket Sound beaches – simply because Barnstable has been willing to accept financial and in-kind contributions to support its CWMP. When it comes to the greater Dowses beach estuarine environment, this focus is entirely and especially inappropriate.

SGDB 07

<u>Town of Barnstable and Proponent Relationship</u>

Background.
In 2020, The Town of Barnstable finalized its Comprehensive Wastewater Management Plan after receiving necessary approvals from state and county permitting agencies. The 30-year sewering project, planned in three (3) phases over 30 years, reflected an expansion of "Phase 2"(2030-2040) into the downtown village center of Osterville. According to a recent report, the sewering plan remains severely underfunded. The August, 2022 CWMP FY2022 Annual Report indicates the project cost for Phase 1 to be $304 million, while "existing resources can provide for approximately $165 million of this cost." A shortfall of $5.5 million in each of the fiscal years 2023-2027 must be addressed.
Meanwhile, as early as 2018, the proponent, a 50 percent partner in the Vineyard Wind project, was present in Barnstable advocating for electrical export cable landings at Covell's Beach in the village of Centerville and engaging in discussions with town management. In October, 2018, Barnstable Town Council approved an easement for a power cable at Covell's beach over the objections of a significant group of Centerville residents.

Objections.
Between early 2018 and the present, the CWMP and the proponent's plans for Barnstable's Nantucket Sound beaches have developed symbiotically. What has become clear is that the proponent was never interested in the Vineyard Wind project as a stand-alone. Rather, from the very beginning, the company planned for a construction project at Craigville beach in Centerville (Park City Wind), as well as for a very large installation at Dowses. The final version of the CWMP showed an extension of the sewering project into Osterville that exactly corresponds with the proponent's preferred route for export cables between the Dowses area and the planned substation.
The town has adopted a three part narrative regarding the Commonwealth Wind project. First, Town Manager Ells frequently promotes the notion when meeting with community groups that the project at greater Dowses beach is a "done deal," despite the early status of permitting. Second, Ells touts the financial payments and in-kind contributions of Avangrid Renewables to the underfunded sewering project. Third, Ells claims that objection to the project is meaningless, because no one can stop the proponent's proposal to basically commandeer the greater Dowses beach area. As he claims, even if he and the Town Council were opposed to the project (which they are clearly not), the proponent would come and do what they want without the town's permission or cooperation. This is an abrogation of home rule that is startling to say the least, and unsupported, in our opinion, by 310 CMR's provisions for construction related to the development of renewable energy projects.
Our objections to the relationship between the Town of Barnstable and the proponent are twofold. First, as previously stated, the proponent did not thoroughly consider all viable options to export electricity from a future wind farm given the Town of Barnstable's willingness to trade easements, access, and long term disruption to taxpayers in order to enhance the CWMP funding stream. In this, we contend that both sides took the path of least resistance, a choice that has the potential to inflict environmental damage on a fragile and unique estuary. Second, discussions, agreements, and deal-making between the town and the proponent were carried out, we believe, in such a way that the residents of Barnstable were purposely kept in the dark until projects could be described as done deals. As our *ad hoc* community action group has learned during our information-gathering activities, public awareness of each of the projects was practically non-existent. In Osterville, residents first became generally aware of the Commonwealth Wind proposal to land cables at Dowses, as well as the specifics of the project during the summer of 2022. The dismay and anger we have documented is, to say the least, extensive. We have amassed 1,000 signature petitions opposing the cable landing at Dowses in a matter of weeks, and have witnessed first-hand how these plans have affected the once peaceful nature and undeniable quality of life in the village of Osterville.

SGDB 08

SGDB 09

Other Considerations

To the extent that MEPA serves to protect the environment for wildlife and humans alike, our group wishes to make additional observations that speak to the unsuitability of the greater Dowses beach area for an extended period of heavy construction:

1. When first exploring the Town of Barnstable's Nantucket Sound beaches, Avangrid Renewable informed town officials that Kalmus Beach, in the village of Hyannis, would be unsuitable as the cables would eventually be routed through part of the downtown Hyannis business district. Yet, Avangrid Renewables' preferred route away from Dowses

SGDB 10

would bisect the entire Osterville business district, which is still recovering financially from the hardship caused by the COVID-19 emergency.

2. When discussing its rejection of a proposed route for cables to run from the Park City project with Centerville residents, Avangrid Renewables personnel described the roadbed residents suggested for use as "too narrow." The causeway that leads from the Dowses beach parking lot to East Bay Road is exceedingly narrow, especially when high tides and storm water rise on both sides to be level with the surface. SGDB 11
3. Avangrid Renewables assured Osterville residents that the Dowses Beach area would remain accessible to them during construction. This will simply not be the case when the company runs an 8' to 11.5' wide trench the length of the causeway and under the existing culvert where water is exchanged between the bays. This would especially constitute a hardship for mobility-impaired persons for whom the handicapped accessible fishing pier provides a safe mechanism for waterfront access and sport.[2] SGDB 12
4. As we read the scientific research of the health effects of buried HVAC cables, we find no conclusions that their presence are entirely safe to marine life or to humans. Generations of Barnstable children learn to swim at the east end of Dowses Beach. Countless children play on and dig in the sand of this recreational beach. The proponent simply cannot guarantee that 1200 MW of electricity flowing through this beach in the water and onshore would have no deleterious health effects on them and their families, especially in the event that one of the three cables become damaged. SGDB 13
5. We ask that MEPA, and by extension, subsequent permitting agencies, become fully aware of media reports regarding the problematic business practices of Avangrid and its subsidiaries, especially as these relate to the states of Connecticut and Maine. We believe it is important to consider whether or not Avangrid Renewables is a trustworthy community partner.
6. Any "Host Community Agreement" between Avangrid Renewables/Commonwealth Wind and the Town of Barnstable that does not recognize the objections of a large number of the town's residents should not be considered representative.

Conclusion

Our group insists that we are not opposed to the development of wind power for the Commonwealth or to our town's clean water initiatives. We do ask that the Massachusetts Environmental Protection Act consider that the New England Wind 2 Connector is not at all in the best interest of the greater Dowses Beach environment, the many species of wildlife that make their home there, and the people for whom a safe, accessible public environment is to be preserved as a matter of environmental justice.

[2] Please see the blog of Garet Suomala, a resident of Hyannis with mobility issues, who describes why he finds the Dowses beach fishing pier ideal as it allows him to safely enjoy his favorite sport of fishing with fellow anglers. (myfishingcapecod.com).

SUSANNE H. CONLEY, ON BEHALF OF THE GROUP SAVE GREATER DOWSES BEACH (SGDB)

SGDB 01 **The United States Environmental Protection Agency defines estuaries as "a partially enclosed, coastal water body where freshwater from rivers and streams mix with salt water from the ocean …." This describes the greater Dowses beach area exactly. The 2006 Massachusetts Estuaries Project report on the Centerville River Embayment system confirms that the area is integral to the "Centerville River/East Bay Estuary," and acknowledges the importance of the "barrier spit" (i.e. the Dowses fore beach) as protection for this estuarine system. We offer this background information to a) present a clear picture of the greater Dowses beach environment, which we believe is not represented in the ENF, and b) to help MEPA understand why there has been such a significant backlash among Osterville residents in particular, and those of Barnstable in general, to the use of this beautiful, quintessential Cape Cod landscape for a 3-year long, industrial-scale construction project.**

The Proponent acknowledges this comment. Wetland resource areas at the landfall site are described in detail in Section 5.2.

SGDB 02 **We believe that the very limited exploration of landfall options exhibited by the company represents an approach of "least resistance."**

An extensive alternatives analysis is provided in Section 4.0, including specific discussion of landfall sites in Section 4.4.

SGDB 03 **As we will discuss in detail, the Town of Barnstable has tried to leverage its Nantucket Sound public beaches to gain funding for its severely underfunded Comprehensive Wastewater Management Project (CWMP). Our group believes that this relationship resulted in a very incomplete assay of the available grid connection options. Frankly, the proponent seeks the cheapest, politically easiest solution for its need to export electrical power, and wants to do so at the expense of greater Dowses beach and all it means for a healthy environment, the wildlife it supports, and the people of Osterville.**

The proposed Project is the result of an extensive alternatives analysis, described in Section 4.0, that considered an array of interconnection point alternatives (see Section 4.3).

SGDB 04 **In its summary of potential export cable landfall sites (ENF Table 3-1, p. 14), the proponent lists all nine (9) Barnstable locations it considered. Two of these, Prince's Cove and McCarthy's Landing are rejected in part because the project "would result in direct impacts to estuarine habitat…." In contrast, when evaluating the Centerville River/East Bay estuary that is fronted by Dowses beach and its dune system, the proponent claims the project "has [the] ability to avoid impacts to any environmentally sensitive areas…." Nowhere in the proponent's description of the Dowses beach area are the words "estuary" or "estuarine." This, we believe, is a self-serving omission, as**

the true appeal of Dowses for the proponent is the public parking lot that exists between the fore and back beaches and the willingness of town management to accede to the company's demands.

As described in Section 4.4, neither the Prince Cove Marina nor McCarthy's Landing would have sufficient space for staging HDD operations for the Project, and hence would require nearshore and coastal impacts. The landfall site, however, can accommodate HDD staging and operations, hence enabling the Proponent to avoid impacts to nearshore and coastal resources.

SGDB 05 **In a glaring misrepresentation of the greater Dowses beach area, the proponent describes the route of its export cables as "Dowses Beach Road, left on East Bay Road, then right unto Wianno Avenue…." We believe the term "Dowses Beach Road" is intentionally deceptive. There is no such named roadway, as can be confirmed on the Town of Barnstable's official GIS map of roadways. There is only an exceptionally narrow causeway, which replaced what was once a wooden walkway to the pre-1944 Dowse home. There is no named street at all, and to suggest such diminishes the special nature of this feature, which is to maintain the natural separation of East Bay and Phinney's Bay while allowing water exchange and tidal fluctuation to occur. Of course, an important function of estuarine areas is to mitigate against high water as a result of changing global conditions and storm events. This in and of itself argues against subjecting such an environment to construction of any kind.**

The portion of access road leading to the paved parking lot proposed as the landfall site that separates Phinneys Bay from East Bay is referred to as a causeway in this DEIR. The causeway is discussed in Section 2.3.5.1.

SGDB 06 **Electrical export cable landings on a straight-line beach is one thing; doing so in a sensitive estuarine environment is quite another. We argue that the proponent must find another, more suitable location, and explore potential sites beyond the Town of Barnstable.**

An extensive alternatives analysis is provided in Section 4.0. Section 4.4 of that analysis specifically describes landfall sites considered for the Project. The paved parking lot at the landfall site has adequate space for the offshore-to-onshore transition facilities associated with HDD, which will entirely avoid impacts to the beach itself as well as to nearshore areas, including a shellfish suitability area DMF has mapped for surf clam. Construction methodology is further described in Section 12.

SGDB 07 **During a meeting with personnel from Avangrid Renewables, a member of the Osterville Village Association asked about the inevitable, long-term devastation to the significant Dowses bird population during construction. The answer, verbatim, was "Oh, we've got the piping plovers covered." Such a response indicates at best a lack of understanding of the greater Dowses area as an important sanctuary for many forms of**

wildlife, and at worst a completely cavalier attitude about the decimation a 3-year long construction project would have on land and sea-based wildlife in this estuarine environment. We assume the piping plovers are "covered" because Avangrid Renewables considers them a "summer bird" (they claim they will only conduct work at Dowses in the "off-season") when the truth is much more complex.

We believe the HDD operation on and under the seabed will divert the natural movement patterns of local fish stock, greatly decimate shellfish numbers, and negatively impact the considerable local horseshoe crab population. The installation of three (3) conduits for the onshore export cables will occur under the beach from one end to the other, causing vibration, displacement, and noise, all of which are anathema to shorebirds. The pits in the parking lot will in all likelihood prove disruptive and potentially hazardous for land animal movement. The ditching of the causeway will certainly prevent cross-bay spawning for species of fish that use the calm waters of Phinney's Bay to reproduce each spring. All of this is unnecessary disruption of a unique wildlife habitat because Avangrid Renewables has focused all of its attention on the Town of Barnstable's Nantucket Sound beaches – simply because Barnstable has been willing to accept financial and in-kind contributions to support its CWMP. When it comes to the greater Dowses beach estuarine environment, this focus is entirely and especially inappropriate.

An extensive alternative analysis is provided in Section 4 and environmental analyses are provided throughout the DEIR. The Project is being developed in accordance with all applicable regulations and will take all practicable measures to avoid and minimize impacts while providing benefits. Section 7.0 describes fisheries, rare species, offshore avian, and marine resources.

SGDB 08 **Our objections to the relationship between the Town of Barnstable and the proponent are twofold. First, as previously stated, the proponent did not thoroughly consider all viable options to export electricity from a future wind farm given the Town of Barnstable's willingness to trade easements, access, and long term disruption to taxpayers in order to enhance the CWMP funding stream. In this, we contend that both sides took the path of least resistance, a choice that has the potential to inflict environmental damage on a fragile and unique estuary.**

As described in Section 4.0 and in Section 2, the proposed Project is the result of an extensive alternatives analysis. The Project's numerous benefits, some of which will be associated with a future Host Community Agreement (HCA), are described in Section 1.9. Environmental analyses and assessments of environmental impacts are provided throughout the DEIR.

SGDB 09 **Second, discussions, agreements, and deal-making between the town and the proponent were carried out, we believe, in such a way that the residents of Barnstable were purposely kept in the dark until projects could be described as done deals. As our**

ad hoc community action group has learned during our information-gathering activities, public awareness of each of the projects was practically non-existent. In Osterville, residents first became generally aware of the Commonwealth Wind proposal to land cables at Dowses, as well as the specifics of the project during the summer of 2022. The dismay and anger we have documented is, to say the least, extensive. We have amassed 1,000 signature petitions opposing the cable landing at Dowses in a matter of weeks, and have witnessed first-hand how these plans have affected the once peaceful nature and undeniable quality of life in the village of Osterville.

Commonwealth Wind won its bid to provide offshore wind energy to the Commonwealth in December 2021, and then advanced an in-depth engineering siting alternatives analysis to confirm a proposed landing location. The Proponent informed the Town Council of its intention to land at Dowses Beach in a public meeting in March 2022, and met with the OVA and many other groups within Osterville during that time period. The Proponent continues to hold monthly open house meetings on the project for all residents and has shared permit filings and other materials by posting them on the project website. The Project has initiated MEPA and EFSB reviews, both of which allow multiple opportunities for stakeholder participation.

SGDB 10 **When first exploring the Town of Barnstable's Nantucket Sound beaches, Avangrid Renewable informed town officials that Kalmus Beach, in the village of Hyannis, would be unsuitable as the cables would eventually be routed through part of the downtown Hyannis business district. Yet, Avangrid Renewables' preferred route away from Dowses would bisect the entire Osterville business district, which is still recovering financially from the hardship caused by the COVID-19 emergency.**

As described in Sections 2 and 4.0, the proposed Project is the result of an extensive alternatives analysis.

SGDB 11 **When discussing its rejection of a proposed route for cables to run from the Park City project with Centerville residents, Avangrid Renewables personnel described the roadbed residents suggested for use as "too narrow." The causeway that leads from the Dowses beach parking lot to East Bay Road is exceedingly narrow, especially when high tides and storm water rise on both sides to be level with the surface.**

The widths of Town roads, including the causeway, are sufficient to install the necessary duct banks and supporting infrastructure for the Project. As described in greater detail in Section 4, the roadway providing egress from the Craigville Public Beach landfall site utilized for the NE Wind 1 Connector project is not wide enough to accommodate duct banks for both Commonwealth Wind and Park City Wind.

SGDB 12 **Avangrid Renewables assured Osterville residents that the Dowses Beach area would remain accessible to them during construction. This will simply not be the case when the company runs an 8' to 11.5' wide trench the length of the causeway and under the**

existing culvert where water is exchanged between the bays. This would especially constitute a hardship for mobility-impaired persons for whom the handicapped accessible fishing pier provides a safe mechanism for waterfront access and sport.

Use of the existing paved causeway leading to the landfall site is described in Section 2.3.5.1. Section 12 includes a discussion of construction sequencing. Also please see the response to MEPA 56.

SGDB 13 **As we read the scientific research of the health effects of buried HVAC cables, we find no conclusions that their presence are entirely safe to marine life or to humans. Generations of Barnstable children learn to swim at the east end of Dowses Beach. Countless children play on and dig in the sand of this recreational beach. The proponent simply cannot guarantee that 1200 MW of electricity flowing through this beach in the water and onshore would have no deleterious health effects on them and their families, especially in the event that one of the three cables become damaged.**

As described in Section 12.2, although the HDD trajectory at the landfall site is still undergoing engineering refinement, it is estimated that the trajectory will result in the HDD passing at a depth of approximately 50 feet below the ground surface at MHW. As presented in Section 8, the Proponent engaged scientists at Gradient, a nationally recognized consulting firm with expertise in magnetic fields. The Gradient scientists modeled magnetic fields for onshore cables for the NEW 2 Connector and determined that those modeled levels, even when applying highly conservative assumptions, fall far below the internationally recognized health-based guideline of 2,000 milligauss (mG) (a unit of measurement for magnetic fields) endorsed by the World Health Organization.

Further, it is worth noting that the Project design will implement the latest industry standards, including the National Electric Safety Code and standards from the Institute of Electrical and Electronic Engineers. The Project will undergo stringent quality control and assurance processes throughout its project life cycle (i.e., engineering, design, manufacturing, installation, and operation). The offshore export cables will be encased in a grounded metal armor jacket, and each of the three individual conductors will also be grounded through its metallic shielding. The cables will be continuously monitored by electronic systems (e.g., Supervisory Control and Data Acquisition [SCADA] system) to confirm proper operation. Should any abnormalities be detected, the Protection and Control System, which contains redundancy, would immediately open circuit breakers on both ends, isolating the cable. Isolating the cable in this fashion would immediately cut off electricity flowing through the cable.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Cc: Kim, Tori (EEA)
Subject: Fw: New England Wind 2 Connector
Date: Thursday, October 13, 2022 9:32:31 AM

From: S.O.B. Save Our Beach <saveourbeach22@gmail.com>
Sent: Wednesday, October 12, 2022 9:52 AM
To: MEPA (EEA) <mepa@mass.gov>
Cc: Susanne Conley <Suconley717@gmail.com>
Subject: New England Wind 2 Connector

Dear Sir or Madam:

I write on behalf of the *ad hoc* activist group "Save Greater Dowses Beach" to request a 60 day extension of the public comment period for the Environmental Notification Form submitted under the name New England Wind 2 Connector by Epsilon Associates Inc.

The reasons for this request being:

Widespread public awareness of the proposed electrical cable transmission project at Greater Dowses Beach in the Town of Barnstable has developed very recently. Evidence indicates a) the proponent and Barnstable officials did not adequately and in a timely manner involve the local community and its representatives in initial and ongoing discussions regarding the use of Greater Dowses Beach for such a project, and b) the proponent has substantially mis-represented aspects of the proposed project's route, environmental impact, and effect on handicapped accessibility, thereby creating the need for a comprehensive response for which more time than is available is needed.

Our group will be submitting Public Comment no later than October 27, 2022 should this request not be granted, but we hope for your favorable decision. CONL 01

Respectfully,

Susanne H. Conley
Osterville, MA
ph: 508 922 4342

SUSANNE H. CONLEY (CONL)

CONL 01 **I write on behalf of the ad hoc activist group "Save Greater Dowses Beach" to request a 60 day extension of the public comment period for the Environmental Notification Form submitted under the name New England Wind 2 Connector by Epsilon Associates Inc.**

The ENF comment period was extended.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: Avangrid"s Osterville Landing
Date: Friday, October 14, 2022 3:34:26 PM

From: Sally Edmonds <sally@edmonds.com>
Sent: Friday, October 14, 2022 1:36 PM
To: MEPA (EEA) <mepa@mass.gov>
Subject: Avangrid's Osterville Landing

As a homeowner for over 60 years I wish to lend my support to Avangrid's Dowses Beach landing location. It is obviously the best of the options and will hopefully bring a sewer line to Osterville. EDM 01

Sally Edmonds

SALLY EDMONDS (EDM)

EDM 01 **As a homeowner for over 60 years I wish to lend my support to Avangrid's Dowses Beach landing location. It is obviously the best of the options and will hopefully bring a sewer line to Osterville.**

Commonwealth Wind appreciates Ms. Edmonds' support and looks forward to continue working with the community to minimize impacts while providing benefits. The Proponent also looks forward to continued coordination with the Town to maximize benefits to the Town's sewer project.

Lauren Howard - HOW

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: New England wind 2 connector
Date: Monday, October 17, 2022 3:43:03 PM

From: Lauren Howard <lpartelow1@gmail.com>
Sent: Monday, October 17, 2022 2:51 PM
To: MEPA (EEA) <mepa@mass.gov>
Subject: New England wind 2 connector

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

I am a full time resident of Osterville. I walk on a daily basis in town and Dowses Beach is on my route. This beach is a treasure to be enjoyed by Osterville residents and not spoiled by the routing of cables for the Avanstar wind farm! The precious causeway to the beach parking and the two bays on either side would be spoiled, perhaps, permanently by this development. The route through town would destroy the village center.

Cables such as what is proposed should be placed in industrial areas, not in our little village and beach. HOW 01

Lauren Howard
17 David St
Osterville MA

Sent from my iPhone

LAUREN HOWARD (HOW)

HOW 01 **I am a full time resident of Osterville. I walk on a daily basis in town and Dowses Beach is on my route. This beach is a treasure to be enjoyed by Osterville residents and not spoiled by the routing of cables for the Avanstar wind farm! The precious causeway to the beach parking and the two bays on either side would be spoiled, perhaps, permanently by this development. The route through town would destroy the village center. Cables such as what is proposed should be placed in industrial areas, not in our little village and beach.**

As described in Section 4, the Project is the product of an extensive alternatives analysis. Furthermore, the use of HDD to accomplish the offshore-to-onshore transition will avoid any direct impacts to the beach as well as the nearshore area. All infrastructure at the landfall site and along the onshore route will be below-ground. For a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this analysis.

View Comment

Comment Details

EEA #/MEPA ID 16611	**First Name** Stephen	**Address Line 1** 58 King Arthur Drive	**Organization** --
Comments Submit Date 11-8-2022	**Last Name** Fratalia	**Address Line 2** --	**Affiliation Description** Individual
Certificate Action Date 11-29-2022	**Phone** --	**State** MASSACHUSETTS	**Status** Opened
Reviewer Alexander Strysky-(857)408-6957, alexander.strysky@mass.gov	**Email** Stevefratalia@gmail.com	**Zip Code** 02655	

Comment Title or Subject

Topic: Opposition to Dowses Beach as an entry point

Comments

Segoe UI 10 pt Paragraph

One of the reasons my wife and I moved to the area was because of beautiful Dowses Beach and Osterville Village. Of all the Massachusetts coast available for this project they want destroy this sanctuary... how ill-conceived and inconsiderate... take this project to someplace where it will not cause such environmental and economic destruction. Someplace that embraces the project. 95% of the Osterville community will be opposed to this invasion once they learn of the details as it has been embraced by Town officials only who want to proceed in secrecy and in doing so are not embrace the will of the people who voted for them. This will cost them politically as the overwhelming majority that oppose this project will remember this misrepresentation when it is election time. Take the Wind Project elsewhere where it will have MINIMAL IMPACT and where it will be embraced. It is NOT EMBRACED or SUPPORTED by the Community of Osterville....

FRA 01

Attachments

Update Status

Status

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SUBMIT

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BACK TO SEARCH RESULTS

STEPHEN FRATALIA (FRA)

FRA 01 **One of the reasons my wife and I moved to the area was because of beautiful Dowses Beach and Osterville Village. Of all the Massachusetts coast available for this project they want destroy this sanctuary...how ill-conceived and inconsiderate... take this project to someplace where it will not cause such environmental and economic destruction. Someplace that embraces the project. 95% of the Osterville community will be opposed to this invasion once they learn of the details as it has been embraced by Town officials only who want to proceed in secrecy and in doing so are not embrace the will of the people who voted for them. This will cost them politically as the overwhelming majority that oppose this project will remember this misrepresentation when it is election time. Take the Wind Project elsewhere where it will have MINIMAL IMPACT and where it will be embraced. It is NOT EMBRACED or SUPPORTED by the Community of Osterville....**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

From: Jane Hattemer-Stringer
To: Strysky, Alexander (EEA)
Subject: Dowses Beach cable - my comment
Date: Thursday, November 17, 2022 10:43:55 AM

Hello Alexander, I was there at the meeting last night, November16, 2022 at the Osterville Library. I am a resident of Osterville. I am thrilled that this project will be going forward. I am thrilled that it is being so carefully planned. I got alot of information from you and from the other presenters whom I heard. I did have to leave after 30 minutes due to my schedule. But I left feeling so happy that this has a chance of happening...at last. Our coast, our homes and businesses will benefit. With so much at stake, opposition to a well-thought out, fully funded wind farm project makes no sense at all to me. If we truly love the Cape as we say we do, we should be welcoming this project with open arms. STR 01

If there is anything I can do to help make this happen, I will do it.
Thank you for your work. Jane E. Hattemer-Stringer

JANE E. HATTEMER-STRINGER (STR)

STR 01 **I am a resident of Osterville. I am thrilled that this project will be going forward. I am thrilled that it is being so carefully planned. I got a lot of information from you and from the other presenters whom I heard. I did have to leave after 30 minutes due to my schedule. But I left feeling so happy that this has a chance of happening...at last. Our coast, our homes and businesses will benefit. With so much at stake, opposition to a well-thought out, fully funded wind farm project makes no sense at all to me. If we truly love the Cape as we say we do, we should be welcoming this project with open arms.**

Commonwealth Wind appreciates Ms. Hattemer-Stringer's support and looks forward to continue working with the community to minimize impacts while providing benefits.

View Comment

Comment Details

EEA #/MEPA ID
16611

Comments Submit Date
11-18-2022

Certificate Action Date
11-29-2022

Reviewer
Alexander Strysky (857)408-6957, alexander.strysky@mass.gov

First Name
Carole

Last Name
Maguire

Phone
--

Email
maguirecb175@gmail.com

Address Line 1
11 Jobys Lane

Address Line 2
--

State
MASSACHUSETTS

Zip Code
02655

Organization
Concerned Citizen

Affiliation Description
Individual

Status
Opened

Comment Title or Subject

Topic: Commonwealth Wind / Dowses Beach

Comments

MAG 01

I am writing to vehemently oppose the proposed offshore cable landing at Dowses Beach. This beach area is much too fragile to handle the industrial impacts of such a large project. Having seen a similar project's impact on Covell's beach and the surrounding area, I cannot imagine the impact that this would have on Dowses Beach. The Covell's and Craigville beach projects have direct access to the main road. Most of the businesses and residences near it are seasonal. Dowses beach, with its narrow causeway, the 2 connected bays and the abundance of wildlife is a much more fragile area. I can't imagine why it is even under consideration. Furthermore, Dowses Beach is used year-round by residents from all over the area. While Covell's beach has nearby Craigville beach for people to alternate with, there is no such alternative for people who want to access Dowses during the time of proposed construction.

Please - do not allow Avengrid to destroy this beautiful beach and natural resource!

Carole Maguire

Attachments

Update Status

Status

Opened

SUBMIT

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BACK TO SEARCH RESULTS

CAROL MAGUIRE (MAG)

MAG 01 **I am writing to vehemently oppose the proposed offshore cable landing at Dowses Beach. This beach area is much too fragile to handle the industrial impacts of such a large project. Having seen a similar project's impact on Covell's beach and the surrounding area, I cannot imagine the impact that this would have on Dowses Beach. The Covell's and Craigville beach projects have direct access to the main road. Most of the businesses and residences near it are seasonal. Dowses beach, with its narrow causeway, the 2 connected bays and the abundance of wildlife is a much more fragile area. I can't imagine why it is even under consideration. Furthermore, Dowses Beach is used year-round by residents from all over the area. While Covell's beach has nearby Craigville beach for people to alternate with, there is no such alternative for people who want to access Dowses during the time of proposed construction.**

A detailed alternatives analysis is provided in Section 4.0, including a specific discussion of landfall sites in Section 4.4. The Proponent anticipates maintaining access to the paved parking lot at the landfall site during the HDD operations for all three conduits (see Section 12.2 and Attachment P). Duct bank installation along the paved causeway would result in a single 6- to 8-week period of time during which the causeway would be closed.

View Comment

Comment Details

EEA #/MEPA ID	First Name	Address Line 1	Organization
16611	James	31 Sherman Street	--
Comments Submit Date	**Last Name**	**Address Line 2**	**Affiliation Description**
11-18-2022	Paterson	N/A	Individual
Certificate Action Date	**Phone**	**State**	**Status**
11-29-2022	--	MASSACHUSETTS	Opened
Reviewer	**Email**	**Zip Code**	
Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov	jpaterson9238@gmail.com	02138	

Comment Title or Subject

Topic: New England Wind 2 Connector

Comments

Segoe UI 10 pt Paragraph

I'm a longtime (30 year) property owner and summer-resident in Osterville, MA. I strongly support the New England Wind 2 Connector project at Dowses Beach and would be happy and proud to see the village of Osterville make a significant contribution to turning back the existential threat posed by climate change. JPAT 01

Attachments

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BACK TO SEARCH RESULTS

JAMES PATERSON (JPAT)

JPAT 01 **I'm a longtime (30 year) property owner and summer-resident in Osterville, MA. I strongly support the New England Wind 2 Connector project at Dowses Beach and would be happy and proud to see the village of Osterville make a significant contribution to turning back the existential threat posed by climate change.**

Commonwealth Wind appreciates Mr. Paterson's support and looks forward to continue working with the community to minimize impacts, while providing benefits.

From: Randy Harnois
To: Strysky, Alexander (EEA)
Subject: Dowses Beach
Date: Friday, November 18, 2022 7:43:26 PM

I would like to add several comments about the Avangrid. First. I believe this was defeated in Falmouth for the same reasons many are against this project here in Osterville. Environmental disaster. Working on around the beach for many days weeks months on a beach and surrounding wet land has to have a major effect. Not just for birds, grasses and sea creatures, but also we all use this beach year round. Second. This plan is a disaster for the small town. Construction from the beach to West Barnstable .. effects daily travel schools businesses .. the quality of everyday life. Third. Wind power does not seem to be the answer. This only lasts 25 years and what happens when these turbines are obsolete ? What happens ? Weather. Hurricane's .. what happens ? Noise pollution cause under the ocean for sea life. Studies show it effects dolphins whales etc. Much more needs to be studied. Fourth. Cost. When this was defeated (by Senator Kennedy). They proved no savings to costumers .. by the way does this office realize this has been defeated in the past. (Hyannis) Looks like Osterville was not planned out well or because they have no where else to go. !!! Thank you for your time. Please help stop any further exploration of this project ..
Patricia Harnois
Sent from my iPhone

HAR 01
HAR 02
HAR 03
HAR 04
HAR 05

PATRICIA HARNOIS (HAR)

HAR 01 **First. I believe this was defeated in Falmouth for the same reasons many are against this project here in Osterville. Environmental disaster. Working on around the beach for many days weeks months on a beach and surrounding wet land has to have a major effect. Not just for birds, grasses and sea creatures, but also we all use this beach year round.**

The Project is designed in accordance with applicable regulations and after extensive analyses to avoid and minimize impacts. Please see the response to MEPA 56.

HAR 02 **Second. This plan is a disaster for the small town. Construction from the beach to West Barnstable .. effects daily travel schools businesses .. the quality of everyday life.**

Construction-period considerations such as traffic management, dust control, and noise abatement are discussed in Section 12.0. Duct bank installation along roadways is expected to proceed at a rate of 80-200 feet per day, so construction-period disturbance in any single location will only occur for a short period of time.

HAR 03 **Third. Wind power does not seem to be the answer. This only lasts 25 years and what happens when these turbines are obsolete? What happens?**

As is typical of utility-grade generation and transmission infrastructure, the Project's equipment is expected to have a physical life expectancy of 30 or more years. Decommissioning is discussed in Section 2.8.

HAR 04 **Weather. Hurricane's .. what happens ?**

Section 10 includes a coastal resiliency analysis.

HAR 05 **Noise pollution cause under the ocean for sea life. Studies show it effects dolphins whales etc. Much more needs to be studied.**

Marine mammals in the OCS and nearby waters are regularly subjected to commercial shipping noise and other vessel traffic and are likely habituated to vessel noise because of this exposure (see Section 7.4). Vessel traffic associated with Project construction along the OECC is likely to emit underwater sound with acoustic characteristics and levels comparable to transiting vessels that are unrelated to the construction. Therefore, the potential risk to marine mammals from underwater sound generated by the installation of the NE Wind 2 Connector is considered very low to low. Section 7.4 provides more information regarding potential impacts to marine mammals and mitigation measures proposed.

John Hauser - HAU

View Comment

Comment Details

EEA #/MEPA ID 16611	**First Name** John	**Address Line 1** 245 East Bay Road	**Organization** --
Comments Submit Date 11-19-2022	**Last Name** Hauser	**Address Line 2** --	**Affiliation Description** Individual
Certificate Action Date 11-29-2022	**Phone** --	**State** MASSACHUSETTS	**Status** Opened
Reviewer Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov	**Email** hauser@mit.edu	**Zip Code** 02655	

Comment Title or Subject

Topic: Boating Interests

Comments

I am one of many people who moor my boat in East Bay or the Centerville River. We are active from May through October. To exit East Bay, we use a dredged channel of 6 feet or more. I listened to the presentation by Avangrid and they did not address the impact on East Bay per se or the East Bay channel. Will the project interfere with boating? For example, will the barge block the channel? Will suspended sediment make the channel unusable? Will the activity disturb the fishing? Will we still have access to the boat ramp? Etc. HAU 01

I also note that Avangrid touts sewers, but the map show no sewers on East Bay Road along East Bay nor the parts of Wianno Ave closest to East Bay. HAU 02

There is an active fishing community along the jetty that draws from all over. Will they be affected? Will they still have access? HAU 03

Finally, I am many other elderly use Dowses Beach through October providing a place for healthy exercise. HAU 04

Attachments

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Status

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BACK TO SEARCH RESULTS

JOHN HAUSER (HAU)

HAU 01 **I am one of many people who moor my boat in East Bay or the Centerville River. We are active from May through October. To exit East Bay, we use a dredged channel of 6 feet or more. I listened to the presentation by Avangrid and they did not address the impact on East Bay per se or the East Bay channel. Will the project interfere with boating? For example, will the barge block the channel? Will suspended sediment make the channel unusable? Will the activity disturb the fishing? Will we still have access to the boat ramp? Etc.**

As described in Section 6.3, the Project does not include construction activities within East Bay, and construction activities are not anticipated to restrict access to the channel leading into East Bay. The use of HDD will not generate a significant amount of suspended sediment and will avoid impacts to the nearshore environment, including impacts to the channel leading into East Bay. The Proponent does not anticipate impacting any existing boat ramps.

HAU 02 **I also note that Avangrid touts sewers, but the map show no sewers on East Bay Road along East Bay nor the parts of Wianno Ave closest to East Bay.**

The Proponent proposes to coordinate sewer installation with the areas that overlap the proposed Barnstable CWMP.

HAU 03 **There is an active fishing community along the jetty that draws from all over. Will they be affected? Will they still have access?**

Please see the response to MEPA 56.

HAU 04 **Finally, I am many other elderly use Dowses Beach through October providing a place for healthy exercise.**

Please see the response to MEPA 56.

From: MaryGaines Standish
To: Strysky, Alexander (EEA)
Subject: Re: Avangrid
Date: Saturday, November 19, 2022 5:18:15 PM

On Sat, Nov 19, 2022 at 4:53 PM MaryGaines Standish <mgrstandish@gmail.com> wrote:

> As a long time resident of Osterville on East Bay Road, I am appalled at this affront to our lovely area and to all who are living here on . Residents have chosen Osterville because of its peaceful charm and beauty and year round enjoyment of one of the loveliest beaches on the Cape.
>
> And now, along comes Avangrid with its plans to disrupt our quiet, beautiful area. Dowse's is not only a home for migratory birds, but a place where families and friends can enjoy a quite respite from the craziness of the world. This churning up of our lives carries with it an arrogant "we don't care" attitude toward anyone in its path. Such an outrageous plan with no previous publicity has awakened a sleeping giant. Residents, as you may have guessed from the meeting Wednesday at the Osterville Library, are downright angry.
>
> I am definitely in favor of renewable energy, but only in the right place at the right time. STA 01
> Dowse's is not the right place nor is this the right time.
>
> Sincerely,
>
> Mary-Gaines Standish

MARY-GAINES STANDISH (STA)

STA 01 **...I am definitely in favor of renewable energy, but only in the right place at the right time. Dowse's is not the right place nor is this the right time.**

An extensive alternatives analysis is provided in Section 4.0.

From: scotmclane@aol.com
To: Strysky, Alexander (EEA)
Subject: Offshore Wind Project - Dowses Beach
Date: Saturday, November 19, 2022 3:02:21 PM

Greetings,

I zoomed into the Osterville Library meeting this past Wednesday and communicated that I'm strongly in favor of the cables coming in to Dowses. My only significant concern is the possibility of pollution caused by the "drilling muds" / "drilling lubricants" (not sure of the right term) used in the horizontal drilling. My hope is that the material selected is the least polluting option available, and that the most effective option for recovering as much of that material as possible is selected. MCL 01 MCL 02

Also, I want to repeat something I said via Zoom on Wednesday...I think that the residents of Barnstable would overwhelmingly approve of the cables coming into Dowses. I also think that most Osterville residents would approve if they knew the actual details - in particular, that the cables will be 20-30 feet below the beach surface. MCL 03

Finally, I wonder if there is a way I can find out when future informational/public comment meetings will be held - please let me know if there is a "mailing" list I can get on, or a web address where I can keep up to date. MCL 04

Thanks,
Scott McLane

SCOTT MCLANE (MCL)

MCL 01 **I zoomed into the Osterville Library meeting this past Wednesday and communicated that I'm strongly in favor of the cables coming in to Dowses.**

The Proponent appreciates this support.

MCL 02 **My only significant concern is the possibility of pollution caused by the "drilling muds" / "drilling lubricants" (not sure of the right term) used in the horizontal drilling. My hope is that the material selected is the least polluting option available, and that the most effective option for recovering as much of that material as possible is selected.**

The HDD methodology is described in detail in Section 12.2. The “drilling fluid" used during the operation is a slurry consisting predominantly of water and bentonite, a naturally occurring, inert and non-toxic clay.

MCL 03 **Also, I want to repeat something I said via Zoom on Wednesday...I think that the residents of Barnstable would overwhelmingly approve of the cables coming into Dowses. I also think that most Osterville residents would approve if they knew the actual details - in particular, that the cables will be 20-30 feet below the beach surface.**

The Proponent appreciates this position, and encourages citizens to learn about the Project design. In fact, as described in Section 12.2, the HDD trajectories will likely be at a depth of approximately 50 feet below the beach at the High Tide Line.

MCL 04 **Finally, I wonder if there is a way I can find out when future informational/public comment meetings will be held - please let me know if there is a "mailing" list I can get on, or a web address where I can keep up to date.**

Please visit the Commonwealth Wind website to sign up for information and Project updates: https://www.commonwealthwind.com/learnmore

From: Paul Richards
To: Strysky, Alexander (EEA)
Cc: Paul Richards
Subject: New England Wind 2 Connector Comments to MEPA
Date: Sunday, November 20, 2022 1:28:22 PM

My comment on this project pertains to shoreline over-build.

Barnstable's most popular swimming/recreational beaches have already been committed to several energy project landfalls.
Time to share the fun with Mashpee, Falmouth et al.
Barnstable landfalls include......
Kalmus Beach has the second Nantucket cable
Covell Beach is the permitted landfall for Vineyard Wind
Craigville Beach will be the landfall for Park City
Now Dowses Beach is in the crosshairs for the New England Wind 2 Connector landfall.

The Barnstable town manager and town counsel, who have committed Dowses to get the host city benefits, to the best of my knowledge never asked the Barnstable citizenry whether or not having all our popular bathing beaches tied for months/years was acceptable. Has MEPA considered the "acceptability to the citizens" of Dowses as the fourth landfall as a decision criterion? It should be. RIC 01

Respectfully submitted,
Paul Richards
Centerville

PAUL RICHARDS (RIC)

RIC 01 **My comment on this project pertains to shoreline over-build. Barnstable's most popular swimming/recreational beaches have already been committed to several energy project landfalls. Time to share the fun with Mashpee, Falmouth et al. Barnstable landfalls include... Kalmus Beach has the second Nantucket cable Covell Beach is the permitted landfall for Vineyard Wind Craigville Beach will be the landfall for Park City. Now Dowses Beach is in the crosshairs for the New England Wind 2 Connector landfall.**

The Barnstable town manager and town counsel, who have committed Dowses to get the host city benefits, to the best of my knowledge never asked the Barnstable citizenry whether or not having all our popular bathing beaches tied for months/years was acceptable. Has MEPA considered the "acceptability to the citizens" of Dowses as the fourth landfall as a decision criterion? It should be.

An extensive alternatives analysis has been performed for the Project, and is provided in Section 4.0. For a Project of this complexity, there are interrelated aspects of the routing, each of which is important, that must work together to achieve the Project purpose. The offshore route, landfall site, onshore route, substation site, and interconnection location are all critical aspects of the overall routing, and each must be feasible from technical, environmental, legal/permitting, and municipal support perspectives. Therefore, none of these aspects of routing can have a fatal flaw, and the ultimate selection is a balancing of all of the factors discussed in this analysis.

View Comment

Comment Details

EEA #/MEPA ID
16611

Comments Submit Date
11-20-2022

Certificate Action Date
11-29-2022

Reviewer
Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov

First Name
Stephen

Last Name
Waller

Phone
--

Email
stevegwaller@gmail.com

Address Line 1
125 Blantyre Avenue

Address Line 2
--

State
MASSACHUSETTS

Zip Code
02632

Organization
none

Affiliation Description
Individual

Status
Opened

Comment Title or Subject

Topic: support for the wind farm and its connector at Osterville

Comments

Segoe UI 10 pt Paragraph

I strongly support the efforts to create wind farms south of Nantucket and am very impressed with the horizontal drilling technique that the cable layers are using. To come ashore many feet below the surface is remarkable technology, and gentle on the environment. I was skeptical when the projects began in Centerville, but am now convinced it is a terrific plan for achieving our renewable energy goals for Cape Cod and Massachusetts. All of us in the central Cape communities will endure a few years of crowded roads as the cables are being laid, but that is a small price to pay for the colossal advance in renewable energy access they will bring. I have no financial interest to declare on this issue, but I do have a grandfatherly interest in seeing a better future. WAL 01

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STEPHEN WALLER (WAL)

WAL 01 **I strongly support the efforts to create wind farms south of Nantucket and am very impressed with the horizontal drilling technique that the cable layers are using. To come ashore many feet below the surface is remarkable technology, and gentle on the environment. I was skeptical when the projects began in Centerville, but am now convinced it is a terri c plan for achieving our renewable energy goals for Cape Cod and Massachusetts. All of us in the central Cape communities will endure a few years of crowded roads as the cables are being laid, but that is a small price to pay for the colossal advance in renewable energy access they will bring. I have no nancial interest to declare on this issue, but I do have a grandfatherly interest in seeing a better future.**

The Proponent appreciates Mr. Waller's support and looks forward to continue working with the community to minimize impacts, while providing benefits.

Gerdy Family - GER

From: Greg Gerdy
To: Strysky, Alexander (EEA)
Cc: Save Dowses Beach; Greg Gerdy
Subject: Save Dowses Beach from Avangrid's Commonwealth Wind
Date: Sunday, November 20, 2022 3:45:42 PM

>
> Greetings Mr. Strysky,
>
> We hope this finds you well.
>
> We are writing you to express our deep concerns regarding the "big dig" of Dowses Beach.
>
> The fragility of the beach, the many birds that nest there, the surrounding environmental beauty and priceless marine area - all these will be seriously and negatively impacted if the Avangrid project (Commonwealth Wind) is allowed to destroy this unique part of Cape Cod.
>
> Although we understand the need for clean energy - and we are environmentally supportive of alternative energy sources - approving a destructive, multi year, massive construction project by putting a giant submarine cable at Dowses Beach will undoubtedly destroy the fragile Dowses Beach area in Osterville.
>
> We oppose the Commonwealth Wind project by Avangrid and ask that you and your office consider the lasting and devastating environmental damage to Dowses Beach.

> We ask that you and your office withhold any permits and any support from the Commonwealth Wind project and prevent it from going forward.

> What advantages are there in allowing Commonwealth Wind to proceed while simultaneously destroying unique and environmentally fragile Dowses Beach? GER 01

> There is still time and opportunity to say "NO" to Avangrid.
>
> There are less environmentally destructive ways to get clean energy. There are other less fragile places for Avangrid to construct their Commonwealth Wind project. GER 02
>
> Please tell Avangrid to stop their preliminary study now and to stay away from fragile Dowses Beach!
>
> Save Dowses Beach, Mr. Strysky!
>
> The future generations will be grateful to you Mr. Strysky and MEPA; as well as those of us who are still here to appreciate the unique beauty of Dowses Beach.
>
> Thank you.
> Gerdy family

GERDY FAMILY (GER)

GER 01 **What advantages are there in allowing Commonwealth Wind to proceed while simultaneously destroying unique and environmentally fragile Dowses Beach?**

The Alternatives Analysis included in Section 4 describes the process for how the paved parking lot at the proposed landfall site was selected as the most appropriate landfall site for the proposed Project, which is due in part to the site facilitating the use of HDD from a paved parking area. These characteristics allow the cable landings to be installed within paved areas while avoiding impacts to sensitive nearshore coastal resources.

GER 02 **There are less environmentally destructive ways to get clean energy. There are other less fragile places for Avangrid to construct their Commonwealth Wind project.**

Section 1.3 provides background information about offshore wind energy generation and its critical role in driving a clean energy future. Furthermore, an extensive alternatives analysis has been performed for the Project, and is provided in Section 4.0.

Maria and Greg Gerdy - MGG

From: G Gerdy
To: Strysky, Alexander (EEA)
Cc: advmel.ed512@yahoo.com
Subject: Commonwealth Wind must be stopped
Date: Saturday, November 26, 2022 8:10:11 AM

Good morning Mr. Strysky,

We hope this finds you well and that your Thanksgiving was a good one.

As you know, Avangrid's Commonwealth Wind project proposes to run a giant submarine cable under fragile, beautiful Dowses Beach, an estuarine environment hosting numerous wildlife; and an area that is enjoyed by summer visitors, fishermen, boaters and year-round walkers alike.

Our serious concern about Commonwealth Wind is that it will destroy a priceless natural environmental treasure PERMANENTLY in the name of creating clean energy.

MGG 01

What happens to the numerous birds that nest there, the fishes that swim there, the various wildlife that call the area home?

What happens to the health of the residents who will be subjected to the hazardously high electrical voltage emitted by the powerful cable? MGG 02

We support clean energy but creating it needs to be done carefully and wisely.
This is NOT the case here.

Likewise, Avangrid's Christina Hoffman on November 16, 2022 at the Osterville village meeting stated that the lifespan of the equipment would be a brief 25 years. A mere 25 years!

Imagine
permanently destroying
an irreplaceable
priceless
estuarine
environmental treasure
that took thousands of years
for Mother Earth to create -
Our Dowses Beach -
All for a wind project with equipment bearing a lifespan of obsolescence -
of 25 short years -
Gone, useless, decayed in 25 years!

Then what happens to the obsolete cable when it stops working?
Does it get ripped up from Dowses Beach or will it remain a decaying hazardous relic under the water? MGG 03

How does its dead presence affect the water? Poison it for the fishes and also leave fishermen with nothing to catch nor support themselves and their families? Poison the water quality so families, children, summer visitors can no longer swim?

Mr. Strysky, Commonwealth Wind must be stopped.

Preserving the quality of marine life at Dowses Beach is as important as creating clean energy.

Isn't it ironic that Avangrid's quest to create clean energy is achieved through a dirty, destructive and decay-prone process?

Please help stop Commonwealth Wind now.

Thank you.
Maria and Greg Gerdy

MARIA AND GREG GERDY (MGG)

MGG 01 **Our serious concern about Commonwealth Wind is that it will destroy a priceless natural environmental treasure PERMANENTLY in the name of creating clean energy. What happens to the numerous birds that nest there, the fishes that swim there, the various wildlife that call the area home?**

Section 7 discusses fisheries, rare species, avian, and marine resources.

MGG 02 **What happens to the health of the residents who will be subjected to the hazardously high electrical voltage emitted by the powerful cable?**

Please see the response to SGDB 13.

MGG 03 **All for a wind project with equipment bearing a lifespan of obsolescence - of 25 short years - Gone, useless, decayed in 25 years! Then what happens to the obsolete cable when it stops working? Does it get ripped up from Dowses Beach or will it remain a decaying hazardous relic under the water? How does its dead presence affect the water? Poison it for the fishes and also leave fishermen with nothing to catch nor support themselves and their families? Poison the water quality so families, children, summer visitors can no longer swim?**

Project decommissioning is described in Section 2.8. As is typical of utility-grade generation and transmission infrastructure, the Project's equipment is expected to have a physical life expectancy of 30 or more years.

From:	Greg Gerdy
To:	Strysky, Alexander (EEA)
Cc:	Greg Gerdy
Subject:	Consolidation with pre-existing cables - Commonwealth Wind
Date:	Sunday, November 27, 2022 9:33:26 AM

Good morning Mr. Strysky,

Regarding the Commonwealth Wind project by Avangrid:
wouldn't it be better - if not the best - for the environment if Commonwealth Wind's proposed giant submarine cable for fragile and priceless Dowses Beach is **consolidated** with other **pre-existing submarine cables already in place in Massachusetts?** MGF1 01

We support clean energy but Avangrid's permanent destruction of an irreplaceable environmental estuarine treasure that is fragile Dowses Beach is wrong.

Wrong for the environment,
wrong for Mother Earth,
wrong for future generations who will never experience the peace of the dunes, beauty of the wild nesting birds and nature's gift to fishermen that is Dowses Beach.

Please don't take this environmental treasure away from us and away from future generations.

Please fight and advocate for Dowses Beach by
a) supporting the consolidation of pre-existing submarine cables already in place in Massachusetts and
b) recommending to other permitting state, county and local agencies that Avangrid must find another more suitable location for their Commonwealth Wind project. MGF1 02

Stay safe and thank you for your help.
Maria Gerdy and family

MARIA GERDY AND FAMILY (NOVEMBER 27, 2022) (MGF1)

MGF1 01 **wouldn't it be better - if not the best - for the environment if Commonwealth Wind's proposed giant submarine cable for fragile and priceless Dowses Beach is consolidated with other preexisting submarine cables already in place in Massachusetts?**

A detailed alternatives analysis is provided in Section 4.0, including a specific discussion of landfall sites in Section 4.4 which includes an explanation for why the Project cannot be co-located with the Vineyard Wind Connector or New England Wind 1 Connector.

MGF1 02 **We support clean energy but Avangrid's permanent destruction of an irreplaceable environmental estuarine treasure that is fragile Dowses Beach is wrong. Wrong for the environment, wrong for Mother Earth, wrong for future generations who will never experience the peace of the dunes, beauty of the wild nesting birds and nature's gift to fishermen that is Dowses Beach. Please don't take this environmental treasure away from us and away from future generations. Please fight and advocate for Dowses Beach by a) supporting the consolidation of pre-existing submarine cables already in place in Massachusetts and b) recommending to other permitting state, county and local agencies that Avangrid must find another more suitable location for their Commonwealth Wind project.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

From:	Greg Gerdy
To:	Strysky, Alexander (EEA)
Cc:	Greg Gerdy
Subject:	Save Greater Dowses Beach & the medical uses of the American Horseshoe Crab - Limulus Amebocyte Lysate (LAL)
Date:	Tuesday, November 29, 2022 7:40:43 AM

Good morning Mr. Strysky,

We would like to express our complete agreement and support of the "Public Comment to the New England 2 Wind Connector ENF (EEA# 16611)" authored by Susanne H. Conley.

Additionally, we wish to add that the important medical value of the American horseshoe crab must not be overlooked. **MGF2 01**

On pp. 3-4, the Public Comment states that:

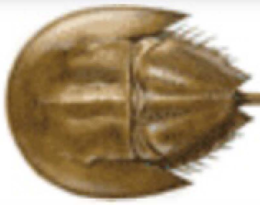
> Osterville's very name is derived from the oysters common to local waters. As is well-documented, a healthy shellfish population is essential to the removal of nitrogen in a marine environment. Another very vulnerable population, as described by the International
>
> 3
>
> Union for the Conservation of Nature, is the American Horseshoe Crab. Dowses beach is an important spawning and molting area for these animals, whose decline is partially attributed to coastal zone development. The young, which molt multiple times throughout the year, do so in great numbers at Dowses beach; the adults do as well twice a year. At times, their discarded shells number in the hundreds from one end of the strand to the other.

We attach a brief summary of the American horseshoe crab's medical uses below. (Source: Maryland.gov)

Finally, we wish to emphasize that more than ever, not only is there a need to proactively preserve Dowses Beach for all the great reasons Ms. Conley aptly described in the Public Comment to MEPA,
but there is also a true MEDICAL need to protect the environmental "spawning and molting area" of the endangered American horseshoe crab that can be found in Dowses Beach.

Saving Dowses Beach is saving humanity.

Thank you.
Maria Gerdy and family



Medical Uses

The blood of the horseshoe crab provides a valuable medical product critical to maintaining the safety of many drugs and devices used in medical care. A protein in the blood called Limulus Amebocyte Lysate (LAL) is used by pharmaceutical and medical device manufacturers to test their products for the presence of endotoxins, bacterial substances that can cause fevers and even be fatal to humans.

The LAL test is one of the most important medical products
derived from a marine organism to benefit humans.

Why is the Horseshoe Crab the original "blue blood"?

A horseshoe crab's blood has a blue to blue-green color when exposed to the air. The blood is blue because it contains a copper-based respiratory pigment called hemocyanin.

MARIA GERDY AND FAMILY (NOVEMBER 29, 2022) (MGF2)

MGF2 01 **Additionally, we wish to add that the important medical value of the American horseshoe crab must not be overlooked.**

Due to the use of HDD to accomplish the offshore to onshore transition, the Project will avoid impacts to horseshoe crab habitat along the beach and nearshore environment.

From: Debbie Barlow
To: Strysky, Alexander (EEA)
Subject: Dowses Beach
Date: Tuesday, November 22, 2022 9:41:47 PM

Hi Alex, please respond in detail, with specific proposed timelines , on all the ways, positive and negative, this project will affect East Bay and the many boaters who utilize East Bay Road, East Bay boat ramp, East Bay and East Bay Channel at the jetty to Nantucket Sound and the five mile radius or so of the Sound where we are frequent boaters from Spring through fall. BARL 01

Thank you. Debbie Barlow

DEBBIE BARLOW (BARL)

BARL 01 **please respond in detail, with specific proposed timelines, on all the ways, positive and negative, this project will affect East Bay and the many boaters who utilize East Bay Road, East Bay boat ramp, East Bay and East Bay Channel at the jetty to Nantucket Sound and the five mile radius or so of the Sound where we are frequent boaters from Spring through fall.**

As discussed in Section 6.3, the Project does not include construction activities within East Bay and construction activities are not anticipated to restrict access to the channel leading into East Bay.

From:	Mary MacMillan
To:	Strysky, Alexander (EEA)
Subject:	Commonwealth Wind
Date:	Wednesday, November 23, 2022 6:30:10 PM

I would like to register my concern re Avangrid Renewables and their Commonwealth Wind Project at Dowses Beach in Osterville.
This property is not suitable for their project. It is a beautiful stretch of land surrounded by Nantucket Sound, East Bay and Phinneys Bay. It is a sanctuary for birds of all kinds, terns, piping plovers, osprey, ducks, swan , just to name a few. MAC 01
The parking lot that so attracts Avengrid is accessed by one narrow causeway and is used year round by residents to access the beach , the handicap fish pier as well as to walk in winter when the roads are narrower.
Seal have been frequent visitors requiring a sign to warn visitors about bothering them.
We have seen what has happened to Covells beach in Centerville as it's been turned into an industrial site. This should never happen to Dowses.
The Dowse family previously owned this property. When their house blew down in 1944 they wanted the residents of Osterville to enjoy this treasure. It is not a public beach. It is a private beach for residents only. Our Town Council seems to think they own it but they do not. MAC 02
Please listen to the many concerned citizens and tell Avangrid to find another venue .
Thank you
Mary M MacMillan
Sent from my iPhone

MARY M MACMILLAN (MAC)

MAC 01 **This property is not suitable for their project. It is a beautiful stretch of land surrounded by Nantucket Sound, East Bay and Phinneys Bay. It is a sanctuary for birds of all kinds, terns, piping plovers, osprey, ducks, swan, just to name a few. The parking lot that so attracts Avengrid is accessed by one narrow causeway and is used year round by residents to access the beach, the handicap fish pier as well as to walk in winter when the roads are narrower. Seal have been frequent visitors requiring a sign to warn visitors about bothering them. We have seen what has happened to Covells beach in Centerville as it's been turned into an industrial site. This should never happen to Dowses.**

A detailed alternatives analysis is provided in Section 4.0, including a specific discussion of landfall sites in Section 4.4. Given the characteristics of the landfall site, HDD will be performed within the existing paved parking lot for the offshore-to-onshore transition to avoid nearshore and coastal impacts. Furthermore, no construction will occur in either East Bay or Phinneys Bay.

MAC 02 **The Dowse family previously owned this property. When their house blew down in 1944 they wanted the residents of Osterville to enjoy this treasure. It is not a public beach. It is a private beach for residents only. Our Town Council seems to think they own it but they do not.**

Based on the Town of Barnstable Property Record Card last accessed on March 6, 2023, parcel (163-013) at the landfall site has an address of 348 East Bay Road, Osterville, MA and is owned by the Town of Barnstable (BCH). There are 16 listed beaches in the Town of Barnstable. Dowses Beach, adjacent to the landfall site, is one of nine beaches in the Town of Barnstable that is limited to Resident Recreation Parking Permit holders only. Project activities within the paved parking lot for HDD will not restrict Resident Recreation Parking Permit holders from accessing or using Dowses Beach. Access will be restricted during a single 6- to 8-week period when the duct bank is being installed along the paved causeway.

From:	Susan Mclean
To:	Strysky, Alexander (EEA)
Subject:	Public Comment
Date:	Friday, November 25, 2022 7:08:32 PM

Dear Alex:

I would like MEPA to know that I am totally against the proposed assault on Dowses Beach by Avangrid/Commonwealth Wind.

We have owned a house in Osterville for 42 years. As an artist , who paints largely in the open air in all seasons at Dowses Beach, I have observed the many birds who live on this beautiful fragile piece of land. The beach and dunes are home to endangered species; namely, piper plovers and least terns, both state-listed rare species. We also welcome a family of osprey every year with a specially built nest. We enjoy many species of Winter ducks, swans and many migrating birds making a stop at our beloved Dowses Beach. We also worry about the effect this invasive project will have on marine mammals, fish, seals and turtle species.

OMC 01

OMC 02

I received a letter from Mr. Gottlieb of APCC on October 27, in response to my letter, that stated that the Proponent should provide "further study of any potential impacts from the small segment of offshore cable that deviates from the established corridor route in order to reach the proposed onshore landing site at Dowses Beach."

OMC 03

I'm wondering if Dowses Beach was an afterthought to this whole project. It seems like we are the guinea pigs in the rush to "get things done quickly" with little thought of the harm to this sanctuary for wildlife and residents.
Sincerely yours,

Susan O'Brien McLean
https://urldefense.com/v3/__http://Www.susanobrienmclean.com__;!!CUhgQOZqV7M!mk3Ml9aWY-E5b9VJZE59jn2ZY8FnnjTj8v8kt1KWZSrnJbqSajKTxNYpGEoqyyenYRquXkPgznnlDUH1fWf6vkI7knk$

Sent from my iPhone

SUSAN O'BRIEN MCLEAN (OMC)

OMC 01 **We have owned a house in Osterville for 42 years. As an artist, who paints largely in the open air in all seasons at Dowses Beach, I have observed the many birds who live on this beautiful fragile piece of land. The beach and dunes are home to endangered species; namely, piper plovers and least terns, both state-listed rare species. We also welcome a family of osprey every year with a specially built nest. We enjoy many species of Winter ducks, swans and many migrating birds making a stop at our beloved Dowses Beach.**

Please see the response to NHESP 07.

OMC 02 **We also worry about the effect this invasive project will have on marine mammals, fish, seals and turtle species.**

This DEIR discusses fish and fisheries resources (see Section 7.1), marine mammals (see Section 7.4), and sea turtles (see Section 7.5).

OMC 03 **I received a letter from Mr. Gottlieb of APCC on October 27, in response to my letter, that stated that the Proponent should provide "further study of any potential impacts from the small segment of offshore cable that deviates from the established corridor route in order to reach the proposed onshore landing site at Dowses Beach." I'm wondering if Dowses Beach was an afterthought to this whole project. It seems like we are the guinea pigs in the rush to "get things done quickly" with little thought of the harm to this sanctuary for wildlife and residents.**

The "established corridor route" referred to in this comment is the OECC that was defined and reviewed through the MEPA process for the NE Wind 1 Connector. The only difference between the OECC for the NE Wind 1 Connector and the NE Wind 2 Connector is a spur that provides access to the landfall site. As described in the extensive alternatives analysis provided in Section 4.0, many potential landfall sites were considered for the NE Wind 2 Connector before the paved parking lot at Dowses Beach was selected as the preferred landfall site.

From: Jack Cohen
To: Strysky, Alexander (EEA)
Subject: Comments to EEA #/MEPA ID #: 16611; Project Name: New England Wind 2 Connector in Osterville, MA (Dowses Beach)
Date: Saturday, November 26, 2022 8:33:57 AM

Alex --

As suggested by you and others at the November 16th Meeting at the Osterville Public Library with local residents and representatives from Avangrid as to the Commonwealth Wind Project (the "Project"), please accept the following comments as matters that have spiked my concern as to the nature and the process by which this project has been rolled out, presented to the local citizenry and will undoubtedly cause environmental as well as economic damage both to the current pristine status of Dowses Beach and the newly reinvigorated local businesses, which are just now recovering from the impact of Covid. Please note that as my background is not in environmental science or energy issues, I remain well aware of the impact of the written word and the appropriate means to run an administrative process.

That said, it is imperative that we collectively step back and understand the context in which this matter should be viewed. The first tenet of the Hippocratic Oath is "First, do no harm." Applying such principle and perspective to this matter, it similarly has been written that "**Do no harm** means taking a step back from an intervention to assess the broader context and mitigate potential negative effects on the social fabric, economy and environment." See, Charancle, J.M.B. and Lucchi, E. (2018). Incorporating the principle of "Do No Harm": How to Take Action Without Causing Harm. Obtained from www.alnap.org/system/files/content/resource/files/main/donoharm_pe07_synthesis.pdf. Applying such principle to the Project, it is axiomatic that any and all alternatives be explored that would avoid, or at least greatly mitigate, the stated harm that will be caused to Dowses Beach and to ensure that the process is not a simple "find the shortest path between two points" mentality which was that which was expressed by the Avangrid representatives at the referenced meeting. The current status of the projects at Craigsville and Covell Beaches provide no such comfort as to either how they were presented to the public nor their current states of development and construction. JCOH 01

What causes me even further angst is trying to understand what the representatives of Avangrid have stated in some of their moving papers and whether they are simply making it up as they go along. Case-in-point is the pleading filed by the Avangrid legal team before the DPU in their Request for an INTERLOCUTORY ORDER ON COMMONWEALTH WIND LLC'S MOTION FOR A ONE-MONTH

SUSPENSION OF THE PROCEEDINGS on 11/4/2022. Therein, Avangrid sought a one-month suspension of the DPU's review of the Power Purchase Agreements ("PPAs") for the Project. Avangrid alleged that this suspension would allow the parties to examine the impact of the unprecedented commodity price increases, interest rate hikes and supply shortages on the overall viability of the Project. More precisely, Avangrid's counsel on page two of this pleading wrote that as to the current financial underpinnings "Commonwealth Wind maintains that the offshore wind generation project ("Project") underlying its PPAs with the Companies **is no longer viable**..." (emphasis added). JCOH 02
Please note that counsel did not state that the Project may not be viable, but declared that it is not viable within the current cost and stated financial parameters.

Counsel's comment must be taken literally as all attorneys are obligated to be as accurate as possible in their pleadings or any documents filed with any court or administrative body. For example, Federal Rule of Civil Procedure 11 essentially states that any statements made within a pleading must be true and accurate to the best of the attorney's knowledge. I contend that if there was any ambiguity within the financial status of the Avangrid proposal that needed to be tweaked or modified, that is a far cry from an emphatic statement that the Project cannot be constructed as proposed. However, if counsel is engaging in Clintonian polemics as to the meaning of the term "is," there may well be a better forum for such comments. Thus, it was surprising and, in fact, inapposite to counsel's pleading, for a comment to be made subsequent to the DPU's rejection of the of the one-month suspension that a spokesperson for Avangrid said the company now "can present a proposal that would return the project to economic viability" and, according to Reuters, intends to present that information to the state in coming days as they remain committed to the project.

So, what is true and what is mere advocacy or argument........what can the public rely on..........were they telling the truth in their pleading or were they simply posturing to get a "better deal?" Do we believe them when they say that the project will minimize environmental impact or should we believe what we now see at Covell Beach?

I request that this process be unwound, that a more viable and less impactful path be sought, that the original purposes of the Dowses family devise to Barnstable be maintained and that we avoid the fear of Judy Collins that we may otherwise "pave paradise and put up" not a parking lot but a windmill farm and cables that may well fulfill her wise admonition. JCOH 03

Thank you.

--
Jack R. Cohen
jrcohen24@gmail.com
941-740-3346

JACK R. COHEN (JCOH)

JCOH 01 **Applying such principle to the Project, it is axiomatic that any and all alternatives be explored that would avoid, or at least greatly mitigate, the stated harm that will be caused to Dowses Beach and to ensure that the process is not a simple "find the shortest path between two points" mentality which was that which was expressed by the Avangrid representatives at the referenced meeting. The current status of the projects at Craigsville and Covell Beaches provide no such comfort as to either how they were presented to the public nor their current states of development and construction.**

An extensive alternatives analysis is provided in Section 4.0.

JCOH 02 **Case-in-point is the pleading filed by the Avangrid legal team before the DPU in their Request for an INTERLOCUTORY ORDER ON COMMONWEALTH WIND LLC'S MOTION FOR A ONE-MONTH SUSPENSION OF THE PROCEEDINGS on 11/4/2022. Therein, Avangrid sought a one-month suspension of the DPU's review of the Power Purchase Agreements ("PPAs") for the Project. Avangrid alleged that this suspension would allow the parties to examine the impact of the unprecedented commodity price increases, interest rate hikes and supply shortages on the overall viability of the Project. More precisely, Avangrid's counsel on page two of this pleading wrote that as to the current financial underpinnings "Commonwealth Wind maintains that the offshore wind generation project ("Project") underlying its PPAs with the Companies is no longer viable..." (emphasis added). Please note that counsel did not state that the Project may not be viable, but declared that it is not viable within the current cost and stated financial parameters.**

Please see the response to TOB2 68. In any event, MEPA review does not include an assessment of the economic returns to the Proponent of a proposed project.

JCOH 03 **I request that this process be unwound, that a more viable and less impactful path be sought, that the original purposes of the Dowses family devise to Barnstable be maintained and that we avoid the fear of Judy Collins that we may otherwise "pave paradise and put up" not a parking lot but a windmill farm and cables that may well fulfill her wise admonition.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

Carol Zais - ZAI

From: Carol Zais
To: Strysky, Alexander (EEA)
Subject: Strong SUPPORT for AVANGRID New England Wind Connector 2
Date: Monday, November 28, 2022 5:37:10 PM

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Mr. Strysky,

Thank you in advance for taking the time to consider my comments on the New England Wind Connector 2, currently before the Massachusetts Environmental Policy Act Office. I wish to voice my strong support for both AVANGRID's third project, Commonwealth Wind, as well as its grid interconnection in Barnstable, New England Wind Connector 2. ZAI 01

Both AVANGRID's Vineyard Wind 1 Connector and New England Wind 1 Connector have both been approved by the state, and New England Wind Connector 2 builds upon the first two projects-- New England Wind Connector 2 will use the same installation methods, will follow a similar shared corridor below the seabed, and connect to the grid in the town of Barnstable.

AVANGRID has demonstrated in its other projects and continues to demonstrate with New England Wind Connector 2 that it has performed all necessary due diligence with respect to environmental safety plans for landing cables under Dowses Beach in Barnstable. Construction work will be entirely limited to the paved areas of the beach's parking lot. No construction will occur along the coastal beach or dunes, as a result of the companying employing the horizontal directional drilling (HDD) methodology which avoids impacts to these coastal resources by burying the cable deep beneath the surface.

AVANGRID has the proven expertise and has demonstrated to the town their desire to be a partner. Barnstable's Town Council just recently voted unanimously to begin Host Community Agreement negotiations for Commonwealth Wind. I urge you to expeditiously review and approve New England Wind Connector 2.

Respectfully,

Carol Zais
86 Putnam Ave
Cotuit, MA 02635
508-561-2936
Carolzais@me.com

CAROL ZAIS (ZAI)

ZAI 01 **Thank you in advance for taking the time to consider my comments on the New England Wind Connector 2, currently before the Massachusetts Environmental Policy Act Office. I wish to voice my strong support for both AVANGRID's third project, Commonwealth Wind, as well as its grid interconnection in Barnstable, New England Wind Connector 2.**

Commonwealth Wind appreciates Mr. Zais' support and looks forward to continue working with the community to minimize impacts, while providing benefits.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: New England Wind 2 Connector
Date: Monday, November 28, 2022 2:26:07 PM

From: capemegathlins@verizon.net <capemegathlins@verizon.net>
Sent: Saturday, November 26, 2022 4:37 PM
To: MEPA (EEA) <mepa@mass.gov>
Subject: New England Wind 2 Connector

To Whom It May Concern,

We are writing to express our strong belief that Dowses Beach, in Osterville, MA, should NOT be used as the landing place for the final wind turbine project to be located on Cape Cod. The beach is a remarkable asset to the Town of Barnstable residents, and as such should not be considered as a location for the venture being proposed. The pristine condition of the beach, its physical configuration as a small peninsula adjacent to the mainland, its qualities of accessibility for the handicapped, its relatively small size compared to the population it serves, and its status of being home to so many shore birds, some of them endangered, are all reasons for allowing it to be left free from construction projects seven months a year.

MEG 01

We are strongly in favor of off-shore wind projects, and believe that the construction at Covell's Beach and Craigville Beach certainly fulfill the Cape's responsibility to provide sites. Look for favorable sites in other areas, now that the Town of Barnstable has cooperated to ensure that these wind projects happen. Leave Dowses Beach alone!

Sincerely,
Don and Karen Megathlin
P.O. Box 125
Cotuit, MA 02635

DON AND KAREN MEGATHLIN (MEG)

MEG 01 **We are writing to express our strong belief that Dowses Beach, in Osterville, MA, should NOT be used as the landing place for the final wind turbine project to be located on Cape Cod. The beach is a remarkable asset to the Town of Barnstable residents, and as such should not be considered as a location for the venture being proposed. The pristine condition of the beach, its physical configuration as a small peninsula adjacent to the mainland, its qualities of accessibility for the handicapped, its relatively small size compared to the population it serves, and its status of being home to so many shore birds, some of them endangered, are all reasons for allowing it to be left free from construction projects seven months a year.**

We are strongly in favor of off-shore wind projects, and believe that the construction at Covell's Beach and Craigville Beach certainly fulfill the Cape's responsibility to provide sites. Look for favorable sites in other areas, now that the Town of Barnstable has cooperated to ensure that these wind projects happen. Leave Dowses Beach alone!

An extensive alternatives analysis is provided in Section 4.0. Rare species and consultations with NHESP are discussed in Section 7.2.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: New England Wind 2 Connector
Date: Monday, November 28, 2022 2:26:16 PM

From: Edward McCormack <edward.mccormack2018@gmail.com>
Sent: Saturday, November 26, 2022 3:57 PM
To: strysky@mass.gov <strysky@mass.gov>; MEPA (EEA) <mepa@mass.gov>
Subject: New England Wind 2 Connector

This is to comment and request further study on the Electro Magnetic Force created by the connecting cable on land from the subject project. My understanding as of the 11/16/22 meeting at the Osterville public library is that three cables in one duct bank will carry the proposed 1200 megawatts through Dowses Beach, Wianno Avenue and the village center of Osterville out to the grid connection at Route 6. My concern is the EMF effect and distance safety for all human population at the beach and roadways to the grid connection. If the EMF effect for an underground cable is the same or similar to overhead high tension power lines, safety will be an issue not to mention real estate values. We should have qualified Mass State engineers investigating and reporting on the EMF effects and not relying on Avangrid engineering consultants and their numbers. I'm assuming the human population is very much a part of the environment. MCC 01

Thank you for this consideration,

Edward McCormack
18 Woodland Ave.
Osterville, MA 02655

EDWARD MCCORMACK (MCC)

MCC 01 **This is to comment and request further study on the Electro Magnetic Force created by the connecting cable on land from the subject project. My understanding as of the 11/16/22 meeting at the Osterville public library is that three cables in one duct bank will carry the proposed 1200 megawatts through Dowses Beach, Wianno Avenue and the village center of Osterville out to the grid connection at Route 6. My concern is the EMF effect and distance safety for all human population at the beach and roadways to the grid connection. If the EMF effect for an underground cable is the same or similar to overhead high tension power lines, safety will be an issue not to mention real estate values. We should have qualified Mass State engineers investigating and reporting on the EMF effects and not relying on Avangrid engineering consultants and their numbers. I'm assuming the human population is very much a part of the environment.**

Please see the response to SGDB 13.

From: Hector Guenther
To: Strysky, Alexander (EEA)
Subject: Project ID 16611/ENF for New England Wind Connector 2
Date: Monday, November 28, 2022 8:28:34 PM
Importance: High

Dear Mr. Strysky,

As a concerned citizen and resident of Barnstable, Massachusetts, I write to oppose the proposed landing by Commonwealth Wind LLC, a subsidiary of Avangrid, Inc., of three 275-kilowatt HVAC export power cables at Dowses Beach in Osterville, MA.

Dowses Beach is a peninsula. It encompasses a narrow strand and dune system that fronts an estuarine environment. It is home to abundant wildlife, features a handicapped accessible fishing pier, and is accessed by a narrow causeway that divides two environmentally fragile bays.

I am not opposed to wind power or renewable energy. Indeed, deploying new, non-fossil fuel energy sources is essential to combat climate change. I am, *however, vehemently against landing the power cables at Dowses Beach.* Dowses is a unique and beautiful Cape Cod treasure. I especially worry about the impact of this project on the many species of birds, animals and sea life that use the strand, the dune system and the waters of the bay throughout the year. This project has the potential to permanently alter the delicate ecological balance of animal, bird and sea life in the greater Dowses Beach area.

Provided below are my observations and questions regarding the project sponsor and the proposed landing site:

1. **The sponsor has not given sufficient consideration to safer alternative landing areas**. Massachusetts has hundreds of miles of coastline, including numerous areas where industrial and commercial activities are presently located on that coastline. Commonwealth Wind has real, viable alternative landing areas, including Brayton Point, Acushnet, Fall River, the site of the decommissioned Pilgrim Nuclear Power Station in the Manomet section of Plymouth, and the City of Boston. All of these sites contain electrical substations that can handle or HGUE 01

could be upgraded to handle the amount of power that is proposed.

2. **I question Avangrid's experience, technical capabilities and its ability to perform in this project**. The core competency of Avangrid, Inc. is that of a regulated electricity and natural gas delivery business that operates eight utilities in Connecticut, Maine, Massachusetts and New York. This core business accounted for 83% of Avangrid's 2021 revenues. Avangrid also operates renewable energy businesses consisting principally of onshore wind farms (15% of 2021 revenue) and a small amount of solar and thermal. HGUE 02

   Offshore wind power is a wholly new business for Avangrid. The company has zero experience in developing, constructing and operating offshore wind projects. I question Avangrid's competence and capability to complete a project of this scale and technical complexity – and I am very concerned that mistakes can and will be made that will permanently alter the ecology of Dowses Beach.

3. **I question Avangrid's staying power and commitment to this project.** Avangrid secured the leases for its three proposed wind farms, one of which is Commonwealth Wind, several years ago at a very low price. On recent investor calls, Avangrid has spoken of the enormous value of those leases, now that the federal and state governments have made offshore wind such a high policy priority. Avangrid, like all major corporations, is opportunistic. CEO Pedro Azagra has hinted that if the company's second and third offshore projects – Park City Wind and Commonwealth Wind – don't come to fruition, the company may "realize" significant value by selling some or all of the lease rights to another developer. HGUE 03

4. **Avangrid's behavior in the earliest stages of the permitting process for Commonwealth Wind gives rise to concerns about its trustworthiness and truthfulness.** On October 21, 2022, Avangrid filed with the Massachusetts Department of Public Utilities (DPU) a request that DPU suspend its review of three related Power Purchase Agreements for one month. The reason for the delay? "The world has changed," and Avangrid said the PPA contracts, which the company heavily negotiated and signed recently, in April 2022, *are no longer economically viable for the company!*

In a same-day press release, Avangrid said:

"A one-month suspension in the proceeding provides a needed opportunity for AVANGRID, the Massachusetts Electric Distribution Companies, state and regulatory officials, and stakeholders to evaluate the current economic challenges facing Commonwealth Wind and assess measures that would return the project to economic viability *including, but not limited to, modest changes to the PPAs*. [my emphasis]"

In its third quarter earnings call on October 26, 2022, Avangrid CEO Pedro Azagra was asked the following question by a security analyst: "If the Massachusetts Commission does not grant a higher PPA, will you move forward with the project?" He responded, "The answer is we need to – those revisions in order to continue with the project. We just need that." Answering a follow up question, Azagra said: "Yes. No doubt. We need that."

Azagra added: "…the value as you can see of just the leases of those projects is huge. So from that point of view, I think you know, there is a value in those assets, whether you go ahead with the project now, later or you just cancel them and start again, the leases are worth a lot."

In other words, Avangrid wants to fundamentally change the terms of the PPA contracts the company just negotiated and agreed to! Either that, or the company may seek to realize value by selling the leases.

5. **I question Avangrid's managerial and financial competence and assess their counterparty risk in this project to be very high, bordering on unacceptable.** In press reports and on calls with Wall Street analysts, Avangrid has listed various reasons why the world has changed and why it therefore needs to secure better terms in the PPAs. The company's laundry list includes:

   Persistent inflation
   Sharp and sudden increases in interest rates
   Higher capital costs
   Historic price increases for global commodities
   The war in Ukraine

Prolonged supply chain constraints
The need for project synergies (possibly merging Park City and Commonwealth Wind)
Economies of scale
Grid improvements
Engineering optimizations
New, larger wind turbines
Impact of the Inflation Reduction Act

My comment is: None of these factors are new. *All were present and known when Avangrid signed the PPAs only seven months ago, in April 2022.*

A leading U.S. utility expert I spoke to said they were "absolutely flabbergasted" by Avangrid's request to reopen the PPAs. This analyst said that Avangrid won the rights to negotiate the PPAs in an open and transparent process run by the Massachusetts Department of Public Utilities. The analyst said, moreover, that if they were in the shoes either of the utility companies (the buyers) or DPU, they would refuse to renegotiate the PPA contracts. Instead, this analyst said, the bidding process should be reopened to other developers.

-

Given the uncertainties around Avangrid's technical competence in offshore wind and its trustworthiness to perform its contractual obligations, I am very concerned about potentially irreversible impacts that the proposed landing of power cables may have on Dowses Beach. Given that the company has reportedly budgeted $5 billion for the Commonwealth Wind project, I believe they have the ability to find a more appropriate and less risky site to land these cables. MEPA should demand that Avangrid look elsewhere for a more appropriate landing site. I urge you and the team at MEPA to reject this project. HGUE 04

Kind regards,

____

Hector Guenther

HECTOR GUENTHER (HGUE)

HGUE 01 **I am, however, vehemently against landing the power cables at Dowses Beach. Dowses is a unique and beautiful Cape Cod treasure. I especially worry about the impact of this project on the many species of birds, animals and sea life that use the strand, the dune system and the waters of the bay throughout the year. This project has the potential to permanently alter the delicate ecological balance of animal, bird and sea life in the greater Dowses Beach area... The sponsor has not given sufficient consideration to safer alternative landing areas. Massachusetts has hundreds of miles of coastline, including numerous areas where industrial and commercial activities are presently located on that coastline. Commonwealth Wind has real, viable alternative landing areas, including Brayton Point, Acushnet, Fall River, the site of the decommissioned Pilgrim Nuclear Power Station in the Manomet section of Plymouth, and the City of Boston. All of these sites contain electrical substations that can handle or could be upgraded to handle the amount of power that is proposed.**

An extensive alternatives analysis is provided in Section 4.0.

HGUE 02 **I question Avangrid's experience, technical capabilities and its ability to perform in this project. The core competency of Avangrid, Inc. is that of a regulated electricity and natural gas delivery business that operates eight utilities in Connecticut, Maine, Massachusetts and New York. This core business accounted for 83% of Avangrid's 2021 revenues. Avangrid also operates renewable energy businesses consisting principally of onshore wind farms (15% of 2021 revenue) and a small amount of solar and thermal. Offshore wind power is a wholly new business for Avangrid. The company has zero experience in developing, constructing and operating offshore wind projects. I question Avangrid's competence and capability to complete a project of this scale and technical complexity – and I am very concerned that mistakes can and will be made that will permanently alter the ecology of Dowses Beach.**

As of December 31, 2022, AVANGRID has more than 9,200 megawatts (MW) of installed wind, solar, and thermal capacity across the United States, including 8,061 MW of installed onshore wind capacity from 67 unique sites. Moreover, AVANGRID is a subsidiary of the Iberdrola Group, the third largest renewable energy developer in the world. The IBERDROLA Group is the world's leading producer of wind power and one of the biggest electric utilities globally in terms of market capitalization. The IBERDROLA Group's offshore business has 700+ directly employed individuals that possess skills and experience in the full spectrum of offshore wind requirements: permitting and development, transmission, finance, construction, and O&M.

In addition to the 800-MW Vineyard Wind project currently under construction and several U.S.-based offshore wind projects under development (e.g., 800-MW Park City Wind Project, 1,200-MW Commonwealth Wind project, 2,500-MW Kitty Hawk Project), the IBERDROLA Group has approximately 12 offshore wind projects (totaling approximately 12,734 MW) globally either in operation (1,453 MW), financed and under construction (4,134 MW), or under other stages of development (6,787 MW).

HGUE 03 **I question Avangrid's staying power and commitment to this project. Avangrid secured the leases for its three proposed wind farms, one of which is Commonwealth Wind, several years ago at a very low price. On recent investor calls, Avangrid has spoken of the enormous value of those leases, now that the federal and state governments have made offshore wind such a high policy priority. Avangrid, like all major corporations, is opportunistic. CEO Pedro Azagra has hinted that if the company's second and third offshore projects – Park City Wind and Commonwealth Wind – don't come to fruition, the company may "realize" significant value by selling some or all of the lease rights to another developer.**

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5. I question Avangrid's managerial and financial competence and assess their counterparty risk in this project to be very high, bordering on unacceptable. In press reports and on calls with Wall Street analysts, Avangrid has listed various reasons why the world has changed and why it therefore needs to secure better terms in the PPAs. The company's laundry list includes: Persistent inflation; Sharp and sudden increases in interest rates; Higher capital costs; Historic price increases for global commodities; The war in Ukraine; Prolonged supply chain constraints; The need for project synergies (possibly merging Park City and Commonwealth Wind); Economies of scale; Grid improvements; Engineering optimizations; New, larger wind turbines; Impact of the Inflation Reduction Act. My comment is: None of these factors are new. All were present and known when Avangrid signed the PPAs only seven months ago, in April 2022. A leading U.S. utility expert I spoke to said they were "absolutely flabbergasted" by Avangrid's request to reopen the PPAs. This analyst said that Avangrid won the rights to negotiate the PPAs in an open and transparent process run by the Massachusetts Department of Public Utilities. The analyst said, moreover, that if they were in the shoes either of the utility companies (the buyers) or DPU, they would refuse to renegotiate the PPA contracts. Instead, this analyst said, the bidding process should be reopened to other developers.

Please see the response to HGUE 02.

HGUE 04 **Given the uncertainties around Avangrid's technical competence in offshore wind and its trustworthiness to perform its contractual obligations, I am very concerned about potentially irreversible impacts that the proposed landing of power cables may have on Dowses Beach. Given that the company has reportedly budgeted $5 billion for the Commonwealth Wind project, I believe they have the ability to find a more appropriate and less risky site to land these cables. MEPA should demand that Avangrid look elsewhere for a more appropriate landing site. I urge you and the team at MEPA to reject this project.**

An extensive alternatives analysis is provided in Section 4.0. Please see the response to HGUE 02 regarding AVANGRID's experience.

November 28,2022

Alex Strysky, Analyst
MEPA
Office of Energy and Environmental affairs
Boston, MA

Dear Sir,

My wife and I are writing to you to protest the planned landing of three industrial high voltage electrical cables by AVANGRID and their Commonwealth wind project at Dowes Beach in Osterville, Massachusetts.

We are fortyfive year residents of the Town of Barnstable and the village of Osterville. We have raised four children here and spent hours year round on the sand of Dowes Beach.

I am an Obstetrician & Gynecologist at Cape Cod Hospital where I have served as the Chairman of the Department of Obstetrics and Gynecology, Hospital Chief of Staff of over 400 doctors and served on the Board of Trustees of Cape Cod Healthcare.

I am a lifelong sailor and fisherman and are very familiar with the waters from Newport, R.I. to Boston. I have raced in offshore events such as the Marion to Bermuda Race.

My wife and I are deeply concerned of the unproven safety of these Commercial high voltage cables and the electronic magnetic field to the health of our children, grandchildren and neighbors. We are also disturbed by the environmental impact of the most convenient site chosen by Avangrid when a project such as this should be brought ashore at a commercial location. **CONW 01** **CONW 02**

There is proof that the electronical magnetic fields produced by these cables have been linked to childhood leukemia and brain cancer. Are we going to place three of these industrial size cables, yet to be produced, yet to be tested and yet to be used anywhere and to be made for the first time in New Bedford under a fragile barrier beach which thousands of Barnstable residents enjoy year round and where our children build sand castles?

This site is a health and safety mistake. It must be stopped and relocated.

Avangrid has presented no proven safety and health data on these not yet to be produced cables or any other cables.

The environmental impact of this site is staggering to this pristine barrier beach. It is not only a peaceful haven to our residents year long but protects and allows for the aquatic and bird life of East Bay, the Centerville river, Scudder Bay and the Craigville marshes behind craigville beach. **CONW 03**

Have you truly considered the whole area of impact? Bringing the industrial cables across the narrow isthmus connecting to the mainland will without a doubt ruin the spawning pond of the multiple fish species not only during the multiple years of construction but possibly forever.

What of the multiple nests in the whole area of the endangered piping plover and the magnificent Ospreys. They and other species will be harmed not only by the wind turbines themselves but for certain by the years of heavy equipment and construction.

The impact of the wind turbines vibration themselves in the migration of fish and especially whales goes without question.

The impact to our small village roads and movement about town and the impact to the economy of our small businesses will be staggering. It will also be felt for years.

CONW 04

The convenient landfall for Avangrid project is not going to be tolerated by the residents of Osterville Village and the interruption of essential services of fire, police and ambulances.

The addition of the sewer project is a tempting ploy by Avangrid. Osterville is the last needed location of the sewer project as home lots are large here and many homes are used in the summer only. Waste water is handled with ease. CONW 05

The disruption to the Covell beach and the entire Hyannis area by the Vineyard Wind Project is a living example of the disruption and destruction these projects create. They never stay on schedule and never restore the sites areas to their original habitat.

Avangrid claims they can only tap into the power grid on the Cape. This seems ridiculous. I also question how this may impact the ability to use the power lines on the Cape for future electrical needs for down Cape homes and business. Has this been answered? CONW 06

Comparisons to wind farms in Denmark are invalid. There are no hurricanes in Denmark. Denmark has had multiple problems with their cables. Horizontal drilling projects are usually done in remotes areas where there is adequate space for the equipment and it can be done without disruption of the surrounding area.

CONW 07

The effects of Global Warming have also not been accounted for. There will be changes in the wind production as heat gradients change. This will render wind farms less effective producers of clean energy. The destruction and cost to benefits ratio must be re-evaluated.

Rising ocean levels will make Hydro power production even a greater leading source of clean energy than the 71% worldwide position it now occupies.

Evidence based medicine is how we care for people in the 21st Century.

Where is the evidence based testing and data on the commercial electrical cables proving that there is no health and safety risks especially when placed in the middle of a small residential village. None has been presented. CONW 08

The impact on our fragile, ecological treasure will be great and long lasting.

Dowes Beach is the only beach in Osterville that is reserved for the residents of Barnstable. It is also the only beach that has a boardwalk for the handicap to get to the water for a swim and it's the only beach that has a handicap fishing pier. CONW 09

Cape Cod is one of Massachusetts diamonds. It must be protected and preserved for our future generations. Dowes Beach or anywhere on the Cape and Islands should not be used for the convenience of Avangrid. It should not be sacrificed to attain a quota on clean energy production. This is poor technology in the wrong place.

My wife and I ask that your diligently review this project for proven data based evidence for the health and safety issues. We ask that you review the multiple issues of the environmental impacts both on nature and the citizens of the village of Osterville. This project should not be allowed to be permitted.

Sincerely,

Joseph J. Conway, M.D.
Patricia A. Conway, R.N
920 Main Street
1-3
Osterville, MA
Jconway50@aol.com
Tac1949@gmail.com

JOSEPH J. CONWAY, M.D. AND PATRICIA A. CONWAY, R.N (CONW)

CONW 01 **My wife and I are deeply concerned of the unproven safety of these Commercial high voltage cables and the electronic magnetic field to the health of our children, grandchildren and neighbors. We are also disturbed by the environmental impact of the most convenient site chosen by Avangrid when a project such as this should be brought ashore at a commercial location. There is proof that the electronical magnetic fields produced by these cables have been linked to childhood leukemia and brain cancer. Are we going to place three of these industrial size cables, yet to be produced, yet to be tested and yet to be used anywhere and to be made for the first time in New Bedford under a fragile barrier beach which thousands of Barnstable residents enjoy year round and where our children build sand castles? This site is a health and safety mistake. It must be stopped and relocated. Avangrid has presented no proven safety and health data on these not yet to be produced cables or any other cables.**

Please see the response to SGDB 13.

CONW 02 **We are also disturbed by the environmental impact of the most convenient site chosen by Avangrid when a project such as this should be brought ashore at a commercial location.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

CONW 03 **The environmental impact of this site is staggering to this pristine barrier beach. It is not only a peaceful haven to our residents year long but protects and allows for the aquatic and bird life of East Bay, the Centerville river, Scudder Bay and the Craigville marshes behind craigville beach. Have you truly considered the whole area of impact? Bringing the industrial cables across the narrow isthmus connecting to the mainland will without a doubt ruin the spawning pond of the multiple fish species not only during the multiple years of construction but possibly forever. What of the multiple nests in the whole area of the endangered piping plover and the magnificent Ospreys. They and other species will be harmed not only by the wind turbines themselves but for certain by the years of heavy equipment and construction. The impact of the wind turbines vibration themselves in the migration of fish and especially whales goes without question.**

As described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at landfall site. Section 7.0 discusses fisheries, rare species, avian, and marine resources.

CONW 04 **The impact to our small village roads and movement about town and the impact to the economy of our small businesses will be staggering. It will also be felt for years. The convenient landfall for Avangrid project is not going to be tolerated by the residents of Osterville Village and the interruption of essential services of fire, police and ambulances.**

Construction-period considerations, including traffic management, are discussed in Section 12.

CONW 05 **The addition of the sewer project is a tempting ploy by Avangrid. Osterville is the last needed location of the sewer project as home lots are large here and many homes are used in the summer only. Waste water is handled with ease.**

As part of its Comprehensive Wastewater Management Plan (CWMP), the Town of Barnstable has plans to install sewer on several of the main roadways proposed on the project's Preferred onshore duct bank route whether the Project duct bank is installed or not. It is the Proponent's understanding that the construction of the duct bank could spur a 10-year acceleration of the planned CWMP sewer installation which would result in a significant community and environmental benefit. The Three Bays watershed is in need of nitrogen load reduction which the sewer installation would facilitate.

CONW 06 **Avangrid claims they can only tap into the power grid on the Cape. This seems ridiculous. I also question how this may impact the ability to use the power lines on the Cape for future electrical needs for down Cape homes and business. Has this been answered?**

Section 4 includes an alternatives analysis which includes grid interconnection points and supports the Proponent’s proposal to interconnect at the West Barnstable Substation. ISO-NE’s 2019 Economic Study determined the Barnstable/Bourne area to be one of the points suitable for offshore wind interconnection. West Barnstable Substation is the point of interconnection (POI) for which the Project owns queue positions in ISO-NE. The interconnection is located on a 345-kV system, which makes it a robust POI and easy to export electricity to Cape Cod residents and surrounding areas. The West Barnstable Substation POI has the capacity to accommodate approximately 2,000 MW without significant grid upgrades and without negatively impacting electricity consumers on the Cape. In fact, adding a generation resource at this location will improve system reliability (see Section 1.9.1). It is also the closest interconnection point to the OECC. Compared to other potential points of interconnection, this makes onshore cable routing to the West Barnstable Substation less difficult and, more importantly, reduces environmental impacts.

CONW 07 **Comparisons to wind farms in Denmark are invalid. There are no hurricanes in Denmark. Denmark has had multiple problems with their cables. Horizontal drilling projects are usually done in remotes areas where there is adequate space for the equipment and it can be done without disruption of the surrounding area.**

The effects of Global Warming have also not been accounted for. There will be changes in the wind production as heat gradients change. This will render wind farms less effective producers of clean energy. The destruction and cost to benefits ratio must be re-evaluated. Rising ocean levels will make Hydro power production even a greater leading source of clean energy than the 71% worldwide position it now occupies.

Section 10.1.3 summarizes results from a coastal sediment transport modeling analysis conducted to predict flooding and erosion at the landfall site and adjacent causeway resulting from 2030, 2050, and 2070 sea level rise predictions combined with 50-, 100-, and 200-year coastal storms (see Attachment Q for the technical report). The coastal storm events and sea level rise predictions used in the modeling analysis were customized to the landfall site and adjacent causeway. Hurricanes (e.g., Hurricane Sandy) and associated flooding erosion were included in the analysis. Section 1.3 describes offshore wind energy generation and how it is critical for the New England region's GHG emission reduction goals.

CONW 08 **Where is the evidence based testing and data on the commercial electrical cables proving that there is no health and safety risks especially when placed in the middle of a small residential village. None has been presented.**

Please see the response to SGDB 13.

CONW 09 **Dowses Beach is the only beach in Osterville that is reserved for the residents of Barnstable. It is also the only beach that has a boardwalk for the handicap to get to the water for a swim and it's the only beach that has a handicap fishing pier.**

Please see the response to MEPA 56.

From: peter hansen
To: Strysky, Alexander (EEA)
Subject: Dowses Beach
Date: Monday, November 28, 2022 11:06:28 AM

Dear Alexander - I am the vice president of the Osterville Village Association and have spent my whole life in Osterville (swam at Dowses Beach every summer when growing up). I am strongly opposed to the proposed Avangrid project to bring electrical cables into Dowses Beach! My support is with Susan Conley and the 'Save Greater Dowses Beach' efforts. Please note my complete opposition to this insanity! Regards, Peter Hansen HAN 01

PETER HANSEN (HAN)

HAN 01 **I am the vice president of the Osterville Village Association and have spent my whole life in Osterville (swam at Dowses Beach every summer when growing up). I am strongly opposed to the proposed Avangrid project to bring electrical cables into Dowses Beach! My support is with Susan Conley and the 'Save Greater Dowses Beach' efforts. Please note my complete opposition to this insanity!**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: New England Wind 2 connector
Date: Monday, November 28, 2022 2:26:33 PM

From: Tom McElligott <tom.mcelligott@gmail.com>
Sent: Sunday, November 27, 2022 9:37 AM
To: MEPA (EEA) <mepa@mass.gov>
Subject: New England Wind 2 connector

As Barnstable Residents, my wife and I would like to express our complete objection to the continuing Wind projects at Covell Beach, Craigville Beach, and Dowses Beach.

We live off of Craigville Beach road about a mile from the first project at Covell Beach and that road has been a complete mess since the project started. It is the major road to Covell Beach and surrounding areas for us and many residents in the area. It is now full of large bumps and holes in the road and has never been returned even close to the state when the project started well over a year ago. The road is an accident waiting to happen as people swerve through the bumps driving as quickly as possible as they often have no other road to use to get to their destination.

Why hasn't the wind company and the town of Barnstable been held responsible to repair the road? Just take one ride on it from the West Hyannisport Post office to Covell Beach and anyone would agree that the road is one you want to avoid because of all the new bumps due to the wind/sewage projects. And, the Covell Beach parking lot continues to be a mess with large construction equipment everywhere and only a small area available to residents for parking. Shame on the town leaders of Barnstable for continuing to allow this to happen and for continuing to support even more wind projects. MCE 01

We feel that this project as well as the other two proposed projects will continue to ruin the beautiful beach environment in Barnstable for many years. Why didn't the other Cape towns approve this project? Perhaps we could learn a lot from these much better managed communities!

Thank you,
Tom and Terry McElligott
Barnstable residents

TOM AND TERRY MCELLIGOTT (MCE)

MCE 01 **Why hasn't the wind company and the town of Barnstable been held responsible to repair the road? Just take one ride on it from the West Hyannisport Post office to Covell Beach and anyone would agree that the road is one you want to avoid because of all the new bumps due to the wind/sewage projects. And, the Covell Beach parking lot continues to be a mess with large construction equipment everywhere and only a small area available to residents for parking. Shame on the town leaders of Barnstable for continuing to allow this to happen and for continuing to support even more wind projects.**

We feel that this project as well as the other two proposed projects will continue to ruin the beautiful beach environment in Barnstable for many years.

As described in Section 12.3.6, all affected public roadways will be repaved to as-new condition after construction is complete.

From: Wendy Cohen
To: Strysky, Alexander (EEA)
Subject: DOWSES BEACH MEPA ID #16611: New England Wind 2 Connector in Osterville MA
Date: Monday, November 28, 2022 8:03:21 PM

Alex,

I attended the meeting on November 16 at the Osterville Library. To say that I am outraged at the prospects of what Avangrid plans to do to this town and to Dowses Beach is an understatement.

My concerns are the following:

My family has owned and lived in Centerville for forty years. Dowses Beach is our most precious gem, a place of serenity, natural beauty and home to countless birds and animals, fish and sea life. Dowses Beach is a very large part of our family legacy and for this reason, I need to insure that you understand the depth and breadth of allowing Avangrid to destroy this pristine and fragile strip of land and sea.

Avangrid has an agenda… to make tens of millions of dollars for the benefit of its shareholders in its attempt to provide offshore wind power. Period.

The residents of Barnstable County have an agenda, to save and preserve this area for our children and grandchildren. Period.

Avangrid has a plan to plow through downtown Osterville. This little village has suffered through Covid and now this major company wants to set this town back again with years of construction.

They plan to rip up Dowses Beach, alter the wildlife sanctuary and cannot guarantee in any way the future of the sea life, birds, flora, animals. Their plan is to build wind turbines… but in fact, these structures will only function for 25 years.

Avangrid has failed to prove that the project is feasible. They do not take into account the impact of the environment, local businesses, and the ability of future generations to enjoy just as our parents have in the past.

Avangrid has been subject to numerous adversarial administrative actions for environmental issues. They cannot guarantee the sanctity of this project, that the beach and sea and all of its inhabitants will not be disturbed. That each and every business owner and homeowner in Osterville will be able to thrive during construction.

When I look at what has transpired at Covell Beach I am aghast at the amount of destruction that has taken place. And when I look at the narrow causeway at Dowses I can only shudder at what would happen if Avangrid has their way. WCOH 01

Avangrid has stated that Dowses is a perfect location because it has a paved road leading to the water. So this billion dollar company plans to destroy this precious land and beach because it is too cheap to pave a road at another location? There are a myriad of locations that could be paved for this purpose. WCOH 02

And if this wind farm is constructed, we now know that a huge portion of the energy will NOT service the Cape but will help Connecticut residents. How does this make sense?? WCOH 03

Wendy Cohen
Centerville, MA

wgc5252@gmail.com

WENDY COHEN (WCOH)

WCOH 01 **Avangrid has a plan to plow through downtown Osterville. This little village has suffered through Covid and now this major company wants to set this town back again with years of construction. They plan to rip up Dowses Beach, alter the wildlife sanctuary and cannot guarantee in any way the future of the sea life, birds, flora, animals. Their plan is to build wind turbines… but in fact, these structures will only function for 25 years. Avangrid has failed to prove that the project is feasible. They do not take into account the impact of the environment, local businesses, and the ability of future generations to enjoy just as our parents have in the past. Avangrid has been subject to numerous adversarial administrative actions for environmental issues. They cannot guarantee the sanctity of this project, that the beach and sea and all of its inhabitants will not be disturbed. That each and every business owner and homeowner in Osterville will be able to thrive during construction. When I look at what has transpired at Covell Beach I am aghast at the amount of destruction that has taken place. And when I look at the narrow causeway at Dowses I can only shudder at what would happen if Avangrid has their way.**

This DEIR provides a thorough alternatives analysis (see Section 4.0) along with a detailed description of Project impacts and mitigation measures. Not only are the construction methodologies proven methods for installing linear infrastructure such as that proposed for the NE Wind 2 Connector, they are also designed to avoid and minimize impacts both to the natural environment and to the community in which the Project would be constructed and operated.

WCOH 02 **Avangrid has stated that Dowses is a perfect location because it has a paved road leading to the water. So this billion dollar company plans to destroy this precious land and beach because it is too cheap to pave a road at another location? There are a myriad of locations that could be paved for this purpose.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

WCOH 03 **And if this wind farm is constructed, we now know that a huge portion of the energy will NOT service the Cape but will help Connecticut residents. How does this make sense??**

Electricity from the Project will interconnect to the ISO-NE electric grid and will benefit customers throughout New England, which has a shared regional wholesale electricity market. Because the interconnection of the Project to the electric grid is in Barnstable, the electricity will be inserted at that point of interconnection, providing reliability benefits to the Cape (see Section 1.9). It remains the Proponent's intent to sell the electricity from the Project to the electric distribution companies in Massachusetts pursuant to Section 83C of the Green Communities Act.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: New England Wind 2 Connector --Dowses Beach- comments
Date: Tuesday, November 29, 2022 8:27:06 AM

From: Marie Taylor <mariectaylor@aol.com>
Sent: Monday, November 28, 2022 6:14 PM
To: MEPA (EEA) <mepa@mass.gov>
Subject: New England Wind 2 Connector --Dowses Beach- comments

I am a resident of Osterville, MA am urging your agency to deny access to the company looking to use Dowses Beach as a landing for its wind energy business. Destroying the many ecosystems in and around the landing area is indeed a black eye and a blind for a wind energy initiative. Our planet and its natural environment is what we are trying to save and sacrificing Dowses's natural environment --home to sea birds, turtles, wildlife and beautiful, seaside vegetation is not the way to proceed. If this wind energy business were truly concerned about the environment, they would not even be considering the Dowses area. TAY 01

And, in this age of drug addiction, an area where human beings can seek peace and beauty and quiet enjoyment and maybe even hope should not be needlessly taken away. There are other avenues/alternatives for this wind company. They just need to dig deeper into their pockets, which spread over 25 years, probably isn't even that much.

Please deny this wind company's requests for Dowses Beach thereby giving the company the opportunity to do the right thing.

Marie C Taylor
65 Seth Goodspeeds Way
Osterville, MA 02655

MARIE C TAYLOR (TAY)

TAY 01 **I am a resident of Osterville, MA am urging your agency to deny access to the company looking to use Dowses Beach as a landing for its wind energy business. Destroying the many ecosystems in and around the landing area is indeed a black eye and a blind for a wind energy initiative. Our planet and its natural environment is what we are trying to save and sacrificing Dowses's natural environment --home to sea birds, turtles, wildlife and beautiful, seaside vegetation is not the way to proceed. If this wind energy business were truly concerned about the environment, they would not even be considering the Dowses area. And, in this age of drug addiction, an area where human beings can seek peace and beauty and quiet enjoyment and maybe even hope should not be needlessly taken away. There are other avenues/alternatives for this wind company. They just need to dig deeper into their pockets, which spread over 25 years, probably isn't even that much.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

From: Anastasia Guenther
To: Strysky, Alexander (EEA)
Subject: Revised and final comments - New England Wind 2 Connector ENF EEA #1661 (Proposed Commonwealth Wind/Dowses Beach Cable Landing)
Date: Tuesday, November 29, 2022 1:53:29 PM

Please replace my earlier "Comments" email with this one. Thank you.

Dear Alex,

I write as a resident of the village of Osterville, one of the seven villages in Barnstable, and a frequent visitor to Dowses Beach and the surrounding area. For so many reasons I am opposed to the landing of electrical export cables at this beach and its surrounding area, but first and foremost it is because of the environment. I am a supporter of wind and other forms of renewable energy, but I cannot in good faith support Avangrid and their plans. The unique environment at Dowses Beach is an unsuitable landing spot. I'll include some of these reasons below. SGUE 01

A Treasured, Year Round Refuge

The Greater Dowses beach area ("Dowses") is a complex, environmentally sensitive estuarine environment including many things: a barrier spit fronting Nantucket Sound, a sandy beach, a long dune system, a large bay with a mooring ground, a smaller brackish bay, wetlands with rare grasses, an inlet, a breakwater, the mouth of the Centerville River, two jetties, a row of boulders from which many families fish, a handicapped accessible fishing pier, a narrow causeway, a bath house, a parking lot and a narrow causeway (which is the only way in and out of the area by foot, bicycle, wheelchair or automobile). All of these are visited year round by residents of, and visitors to Cape Cod, often with the historical advance knowledge that it provides them with a good dose of nature, peace and solitude. It is not an off season/in season spot. The area is an important year round refuge for all.

A Home for Wildlife

Dowses provides a home and is visited by all sorts of wildlife year round – it is not an "in season/off season" spot as Avangrid has said. It is not just a "summer beach destination". Dowses does have federally protected wildlife, and I am concerned about this massive construction project's impact on them.

There should also be major concern about other forms of wildlife, including the approximately 160 bird species that visit and often make Dowses their home. These include but aren't limited to the Osprey, the Piping Plovers, the Least Terns, Saltmarsh Sparrows, Whimbrels, and the approximately 25 species of ducks. There is also abundant sea and marine life that inhabit the waters that completely surround the area, including blue crabs, oysters and other shellfish that are known to be helpful in removing nitrogen. This list could go on and on.

Avangrid's proposed project puts it all at risk. Despite their response that horizontal directional drilling will not impact many of the aforementioned and more, it is not clear or proven that this is the case. Dowses is a unique spot! It attracts unique wildlife! Installing three large cables with 1200 megawatts of power (the largest to date in the US!) is completely, and astonishingly, inappropriate. It is very clear that Avangrid has not fully explored other locations and is rather trying to take unfair advantage of the Town of Barnstable and its beautiful coastline, despite the outcry of so many residents who are just learning about this. If Avangrid goes forward with this, they would be clearly trying to pad their bottom line versus considering all factors, including permanent harm to the environment and clear lack of community support.

Although most of the Town's full time and seasonal residents didn't have any idea of Avangrid's plans for Dowses until a very recent (late October) mailing from Avangrid Renewables, it seems that, by just looking at their elaborate plans in their ENF, that Avangrid has had their sights set on Dowses for years. Why not let all the residents know in a similar way several years ago, and let SGUE 02
them truly weigh in? For a project of this importance, the Town Council (TC) and Town Manager should not have been the only parties involved when conversations started. Regarding this cable landing, the TC has not communicated or voted with the views of the majority of residents in regard to this very impactful project. It is very clear that Avangrid does not have "community support" – something they have said they'd like in order to move forward. Although Avangrid bought these leases (for a "to be built" wind farm) from the Federal Government years ago, it does not give them the right to pick landing spots of their choosing while disregarding clear, eternal damage to the environment and ecosystem with their plans, involving very high voltage cables and a destructive construction project.

It is worth noting that the cables themselves (mentioned by an Avangrid representative on 11/16) have a lifespan of 25 years. What happens then? More damage incurred to replace them or the windmills, in addition to the ongoing, year round environmental disturbance and disruption to maintain them? I read about the three large "manhole" covers that will be covering large rectangular holes in the parking lot. How often should we reasonably expect trucks to be servicing and repairing cables? We can only guess. All of this can be avoided by Avangrid finding another way and landing their cables elsewhere – in a more appropriate spot. SGUE 03

Better yet, consider consolidating the efforts of the many wind power projects targeting Cape Cod and minimize overall construction costs, the multiple proposed landing sites, the number of new substations and true environmental damage from these massive construction projects.

Clean Water

The question of clean water and sewers has come up in discussions about this project. I'm not alone in saying that I am all for clean water, and working toward Barnstable's goals in this area. The Town has initiated the 30 year Comprehensive Wastewater Plan (CWMP). We do not need Avangrid's destructive landing at Dowses Beach to address this. Avangrid's potential financial contributions will not make a significant dent in the CWMP budget. The money that has been floated (that Avangrid "might" pay Barnstable) for the Commonwealth Wind project does not come remotely close. It is a tiny fraction of any unfunded portion of the CWMP plan. There is also faulty reasoning as it relates to the dowses beach project. A good deal of the underground cable route is not part of the 30 year CWMP plan. If Avangrid promises to offset some of our digging and paving costs only along 6.7 mile onshore route, this is also an insignificant number. This is not the place to give detailed numbers, but the figures that have been floated by Avangrid and the Town are a pittance. SGUE 04

Given these facts, why should the Town risk and potentially ruin its most treasured resource, Dowses Beach? Barnstable and its citizens can reach their clean water goals without Avangrid. Commonwealth Wind will bring unnecessary harm to the environment at Dowses Beach.

Do citizens have a say?

Some have said we don't have a choice in this – that Avangrid holds the cards because the company bought the leases from the federal government, and that the Commonwealth of Massachusetts is in favor of offshore wind power. I find it very hard to believe that when Massachusetts truly looks into how Avangrid plans to desecrate the beaches in Barnstable – in particular an environmental treasure like Dowses Beach – that the state will permit Avangrid to execute their plan.

Avangrid may have rights to build and put up whatever windmills they want offshore (I hope not), but their onshore activities are quite another thing! Their work should align with the interests and desires of the community. Anything else would be undemocratic, and simply wrong. Avangrid doesn't have community support for this project and that's been documented in a relatively short period of time (through an Osterville Village Association survey of their membership of approximately 500 (result ratio: 10-1 opposed) and by a growing number of petition signers (1,240 plus) who include citizens that have overwhelmingly voiced concerns at recent community meetings, such as the November 16 meeting hosted by MEPA.

<u>Questions about Avangrid itself</u>
I would suggest exploring Avangrid and its parent company's true motives and intentions towards the environment and also the people of Cape Cod and the Commonwealth of Massachusetts before moving forward with this project. Here is some food for thought:

1. Avangrid is currently, and inappropriately, putting leverage on the DPU and other state regulators to agree to their terms. Avangrid signed in April 2022, post Covid, Power Purchase Agreements with Eversource, National Grid and Unitil, after prices had normalized. Now they suddenly they say need more money? Avangrid and Iberdrola S.A., its parent company, have plenty of money. They seem to be trying to take advantage of our state's campaign for alternative energy, and to squeeze more money out of the state. **SGUE 05**

2. If Avangrid doesn't want to adhere to the terms of the PPAs the company signed only seven months ago, the company should go back to the drawing board, or halt their Commonwealth Wind plans altogether. Avangrid's CEO publicly stated during the company's September 2022 investor day meeting, that their offshore leases are valuable (i.e., very salable to a willing buyer) and that the two projects, Park City Wind and Commonwealth Wind, were no longer financially viable unless these PPAs were renegotiated. If that is the case, Avangrid should sell the

leases and stop the Commonwealth Wind and Park City Wind projects! Clearly their intentions are questionable if they are raising these sorts of questions, and disrespecting the DPU and the Attorney General. This does not gel with their statements that they are committed to the well-being of Cape Cod and wind power.

3. During the Osterville Library presentation on November 16th (See OVL Nov 16th on YouTube) Avangrid represented itself to be a " local" Connecticut company that purely cares about saving the environment, cares about Cape Cod ("the electrons go to Cape Cod" even though the Park City Wind power goes to CT) , promising a thousand jobs, etc. As issues can be two sided, I would suggest to again question the true intentions of this company. For example: The electrons that would otherwise have gone to Cape Cod – are they going elsewhere? Are these jobs wind jobs? Or are they just for the Commonwealth project? How many jobs are on the Cape? How many are temporary? If local residents are hired, will this be harder on Mom and Pop businesses who already have trouble hiring workers? If not local residents, will the new workers put a further strain on below market housing? We have so little housing stock on Cape Cod...how will all of this work? SGUE 06

4. It is very clear that Avangrid has not fully explored other landing locations for this 1,200 megawatt, unparalleled in size, three cable landing project. They are trying to take unfair advantage of our Town and its beautiful, fragile coastline and its citizens (despite the outcry of so many residents) who are just learning about this. Avangrid needs to further explore other potential sites, perhaps off the Cape. Aren't there enough of these projects targeting Cape Cod? There are many places that are more suitable (not residential beaches that are environmentally fragile) and that would welcome this project. Combining some of these projects into sites that are less residential and environmentally unsuitable, and therefore saving the environment with far less construction, would be a healthier approach. Will this cost Avangrid a little bit more? Maybe. A little more time and thought? Perhaps. But for a 1,200 megawatt project that has a budget around $5 billion, Avangrid can afford to figure this out. And by picking a more appropriate landing site, the company would accomplish its goal of producing renewable energy – at the same time not destroying pristine, environmentally fragile, estuarine environments like Dowses Beach. SGUE 07

<u>Communication, Transparency and Other Concerns</u>

Unfortunately, Barnstable residents are just learning from the Town Manager (from emails that he sent to us recently) that the TC encouraged the Covell's Beach landing for Vineyard Wind by encouraging him to speak with Avangrid in Yarmouth several years ago. These requests and conversations occurred during a time when there was limited ability for regular citizens to understand what could be happening to their coastline and roads. The true consequences of the Vineyard Wind project and the surrounding area are visible now. A commonly heard cry among residents and visitors is, "Covell's is a mess!" For three years TC has held exclusively Zoom meetings with limited public comment or interaction. If there were discussions about this or other cable projects the citizens had no say in decisions. Zoom TC meetings are not the proper way to inform the citizens and let them weigh in. Two or three minute public speaking allotments to just the few who might be picked is not enough. A first class mailing from Avangrid or the Town, shedding much more light on what would really be happening to Dowses Beach, should have gone out to all residents years ago. Now that residents see the nightmare at Covell's first-hand, there is great dismay and growing sentiment that the Vineyard Wind project was a bad idea. *Barnstable has sacrificed enough with Covells!* There is no good reason to continue Avangrid's attack on our pristine and environmentally sensitive beach areas, and they should divert their efforts elsewhere. Commonwealth Wind will only bring damage to Dowses Beach.

Along with many other citizens, I've been in a unique position to meet so many visitors to, and fans of, the whole Dowses Beach area during the last several weeks, while spreading some awareness of Avangrid's plans (no one knows!). It's been gratifying to meet so many, and hear about their love for Dowses Beach and their year round, regular visits, not only to the "sandy beach" but also to the handicapped accessible fishing pier, the Causeway and to the parking lot itself. SGUE 08 The whole parking lot provides an unparalleled environment for many handicapped, elderly and other residents to exercise and enjoy nature year round. That will be taken away and replaced with cranes, large trucks and a fenced off construction zone if Avangrid goes forward with this project. Avangrid says the "beach" will be "open" from September through May, but in reality most of the area will be a construction zone. No one in their right mind would hazard a visit...not people or wildlife!

<u>The Causeway</u>

The causeway itself, which separates two fragile bays, will be completely SGUE 09 closed off during the final phase of the project while Avangrid figures out how to run 12 (split from 3) high voltage cables through it plus three additional cells. *Wow!* For a company that is brand new to the offshore wind power business in the U.S., I'm skeptical about this plan and concerned about the causeway. Have they done such delicate construction before? It seems daunting – and potentially environmentally risky, given its position dividing two fragile bays. I'd ask them serious questions about this. It is the only way in and out of the area – for walkers, bikers, wheelchairs and automobiles.

More concerns about communication and Town government

It is very clear that Avangrid has not fully explored other locations. Rather, they are taking unfair advantage of the Town of Barnstable and its beautiful coastline, ignoring the outcry of so many residents who are just learning about this. If allowed to go forward with this, they would be clearly trying to pad their bottom line, versus considering all factors, including the obvious lack of community support and harmful impact to the environment.

On the subject of Dowses Beach, the TC has not communicated or voted with the views of the majority of residents in regard to this critical subject. Consider, for example, the TC voted to advance host agreement discussions, disregarding so many messages from the residents to delay this. Also consider that the Town granted permission for "preliminary study work," which residents also protested. Both of these occurred in the wake of Avangrid's filings with DPU requesting time to renegotiate the PPAs!

The "preliminary studies" have included destructive large borings onshore (including adjacent to wetlands) and offshore studies with large ships. These have created a Town wide discussion and questions due to these visual impressions. People understandably have been asking, "Why is Avangrid here?" "Has the project already been approved?" "Why did the Town allow these studies to move forward, given everything we've read about this company recently and also given overwhelming public opposition to the project?" As mentioned above, many citizens respectfully asked the Town Manager and TC to halt these activities. Their wishes were ignored and dismissed. Although Avangrid purchased the offshore leases (for a "to be built" wind farm) years ago. This should not give the company the right to degrade the environment with their "studies," choose landing sites that are environmentally fragile disregarding the potential for permanent damage to the greater Dowses ecosystem. Avangrid has already generated serious havoc in our community. Don't let them further damage it! With the Covell's Beach landing by

Vineyard Wind, Barnstable has sacrificed enough.

<u>Conclusion</u>
Thank you for reading my comments regarding this project. I ask that MEPA shed light on the fact that the New England Wind Connector 2 project is contrary to the best interest of the Dowses Beach environment, its ecosystem, wildlife and the community members who seek it out as a safe, accessible, year round refuge. *Please consider the idea that a project like this, which touts a cleaner world, would in fact be environmentally damaging, negating its benefits*. I support wind power, other forms of renewable energy and clean water. My plea is for Avangrid to find a more environmentally suitable landing site than Greater Dowses Beach.

Sincerely,

Stacey Guenther

STACEY GUENTHER (SGUE)

SGUE 01 **The unique environment at Dowses Beach is an unsuitable landing spot. I'll include some reasons below…**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

SGUE 02 **Although most of the Town's full time and seasonal residents didn't have any idea of Avangrid's plans for Dowses until a very recent (late October) mailing from Avangrid Renewables, it seems that, by just looking at their elaborate plans in their ENF, that Avangrid has had their sights set on Dowses for years. Why not let all the residents know in a similar way several years ago, and let them truly weigh in? For a project of this importance, the Town Council (TC) and Town Manager should not have been the only parties involved when conversations started. Regarding this cable landing, the TC has not communicated or voted with the views of the majority of residents in regard to this very impactful project. It is very clear that Avangrid does not have "community support" – something they have said they'd like in order to move forward. Although Avangrid bought these leases (for a "to be built" wind farm) from the Federal Government years ago, it does not give them the right to pick landing spots of their choosing while disregarding clear, eternal damage to the environment and ecosystem with their plans, involving very high voltage cables and a destructive construction project.**

Commonwealth Wind won its bid to provide offshore wind energy to the Commonwealth in December 2021, and then advanced an in-depth engineering siting alternatives analysis for the cable landing. The Proponent informed the Town Council of its intention to land at Dowses Beach in a public meeting in March 2022, and met with the OVA and many other groups within Osterville during that time period. The Proponent continues to hold an open house meeting every month and has shared permit filings and other materials by posting them on its website. The Project has initiated MEPA and EFSB reviews, both of which allows multiple opportunities for stakeholder participation. A mailing was sent out to abutters and Osterville residents in October to communicate the initiation of MEPA review and to advertise the November 16, 2023 MEPA consultation meeting. Section 4 of the DEIR includes an in-depth discussion of Project alternatives.

SGUE 03 **It is worth noting that the cables themselves (mentioned by an Avangrid representative on 11/16) have a lifespan of 25 years. What happens then? More damage incurred to replace them or the windmills, in addition to the ongoing, year round environmental**

disturbance and disruption to maintain them? I read about the three large "manhole" covers that will be covering large rectangular holes in the parking lot. How often should we reasonably expect trucks to be servicing and repairing cables? We can only guess.

The cables are anticipated to have a lifespan of 30 years or more; decommissioning is described in Section 2.8. The three transition joint bays to be installed beneath the paved parking lot at the landfall site will each have manhole covers to provide access, when needed. The transition joint bays will be scheduled to be inspected annually and any water or debris contained within would be pumped/cleaned out and removed to a safe and appropriate disposal site. No environmental impacts are expected to occur during routine maintenance of the cable system. Cable repairs are not anticipated. Installation methods and plans for the landfall site are described in Section 12.2 and Attachment C3.

SGUE 04 **The question of clean water and sewers has come up in discussions about this project. I'm not alone in saying that I am all for clean water, and working toward Barnstable's goals in this area. The Town has initiated the 30 year Comprehensive Wastewater Plan (CWMP). We do not need Avangrid's destructive landing at Dowses Beach to address this. Avangrid's potential financial contributions will not make a significant dent in the CWMP budget. The money that has been floated (that Avangrid "might" pay Barnstable) for the Commonwealth Wind project does not come remotely close. It is a tiny fraction of any unfunded portion of the CWMP plan. There is also faulty reasoning as it relates to the dowses beach project. A good deal of the underground cable route is not part of the 30 year CWMP plan. If Avangrid promises to offset some of our digging and paving costs only along 6.7 mile onshore route, this is also an insignificant number. This is not the place to give detailed numbers, but the figures that have been floated by Avangrid and the Town are a pittance.**

The Town of Barnstable has plans to install sewer along several of the main roadways proposed for the Project's preferred onshore duct bank route. It is the Proponent's understanding that construction of the duct bank could spur a 10-year acceleration of the planned CWMP sewer installation, which would result in a significant community and environmental benefits. The Three Bays watershed is in need of nitrogen load reduction which the sewer installation would facilitate. The Proponent will pay significant tax revenue to the Town and its associated fire and water districts, and the Proponent plans to negotiate an HCA that will include significant financial benefits for the Town in addition to tax revenue.

SGUE 05 **Avangrid is currently, and inappropriately, putting leverage on the DPU and other state regulators to agree to their terms. Avangrid signed in April 2022, post Covid, Power Purchase Agreements with Eversource, National Grid and Unitil, after prices had normalized. Now they suddenly they say need more money? Avangrid and Iberdrola S.A., its parent company, have plenty of money. They seem to be trying to take advantage of our state's campaign for alternative energy, and to squeeze more money out of the state.**

If Avangrid doesn't want to adhere to the terms of the PPAs the company signed only seven months ago, the company should go back to the drawing board, or halt their Commonwealth Wind plans altogether. Avangrid's CEO publicly stated during the company's September 2022 investor day meeting, that their offshore leases are valuable (i.e., very salable to a willing buyer) and that the two projects, Park City Wind and Commonwealth Wind, were no longer financially viable unless these PPAs were renegotiated. If that is the case, Avangrid should sell the leases and stop the Commonwealth Wind and Park City Wind projects! Clearly their intentions are questionable if they are raising these sorts of questions, and disrespecting the DPU and the Attorney General. This does not gel with their statements that they are committed to the well-being of Cape Cod and wind power.

The Proponent has stated that the current power purchase agreements in place for the Commonwealth Wind Project are at prices that no longer support the financing of that project due to changes in global economic conditions. These challenges are being felt by all offshore wind projects in the U.S., and the Commonwealth Wind Project remains one of the most, if not the most, cost effective offshore wind projects under development in the United States. Commonwealth Wind expects that the Commonwealth Wind Project will move forward under new or amended power purchase agreements. Regardless, construction on the Commonwealth Wind Project would only occur after obtaining third-party financing, and financing will only occur if the Commonwealth Wind Project is economic. This financing process would entail months of diligence by a syndicate of banks, as well as an independent engineer, who will all need to be satisfied that the project can be built and be economically successful.

SGUE 06 **During the Osterville Library presentation on November 16th (See OVL Nov 16th on YouTube) Avangrid represented itself to be a "local" Connecticut company that purely cares about saving the environment, cares about Cape Cod ("the electrons go to Cape Cod" even though the Park City Wind power goes to CT), promising a thousand jobs, etc. As issues can be two sided, I would suggest to again question the true intentions of this company. For example: The electrons that would otherwise have gone to Cape Cod – are they going elsewhere? Are these jobs wind jobs? Or are they just for the Commonwealth project? How many jobs are on the Cape? How many are temporary? If local residents are hired, will this be harder on Mom and Pop businesses who already have trouble hiring workers? If not local residents, will the new workers put a further strain on below market housing? We have so little housing stock on Cape Cod...how will all of this work?**

Commonwealth Wind will generate electricity from wind turbines that will be located south of Martha's Vineyard. Electricity will run via underground utility infrastructure from the wind turbines to the existing West Barnstable substation. From there, electricity will flow into the regional electric grid, which is operated by ISO New England. The ISO New England grid distributes electricity across New England based on need. As the closest substation to homes and businesses in the Town of Barnstable, electricity needed in that area comes from the West Barnstable Substation, where Commonwealth Wind will interconnect the Project.

Economic benefits and job creation associated with the Project are described in Section 1.9. Offshore wind represents a once-in-a-generation opportunity to create a new industry in Massachusetts built by a skilled and unionized labor. AVANGRID is proud that its joint venture, first-in-the-nation Vineyard Wind project is delivering on this vision and already exceeding its immense potential for job creation and economic impact. The Proponent looks forward to building on these strong benchmarks with the Commonwealth Wind project/NE Wind 2 Connector.

SGUE 07 **It is very clear that Avangrid has not fully explored other landing locations for this 1,200 megawatt, unparalleled in size, three cable landing project. They are trying to take unfair advantage of our Town and its beautiful, fragile coastline and its citizens (despite the outcry of so many residents) who are just learning about this. Avangrid needs to further explore other potential sites, perhaps off the Cape. Aren't there enough of these projects targeting Cape Cod? There are many places that are more suitable (not residential beaches that are environmentally fragile) and that would welcome this project. Combining some of these projects into sites that are less residential and environmentally unsuitable, and therefore saving the environment with far less construction, would be a healthier approach. Will this cost Avangrid a little bit more? Maybe. A little more time and thought? Perhaps. But for a 1,200 megawatt project that has a budget around $5 billion, Avangrid can afford to figure this out. And by picking a more appropriate landing site, the company would accomplish its goal of producing renewable energy – at the same time not destroying pristine, environmentally fragile, estuarine environments like Dowses Beach.**

An extensive alternatives analysis is provided in Section 4.0, including a specific focus on landfall sites in Section 4.4. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.0, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site. Further, longer cable routes to more distant interconnection routes would result in additional environmental impacts.

SGUE 08 **It's been gratifying to meet so many, and hear about their love for Dowses Beach and their year round, regular visits, not only to the "sandy beach" but also to the handicapped accessible fishing pier, the Causeway and to the parking lot itself. The whole parking lot provides an unparalleled environment for many handicapped, elderly and other residents to exercise and enjoy nature year round. That will be taken away and replaced with cranes, large trucks and a fenced off construction zone if Avangrid**

goes forward with this project. Avangrid says the "beach" will be "open" from September through May, but in reality most of the area will be a construction zone. No one in their right mind would hazard a visit...not people or wildlife!

Please see the response to MEPA 56.

SGUE 09 **The causeway itself, which separates two fragile bays, will be completely closed off during the final phase of the project while Avangrid figures out how to run 12 (split from 3) high voltage cables through it plus three additional cells. Wow! For a company that is brand new to the offshore wind power business in the U.S., I'm skeptical about this plan and concerned about the causeway. Have they done such delicate construction before? It seems daunting – and potentially environmentally risky, given its position dividing two fragile bays. I'd ask them serious questions about this. It is the only way in and out of the area – for walkers, bikers, wheelchairs and automobiles.**

The causeway and associated construction is described in Section 2.3.5.1. Please also see the response to HGUE 02.

Conor Paterson - CPAT

From:	MEPA (EEA)
To:	Strysky, Alexander (EEA)
Subject:	Fw: Support for New England Wind 2 Connector
Date:	Wednesday, November 30, 2022 4:04:47 PM

From: Regulah <conor.r.paterson@gmail.com>
Sent: Tuesday, November 29, 2022 2:14 PM
To: MEPA (EEA) <mepa@mass.gov>
Subject: Support for New England Wind 2 Connector

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello,

I am writing to express my support for the proposal to run a wind power cable by Dowse's beach in Osterville. As a lifetime beach-goer at Dowse's, I believe it is a suitable location for this kind of infrastructure that will pose no problems to enjoying the beach and naturally beauty that abounds in the area. CPAT 01

Conor Paterson
32 Lovell Rd.
Osterville, MA 02655

CONOR PATERSON (CPAT)

CPAT 01 **I am writing to express my support for the proposal to run a wind power cable by Dowse's beach in Osterville. As a lifetime beach-goer at Dowse's, I believe it is a suitable location for this kind of infrastructure that will pose no problems to enjoying the beach and naturally beauty that abounds in the area.**

The Proponent greatly appreciates this support.

From: MEPA (EEA)
To: Strysky, Alexander (EEA)
Subject: Fw: 11.29.22 Comment to NE Wind 2 ENF
Date: Wednesday, November 30, 2022 4:11:28 PM
Attachments: 11.29.22 Comment to NE Wind 2 ENF.pdf

From: Jerome Miranowski <jeromemiranowski@gmail.com>
Sent: Tuesday, November 29, 2022 11:28 AM
To: MEPA (EEA) <mepa@mass.gov>
Subject: 11.29.22 Comment to NE Wind 2 ENF

Attached please find my comments to the New England Wind 2 Connector Environmental Notification Form. Thank you.
Jerome Miranowski

Jerome Miranowski
126 Scudder Road
Osterville, Massachusetts 02655
jerome.Miranowski@gmail.com

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

Re: New England Wind 2 Connector
Environmental Notification Form

Dear Ms. Card:

Thank you for the opportunity to comment on the Environmental Notification Form submitted by Avangrid Renewables, LLC, through its wholly owned subsidiary, Commonwealth Wind, LLC (the "ENF").

My wife and I reside at 126 Scudder Road in Osterville, a little over a mile from Dowses Beach. We use the beaches at Dowses Beach frequently throughout the year to walk and to enjoy the views of Nantucket Sound and East Bay. Dowses Beach is a unique and special place, almost completely surrounded by water, accessible only by a narrow causeway, and featuring beaches on both the sound and the bay and an accessible fishing dock on the channel connecting the two.

I am a big supporter of wind power, both for environmental and national security reasons. I certainly support the efforts of Avangrid and others to make wind power a reality. However, after reading the ENF and watching the recording of the November 16, 2022, MEPA meeting at the Osterville Library, I am very concerned with the manner in which Avangrid intends to bring the power generated by its turbines to the electrical grid.

First, the New England Wind 2 Connector is the third of three projects proposed by Avangrid to bring the electricity generated by the wind turbines to the electrical grid. Avangrid proposes to bring that electricity ashore at *three* different public beaches and proposes to construct duct banks under public roads over *three* different routes in order to bring all of the electricity to West Barnstable to connect to the grid. All of that MIR 01
construction will signficantly disrupt the lives of the residents of Osterville and Centerville and will itself use valuable energy and resources.

Second, even if all three routes are an engineering necessity, Avangrid doesn't appear to have made a sufficient effort to minimize the disruption that will be caused by its construction of vaults and duct work at Dowses Beach during construction. The location of the vaults to be built in the Dowses Beach parking lot and the construction zones designated by Avangrid will seriously disrupt the use of Dowses Beach during the estimated18 months of construction. That disruption can be significantly reduced if Avangrid designs, stages, and schedules the construction in the Dowses Beach parking lot to allow access to the beaches and fishing dock and make use of the natural terrain of the site to shield the beach from the construction. MIR 02

Based on these concerns, I have the following questions for Avangrid:

(1) *Can some or all of the power proposed to be landed at Dowses Beach be landed at Covell's Beach, Craigville Beach, or a combination of the two?* (I ask this question not to impose greater burdens on our neighbors in Centerville but to minimize the overall disruption caused by these projects. Consolidating some of the necessary infrastructure will reduce the overall disruption. Also, the geography of the Centerville beaches, laid out along a long stretch of shore accessible at all points by a public road, allows continuous access to the beach and a large portion of the parking lot even during construction.) *If the answer to that question is "no," please explain in detail why that is not possible. Do you have an engineering opinion supporting that answer?* MIR 03

(2) *If the Dowses Beach landing is an engineering necessity, can all three vaults be constructed on the northeast half of the parking lot?* The ENF appears to contemplate the construction of the first vault near the entrance to the parking lot. The designated construction zone blocks access to the main entrance to the beach. Construction in that location would be visible from the beach. Access to the beach would require driving past the construction area down a narrow lane and use of one of of the secondary access points through the dunes to reach the beach on the sound. Construction of the first vault on the northeast half of the parking lot, where the other two vaults are proposed, would put the construction of all three vaults behind the long dune that runs from the main entrance to the beach to the end of the beach. *If the answer is "no," why not? Can the construction zone designated for the second and third vaults be modified to permit access to the beach on East Bay and the fishing dock? If not, why not? Much of the current construction zone at Covell's Beach is used for parking vehicles used by workers to reach the site. Are there other parking locations that can be used by construction workers, e.g., at the entry to the beach off of East Bay Road? Can Avangrid commit to a more specific construction period other than "not in the summer months?"* MIR 04

I appreciate the efforts of Avangrid to bring environmentally responsible energy to this area. I hope that Avangrid will work with our community to bring that energy ashore in an environmentally and socially responsible way as well.

Sincerely,

Jerome Miranowski

Jerome Miranowski

JEROME MIRANOWSKI (MIR)

MIR 01 **First, the New England Wind 2 Connector is the third of three projects proposed by Avangrid to bring the electricity generated by the wind turbines to the electrical grid. Avangrid proposes to bring that electricity ashore at three different public beaches and proposes to construct duct banks under public roads over three different routes in order to bring all of the electricity to West Barnstable to connect to the grid. All of that construction will significantly disrupt the lives of the residents of Osterville and Centerville and will itself use valuable energy and resources.**

The three projects referenced in this comment (i.e., Vineyard Wind Connector, NE Wind 1 Connector, and NE Wind 2 Connector) are indeed three separate projects that require their own infrastructure. The Vineyard Wind Connector is under construction and will interconnect to the Barnstable Switching Station. The NE Wind 1 Connector is nearing the end of permitting and will interconnect to the West Barnstable Substation (as will NE Wind 2 Connector). As described in Section 12, construction methodologies and mitigation measures have been selected specifically to avoid and minimize impacts.

MIR 02 **Second, even if all three routes are an engineering necessity, Avangrid doesn't appear to have made a sufficient effort to minimize the disruption that will be caused by its construction of vaults and duct work at Dowses Beach during construction. The location of the vaults to be built in the Dowses Beach parking lot and the construction zones designated by Avangrid will seriously disrupt the use of Dowses Beach during the estimated 18 months of construction. That disruption can be significantly reduced if Avangrid designs, stages, and schedules the construction in the Dowses Beach parking lot to allow access to the beaches and fishing dock and make use of the natural terrain of the site to shield the beach from the construction.**

Please see the response to MEPA 56.

MIR 03 **Can some or all of the power proposed to be landed at Dowses Beach be landed at Covell's Beach, Craigville Beach, or a combination of the two? I ask this question not to impose greater burdens on our neighbors in Centervlle but to minimize the overall disruption caused by these projects. Consolidating some of the necessary infrastructure will reduce the overall disruption. Also, the geography of the Centerville beaches, laid out along a long stretch of shore accessible at all points by a public road, allows continuous access to the beach and a large portion of the parking lot even during construction.) If the answer to that question is "no," please explain in detail why that is not possible. Do you have an engineering opinion supporting that answer?**

The alternatives analysis provided in Section 4 includes a specific assessment of alternative landfall sites (see Section 4.4). This assessment includes consideration of Craigville Public Beach (the landfall site for NE Wind 1 Connector) and Covell's Beach (the landfall site for Vineyard Wind Connector). In both cases, due to the infrastructure at the landfall site and also along the onshore routes associated with both of these other projects, there is inadequate space to accommodate the infrastructure needed for the NE Wind 2 Connector. Furthermore, even under a scenario where there *would be* enough space to accommodate this additional infrastructure, the construction schedules for each project are such that it would involve separate construction periods and hence multiple construction disruptions to a single location (since construction cannot occur for any project until all approvals have been received).

MIR 04 **If the Dowses Beach landing is an engineering necessity, can all three vaults be constructed on the northeast half of the parking lot? The ENF appears to contemplate the construction of the first vault near the entrance to the parking lot. The designated construction zone blocks access to the main entrance to the beach. Construction in that location would be visible from the beach. Access to the beach would require driving past the construction area down a narrow lane and use of one of the secondary access points through the dunes to reach the beach on the sound. Construction of the first vault on the northeast half of the parking lot, where the other two vaults are proposed, would put the construction of all three vaults behind the long dune that runs from the main entrance to the beach to the end of the beach. If the answer is "no," why not? Can the construction zone designated for the second and third vaults be modified to permit access to the beach on East Bay and the fishing dock? If not, why not? Much of the current construction zone at Covell's Beach is used for parking vehicles used by workers to reach the site. Are there other parking locations that can be used by construction workers, e.g., at the entry to the beach off of East Bay Road? Can Avangrid commit to a more specific construction period other than "not in the summer months?"**

The construction sequence is depicted in the visual renderings in Attachment P. Please see the response to MEPA 56.

From:	MEPA (EEA)
To:	Strysky, Alexander (EEA)
Subject:	Fw: New England Wind 2 Connector - AVANGRID ENF DATED 9-30-2022
Date:	Wednesday, November 30, 2022 4:02:53 PM
Attachments:	Comments on the Dowes Beach Environmental Impact Reoport AVANGRID in their ENF dated 9-30-2022.pdf

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From: Jerome Vigil <jeromevigil@gmail.com>
Sent: Wednesday, November 30, 2022 1:29 AM
To: MEPA (EEA) <mepa@mass.gov>
Subject: New England Wind 2 Connector - AVANGRID ENF DATED 9-30-2022

Ladies & Gentlemen,

Pl;ease review my comments on this critical project.

Thank You

Jerome Vigil, PhD.
142 Bay Lane
Centerville, Ma. 02632

Jerome Vigil
142 Bay Lane
Centerville, MA 02632

November 29, 2022

Secretary Bethany A. Card
MEPA Office
Executive Office of Energy & Environmental Affairs
100 Cambridge St, Suite 900
Boston, Ma 02114

RE: NE Wind 2 Connector –
Commonwealth Wind aka
AVANGRID
Environmental Notification
Form (ENF) Application Critique
Dowes Beach Landing

Dear Secretary,

I have a number of concerns in regard to the proposed ENF submission before MEPA for their review.

My neighbors and I ask that you thoroughly study this Application for all of us.

Some concerns are as follow:

1. The proposed landing in Dowes Beach Parking Lot makes no sense. This is absurd. VIG 01
2. We all spend time on Dowes Beach all year long. We don't want give up our pristine times for this work. This is so untenable. VIG 02
3. There are other considerations that have not been considered. AVANGRID needs to address this.
4. Why didn't AVANGRID consider 230 East Bay Rd for their landing??? A Landing Electric Splicing Vault could be put on this property which is owned by the Town of Barnstable. This would not disrupt Dowes Beach nearly as much. The Directional Boring Equipment could be sited on that property. AVANGRID's cables could come onto land via East Bay. The cables could then travel up East Bay Rd. to Main St. and up Old Mill Rd. and alitmately ending up at AVANGRID's Substation. This route would eliminate conduits crossing the Culvert on Dowes Beach Rd and also avoid crossing the Bumps River Bridge on S. Main St. AVANGRID has no common sense!! VIG 03
5. How does anyone know that there won't be a cable fault? The 247KV lines to the AVANGRID Substation and 347KV lines to the Eversource Substation are subjct to failure do to their High Voltage and hence leakeage to ground potential at any time and place. Where is AVANGRID going to be when this happens? Who knows!! Cables are made by humans who have faults and who knows how much testing will be performed on these cables before they are energized?? VIG 04
   We were told the cables are being made by the PRISMIAN GROUP a firm based in Milan, Italy. Yes they set up a factory in the UAS to construct this cable but why wasn't Okonite, an old lin tried and true American calble manufacturer chosen?? Money I'm sure!!!

6. No mention was made of the possibility of disturbing Native First Nations sites. Why??? VIG 05
7. Why weren't the politicians who are pushing this project forward at the recent hearing ?? I'll tell you why they are afraid of ridicule from their constituents! We citizens are lost in the mire of those in power. Why do we vote for people that can't defend our way of life??
8. Habitats will be disturbed . How is AVANGRID going to protect these Habitats??? VIG 06
9. Most of us believe that we have to do our best to reverse Global Warming and Wind Energy is one small aspect of this effort, however, there are many other efforts that need to be made. Those with the ability to make change are not driven by this the are driven by GREED!!! If they could only apply commonsense mentality to their efforts we might be responsive to their goals.

Please give my concerns very serious consideration and hold this ENF application until it is further reviewed and with full information are submitted.

Thank you for your time and consideration.

Sincerely,

Jerome Vigil

Jerome Vigil, PhD.

JEROME VIGIL, PHD. (VIG)

VIG 01 **The proposed landing in Dowes Beach Parking Lot makes no sense. This is absurd.**

An extensive alternatives analysis is provided in Section 4.0.

VIG 02 **We all spend time on Dowes Beach all year long. We don't want give up our pristine times for this work. This is so untenable.**

Please see the response to MEPA 56.

VIG 03 **Why didn't AVANGRID consider 230 East Bay Rd for their landing??? A Landing Electric Splicing Vault could be put on this property which is owned by the Town of Barnstable. This would not disrupt Dowes Beach nearly as much. The Directional Boring Equipment could be sited on that property. AVANGRID's cables could come onto land via East Bay. The cables could then travel up East Bay Rd. to Main St. and up Old Mill Rd. and alitmately ending up at AVANGRID's Substation. This route would eliminate conduits crossing the Culvert on Dowes Beach Rd and also avoid crossing the Bumps River Bridge on S. Main St. AVANGRID has no common sense!!**

The East Bay Boat Ramp landfall site alternative discussed in Section 4.4.5 is the site suggested by this commenter. This site is located at a boat ramp owned and operated by the Town of Barnstable along the east-facing shore of East Bay (see Figures 4-3 and 4-7). However, as described in Section 4.4.5, use of this site would require construction within environmentally sensitive areas within East Bay, which has been designated by the Massachusetts DMF as potential shellfish habitat for Quahog and Softshell Clam, as use of HDD has been deemed infeasible for this location. In addition, the site lacks sufficient space for the offshore-to-onshore transition facilities and would potentially conflict with boating interests when the ramp would be inaccessible during construction. For these reasons, the East Bay Boat Ramp Landfall Site was eliminated from further consideration. Additional details can be found in Section 4.4.5.

VIG 04 **How does anyone know that there won't be a cable fault? The 247KV lines to the AVANGRID Substation and 347KV lines to the Eversource Substation are subjct to failure do to their High Voltage and hence leakeage to ground potential at any time and place. Where is AVANGRID going to be when this happens? Who knows!! Cables are made by humans who have faults and who knows how much testing will be performed on these cables before they are energized?? We were told the cables are being made by the PRISMIAN GROUP a firm based in Milan, Italy. Yes they set up a factory in the UAS to construct this cable but why wasn't Okonite, an old lin tried and true American calble manufacturer chosen?? Money I'm sure!!!**

Please see the response to SGDB 13.

VIG 05 **No mention was made of the possibility of disturbing Native First Nations sites. Why???**

Historic and archaeological resources are discussed in Section 9.

VIG 06 **Habitats will be disturbed. How is AVANGRID going to protect these Habitats???**

Please see the response to NHESP 07.

November 28, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

RE: New England Wind 2 Connector (EEA No. 16611)

Dear Mr. Strysky,

Thank you for the opportunity to offer my comments on the Commonwealth Wind application that is before the Massachusetts Environmental Policy Act Office (MEPA). We are taxpayers, residents, and business owners in Barnstable, residing in the village of Osterville. Cindy is a lifelong multi-generational Cape Codder.

We have been following the Commonwealth Wind project with great interest and wish to voice our support and urge approval by MEPA. After attending public meetings, reviewing the public material relating to the project and talking with local representatives, we have been impressed with the transparency and accessibility that the Commonwealth Wind team has demonstrated in this community. DAC 01

We believe that by working cooperatively with Commonwealth Wind, the Town of Barnstable and its residents will gain numerous benefits. In fact, on November 3, the Barnstable Town Council voted unanimously to commence negotiations for a host community agreement. A critical benefit to the town in relation to this project is the coordination of electric cable and sewer installations. As you know, the Cape has a problem with nitrogen pollution in the groundwater. The region's reliance on septic tanks is no longer sustainable. It is my understanding that the Massachusetts Department of Environmental Protection recently sent a letter to officials in each of the Cape's fifteen communities about nutrient contamination -- describing it as one of the most pressing environmental challenges facing Cape Cod. Shortly thereafter, the DEP issued a proposed revision of Title V regulations creating "Nitrogen Sensitive Areas" in places like Barnstable. This will mandate that existing septic systems in those designated areas be upgraded to sewer over the next decade.

Constructing an underground sewer system can be an onerous and expensive proposition for any municipality. With this project, Commonwealth Wind will coordinate with the planned installation of a municipal sewer line along the onshore route to minimize disruption and defray some of the town's sewer line roadwork costs. This will result in the ability for property owners to connect to sewers at a quicker pace and help mitigate the nitrogen issue to comply with new state water quality regulations.

As taxpayers, residents, and business owners, we view this as a win-win for Osterville, Barnstable, and the Commonwealth and we urge your approval.

Sincerely yours,

Brian and Cindy Dacey
45 Little Island Drive
Osterville, MA 02655
brian@baysidebuilding.com

BRIAN AND CINDY DACEY (DAC)

DAC 01 **We have been following the Commonwealth Wind project with great interest and wish to voice our support and urge approval by MEPA. After attending public meetings, reviewing the public material relating to the project and talking with local representatives, we have been impressed with the transparency and accessibility that the Commonwealth Wind team has demonstrated in this community.**

Commonwealth Wind appreciates your support and looks forward to continue working with the community to minimize impacts, while providing benefits.

View Comment

Comment Details

EEA #/MEPA ID	First Name	Address Line 1	Organization
16611	Catherine	#10 Wianno Avenue	--
Comments Submit Date	**Last Name**	**Address Line 2**	**Affiliation Description**
11-29-2022	Bean	--	Individual
Certificate Action Date	**Phone**	**State**	**Status**
11-29-2022	--	MASSACHUSETTS	Opened
Reviewer	**Email**	**Zip Code**	
Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov	sales@bellaofcapecod.com	02655	

Comment Title or Subject

Topic: Avangrid's Commonwealth Wind/New England Wind 2 Connector

Comments

Thank you for your presentation at the Osterville Village Library 11/16/22. After attending the meeting, I feel the entire wind project should be tabled. WIND IS NOT THE WAY...please review what's happening in California. The state issues emails to residents to refrain from using electricity (no charging their cars, using household appliances) from 6-10 pm...due to limited wind power. Please do not rush this project through...!

IF this wind project goes forth in MA, more effort should be put forth to locate this project in an already established wind farm area. Avangrid's Ken Kimmel explained Avangrid was "beat out" of other locations by other projects. A 1200 megawatt electric cable running through a public beach and running through our village and neighborhoods also concerns me as to health effects...this added to the already clearly stated negative impacts to an wildlife habitat. BILLIONS of dollars for a project that will last "maybe" 25 years. Please review what's occurred with the Block Island wind project, the wind projects in Europe. BEA 01 BEA 02

Attachments

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BACK TO SEARCH RESULTS

CATHERINE BEAN (BEA)

BEA 01 **IF this wind project goes forth in MA, more effort should be put forth to locate this project in an already established wind farm area. Avangrid's Ken Kimmel explained Avangrid was "beat out" of other locations by other projects.**

As described in Section 1.3.1, the wind energy generation facility is located within the Massachusetts Wind Energy Area (WEA) inside a BOEM Lease Area. With regard to Project siting and routing, the proposed Project is the result of an extensive alternatives analysis that is described in Section 4.0.

BEA 02 **A 1200 megawatt electric cable running through a public beach and running through our village and neighborhoods also concerns me as to health effects...this added to the already clearly stated negative impacts to an wildlife habitat.**

Please see the response to SGDB 13.

Peggy Rowland - ROW

View Comment

Comment Details

EEA #/MEPA ID 16611	**First Name** Margaret	**Address Line 1** 1692 South County Road	**Organization** --
Comments Submit Date 11-29-2022	**Last Name** Rowland	**Address Line 2** --	**Affiliation Description** Individual
Certificate Action Date 11-29-2022	**Phone** --	**State** MASSACHUSETTS	**Status** Opened
Reviewer Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov	**Email** margaretrowland@comcast.net	**Zip Code** 02655	

Comment Title or Subject

Topic: Questions regarding Cable infrastructure for the long term

Comments

Dear MEPA,

Thank you for your recent presentation at the Osterville Library. Following the presentation, I submitted several questions to Avengrid Renewables, and am still awaiting answers from them.

I would like to know what the long term plan is for the cables running under Nantucket Sound, and the proposed roadways once the project is done in 25 years. Will the cables be able to be re-purposed to another future wind farm? Is this lease renewable to Avengrid after 25 years? Would a future new wind farm in this same location be able to reuse the Avengrid cables? Would the cables be abandoned under roads for all time? I can not see the Town of Barnstable opening up the roadways to remove them. Would this prohibit any potential future use of space under the roads? ROW 01

Please consider all of these questions as the plan evolves. We need to think long term in regards to this infrastructure. I have been informed that Avengrid will be getting back to me with the answers to these questions, and I look forward to learning more about the proposed plans.

Thank you,

Peggy Rowland

Attachments

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PEGGY ROWLAND (ROW)

ROW 01 **I would like to know what the long term plan is for the cables running under Nantucket Sound, and the proposed roadways once the project is done in 25 years. Will the cables be able to be re-purposed to another future wind farm? Is this lease renewable to Avengrid after 25 years? Would a future new wind farm in this same location be able to reuse the Avengrid cables? Would the cables be abandoned under roads for all time? I can not see the Town of Barnstable opening up the roadways to remove them. Would this prohibit any potential future use of space under the roads?**

Please consider all of these questions as the plan evolves. We need to think long term in regards to this infrastructure. I have been informed that Avengrid will be getting back to me with the answers to these questions, and I look forward to learning more about the proposed plans.

As described in Section 2.8 in the context of decommissioning, as is typical of utility-grade generation and transmission infrastructure, the Project's equipment is expected to have a physical life expectancy of 30 or more years. For onshore work, subject to discussions with the Town of Barnstable on a practicable decommissioning approach that best meets the towns' needs and has the fewest environmental impacts, the onshore export cables, concrete duct bank, and splice vaults are expected to be left in place for future reuse as would elements of the onshore substation and grid connections. If onshore cable removal is determined to be the preferred approach, removal of cables from the duct bank would likely be done using truck-mounted winches, cable reels, and cable reel transport trucks.

November 29, 2022

Mr. Alex Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Boston, MA 02114

RE: New England Wind 2 Connector (EEA No. 16611)

Dear Mr. Strysky,

I write to offer my comments on the Commonwealth Wind application that is before the Massachusetts Environmental Policy Act Office (MEPA).

I am a long-term resident of Osterville where I shop and dine downtown and enjoy the beauty of Dowses Beach. I have followed the Commonwealth Wind project and am delighted that we are finally seeing our ocean create clean energy. The time has come for our community to accept that a relatively minor, off-season disruption of the area is a small price to pay for the very tangible long-term benefits that renewable energy has to offer. I have lived in many places where maintaining underground infrastructure is a part of daily life and is integral to an efficient and modern society. I believe that Avangrid will do the right thing and make sure that Dowses and the downtown will be in as good if not better condition once this cable is installed. There are many members of this community who believe as I do, and I hope that you will approve this permit. OCO 01

Thank you for your time.

Very Truly Yours,
Claire O'Connor
Claire O'Connor
568 Bumps River Road
Osterville, MA 02655

CLAIRE O'CONNOR (OCO)

OCO 01 **I am a long-term resident of Osterville where I shop and dine downtown and enjoy the beauty of Dowses Beach. I have followed the Commonwealth Wind project and am delighted that we are finally seeing our ocean create clean energy. The time has come for our community to accept that a relatively minor, off-season disruption of the area is a small price to pay for the very tangible long-term benefits that renewable energy has to offer. I have lived in many places where maintaining underground infrastructure is a part of daily life and is integral to an efficient and modern society. I believe that Avangrid will do the right thing and make sure that Dowses and the downtown will be in as good if not better condition once this cable is installed. There are many members of this community who believe as I do, and I hope that you will approve this permit.**

Commonwealth Wind appreciates your support and looks forward to continue working with the community to minimize impacts, while providing benefits.

View Comment

Comment Details

EEA #/MEPA ID 16611	**First Name** Daphne	**Address Line 1** 85 Braggs Ln	**Organization** none
Comments Submit Date 11-29-2022	**Last Name** Northrop	**Address Line 2** --	**Affiliation Description** Individual
Certificate Action Date 11-29-2022	**Phone** --	**State** MASSACHUSETTS	**Status** Opened
Reviewer Alexander Strysky, (857)408-6957, alexander.strysky@mass.gov	**Email** daphnenorthrop@gmail.com	**Zip Code** 02630	

Comment Title or Subject

Topic: Fails Simple Test

Comments

Segoe UI 10 pt Paragraph

I am a resident of Barnstable and have spent countless hours at Dowses Beach over the past 40 years. When I first heard about the plan to bring utility cables onto this beach--of all beaches--I thought it must be a sick joke. This proposal fails the simple common sense test. Why pick THE most beautiful, unique, pristine, Cape gem for a large scale construction project that runs roughshod over a fragile natural environment? Residents would not be complaining if you'd just pick a logical, reasonable entry point for the cables. NOR 01

Attachments

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BACK TO SEARCH RESULTS

DAPHNE NORTHROP (NOR)

NOR 01 **I am a resident of Barnstable and have spent countless hours at Dowses Beach over the past 40 years. When I first heard about the plan to bring utility cables onto this beach--of all beaches--I thought it must be a sick joke. This proposal fails the simple common sense test. Why pick THE most beautiful, unique, pristine, Cape gem for a large scale construction project that runs roughshod over a fragile natural environment? Residents would not be complaining if you'd just pick a logical, reasonable entry point for the cables.**

An extensive alternatives analysis is provided in Section 4.0. Further, as described in Section 5.0 and in the discussion of construction methodology in Section 12.2, the Project will have no permanent impacts to nearshore or coastal resources at the landfall site. HDD will avoid nearshore and coastal impacts, and installation of the buried duct bank within the causeway will avoid impacts in the adjacent bay. Aside from a temporary construction period, the Project will not have significant impacts at the landfall site.

Martha Curley - CUR

FIRST HOTELS

November 22.

Dear Mr. Stryskiy.

It would be remiss of me if I didn't express my opinion of the construction your company has planned for Dowses Beach in Osterville.

I come from a large family who were born here and stayed here.

This property is very important to all of us who live here and don't want it disrupted. CUR 01

Thank you for caring for us.

Sincerely,

Martha Curley

MARTHA CURLEY (CUR)

CUR 01 **It would be remiss of me if I didn't express my opinion of the construction your company has planned for Dowses Beach in Osterville. I come from a large family who were born here and stayed here. This property is very important to all of us who live here and don't want it disrupted.**

Please see the response to MEPA 56.

From:	John Crow
To:	Strysky, Alexander (EEA)
Subject:	Fwd: As offshore wind plans grow, so does the need for transmission | WBUR News
Date:	Tuesday, December 6, 2022 3:51:53 PM

Alex,

Thought you might find this article interesting. It goes along with what we are saying here in Osterville about making sure Clean Energy isn't Done Dirty. This approach would alleviate the need for countless landings on pristine beaches all up and down the Atlantic coast and save ratepayers millions in onshore upgrade costs at the same time. A true win-win. **CROW 01**

Thanks for keeping the dialog going on this.

Kindest regards,
John Crow
Osterville Village Association

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>
> https://urldefense.com/v3/__https://www.wbur.org/news/2022/10/18/offshore-wind-transmission-lines-grid__;!!CUhgQOZqV7M!gWRisSYEUsYUFyZezuItdgM-djbWj-OrVNoYTLxZuMQju6R7UD01ZczxQpP4nDrpJZlUQWi1_pr5CKMNh8yWUOnIbRPT$

JOHN CROW, OSTERVILLE VILLAGE ASSOCIATION (CROW)

CROW 01 **Thought you might find this article interesting. It goes along with what we are saying here in Osterville about making sure Clean Energy isn't Done Dirty. This approach would alleviate the need for countless landings on pristine beaches all up and down the Atlantic coast and save ratepayers millions in onshore upgrade costs at the same time. A true win-win.**

https://urldefense.com/v3/__https://www.wbur.org/news/2022/10/18/offshore-wind-transmission-linesgrid__;!!CUhgQOZqV7M!gWRisSYEUsYUFyZezuItdgM-djbWj-OrVNoYTLxZuMQju6R7UD01ZczxQpP4nDrpJZlUQWi1_pr5CKMNh8yWUOnIbRPT$

An extensive alternatives analysis is presented in Section 4.0, including discussion of the generator lead line approach versus shared transmission.

From: acarroll@carrollconsulting.com
To: Strysky, Alexander (EEA)
Cc: Hector Guenther
Subject: As offshore wind plans grow, so does the need for transmission | WBUR News
Date: Tuesday, December 6, 2022 4:14:07 PM

Hi Alex,

Thought you might find find this interesting. It references the Brattle Group report, and other strategies, that would reduce the on shore environmental impact of all these cable projects. SGUE2 01

Best,
Stacey Guenther

https://urldefense.com/v3/__https://www.wbur.org/news/2022/10/18/offshore-wind-transmission-lines-grid__;!!CUhgQOZqV7M!j1GWL3_KwYvt141_kX2I1r1hn1CDbJNFciwNoukCT_mSqSCMxX75UoNDbCxqmnyYWPhp8onFUuSML6M5PNTxWzYi2seZFODYJpU$

STACEY GUENTHER (SGUE2)

SGUE2 01 **Thought you might find this interesting. It references the Brattle Group report, and other strategies, that would reduce the on shore environmental impact of all these cable projects.**

https://urldefense.com/v3/__https://www.wbur.org/news/2022/10/18/offshore-wind-transmission-linesgrid__;!!CUhgQOZqV7M!j1GWL3_KwYvt141_kX2I1r1hn1CDbJNFciwNoukCT_mSqSCMxX75UoNDbCxqmnyYWPhp8onFUuSML6M5PNTxWzYi2seZFODYJpU$

An extensive alternatives analysis is presented in Section 4.0, including discussion of the generator lead line approach versus shared transmission.