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February 1, 2019

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Vineyard Wind Connector
PROJECT MUNICIPALITY	: Barnstable, Yarmouth, State/Federal Waters
PROJECT WATERSHED	: Cape & Islands
EEA NUMBER	: 15787
PROJECT PROPONENT	: Vineyard Wind
DATE NOTICED IN MONITOR	: December 26, 2019

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Final Environmental Impact Report (FEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations. This Certificate sets forth the issues that must be addressed by the Proponent during permitting and discusses comments and recommendations submitted during MEPA review.

The project represents the largest single procurement of offshore wind energy by any state in the nation. The project will spur economic development along the coast, ensure a resilient energy future for the Commonwealth and secure progress toward greenhouse gas (GHG) reduction requirements. It will provide clean, affordable and reliable renewable energy. As the first offshore wind project in the nation, it will inform the design, review and permitting of subsequent projects that are proposed in the federally designated Wind Energy Area (WEA).

The issuance of a finding of adequacy on the FEIR is not the conclusion of environmental review. It will initiate more detailed review of environmental issues by the permitting agencies. The subsequent review, permitting and approval processes will build on the foundations established during

MEPA review and will provide additional, meaningful opportunities for public review and comment. The unique issues presented by this project, including the ability to secure a highly cost-effective source of clean energy, have informed MEPA review. Information provided through MEPA has demonstrated that the project will avoid Damage to the Environment to the maximum extent practical and that it is proposed consistent with the siting standards of the Massachusetts Ocean Management Plan (OMP). Additional design, operation and monitoring requirements will be developed through the permitting process. The primary issues for resolution include:

- Finalization of construction phasing and schedule;
- Development of a comprehensive Monitoring Plan; and
- Finalization of mitigation for impacts to fisheries resources and commercial and recreational fisheries.

I am confident that these issues can be resolved through consultation with State and federal agencies during permitting and project review and will include additional opportunities for public comment. I expect the Proponent will be responsive to the needs of State agencies and that a final mitigation and monitoring plan will emerge that adequately addresses outstanding issues; however, if necessary to support successful resolution of outstanding issues and the ability of State Agencies to issue Final Section 61 Findings that confirm that all feasible measures have been taken to avoid, minimize and mitigate Damage to the Environment, additional consultation with the MEPA Office may be required.

Project Description

The Vineyard Wind project is proposed in response to the clean energy mandate of Chapter 188 of the Acts of 2016 (An Act to Promote Energy Diversity; the Act) and associated Request for Proposals (RFP). The RFP was issued by energy distribution companies, in coordination with the Massachusetts Department of Energy Resources (DOER), to solicit long-term contracts to satisfy the policy directives encompassed within Section 83C of the Act and to assist the Commonwealth with meeting its Global Warming Solution Act (GWSA) goals. Subsequent to the filing of the Draft Environmental Impact Report (DEIR), Vineyard Wind was selected to advance to contract negotiations for 800 megawatts (MW) of wind energy. The Proponent filed executed Power Purchase Agreements (PPAs) with the Massachusetts Department of Public Utilities (DPU) on July 31, 2018.

The purpose of the Vineyard Wind project is to generate and distribute Offshore Wind Energy Generation[1] to Massachusetts in accordance with the Act. The Act was promulgated as part of a strategy to meet the Commonwealth's GHG reduction and energy goals. The project proposes to construct an offshore wind project located in the federally designated Wind Energy Area (WEA) which is under the jurisdiction of the Bureau of Ocean Energy Management (BOEM). The WEA is located in federal waters to the south of Martha's Vineyard. Vineyard Wind will deliver 800 MW of energy to the New England energy grid via submarine export cables that will make landfall in Massachusetts. The Vineyard Wind project will offset carbon dioxide (CO_2) emissions by approximately 1,600,000 tons per year (tpy) and will improve the resiliency of energy infrastructure.

[1] Chapter 188 of the Acts of 2016 defines Offshore Wind Energy Generation as offshore electric generating resources derived from wind that: (1) are Class I renewable energy generating sources, as defined in section 11F of Chapter 25A of the General Laws; (2) have a commercial operations date on or after January 1, 2018, that has been verified by DOER; and (3) operate in a designated WEA for which an initial federal lease was issued on a competitive basis after January 1, 2012.

For the purpose of MEPA review, the portion of Vineyard Wind subject to state jurisdiction is referred to as the Vineyard Wind Connector and the "Project". Major elements of Vineyard Wind include a wind turbine array (including wind turbine generators (WTGs)), offshore electrical service platforms (ESPs), offshore submarine transmission cables, onshore underground transmission cables, and an onshore substation. The FEIR indicates that two offshore export cables will be installed within a single 2,660- to 3,280-foot wide installation corridor (Offshore Export Cable Corridor[2]) which will make landfall at Covell's Beach to distribute the energy to the New England bulk power grid. The Project includes offshore transmission cables in state waters, onshore cables and a substation. The offshore cable corridor includes variations that extend through Muskeget Channel to the west and the east. Approximately 20.9 to 23.3 miles of the transmission lines will be located in state waters depending on the selected route through Muskeget Channel. Covell's Beach in Barnstable has been selected as the Preferred Route.

Each 10-inch diameter offshore export cable will be comprised of a three-core 220 kilovolt (kV) alternating current (AC) cable for power transmission bundled with a fiber optic cable. The cables are proposed to be buried approximately five to eight feet (or greater than eight feet if the appropriate equipment can be secured for cable installation) below the seafloor and laid with a combination of jet-plowing (through flat, soft sediments), jetting (through small sand waves), suction dredging (through large sand waves), and mechanical trenching (through compacted sand/gravel/cobble). Boulders will be relocated (except within dense areas which will be avoided) from the cable route and placed in another location within the installation corridor. Where burial is not possible due to subsurface conditions, the cable will be laid on the ocean floor and covered by rock or concrete mattresses. Within the transition zone between Nantucket Sound and land, Horizontal Directional Drilling (HDD) or open trenching will be used to install the cable.

The Preferred Route[3] (5.3 miles long) for the onshore cable is located exclusively within existing roadway layouts in Barnstable; the Noticed Alternative (6 miles long) extends from Yarmouth to Barnstable within a combination of roadways and in off-road right-of-ways (ROWs). The substation is proposed adjacent to the Eversource 115 kV Switching Station in Barnstable.

The FEIR indicates that Vineyard Wind will include two 400-MW offshore export cables, which will be separated by approximately 330 feet within the installation corridor. The Proponent plans to construct the full 800 MW sequentially (in a single phase), rather than being separated into two 400-MW phases. The two offshore export cables will transition to six onshore transmission cables. The proposed duct bank will accommodate the entire 800 MW of transmission and include spare conduits.

Installation of each offshore cable from the Wind Development Area (WDA) to the landfall site will require approximately 24 days for simultaneous lay and bury (16 days for lay, six days for splice, two days for landfall connection) and approximately 37 days for the less weather-sensitive free lay and post lay burial technique (11 days for lay, six days for splice, 18 days for burial, two days for landfall connection). Preparatory or advance activities such as a grapnel run (to provide clearance for installation) and dredging of sand waves will occur two to four weeks prior to cable installation. The

[2] Previously referred to as the Western Offshore Export Cable Corridor.
[3] The Preferred Route to the substation will include selection of Variant 1 (Attucks Lane and Independence Drive – entirely within existing roadway layouts).

cable laying vessel and its guard vessels will follow a pre-identified route at a speed of less than one knot and will maintain a "moving" safety exclusion zone in consultation with U.S. Coast Guard (USCG) (approximately 0.6-mile radius).

The FEIR identifies the following changes which will reduce environmental impacts compared to those identified in the Supplemental Draft Environmental Impact Report (SDEIR):

- Refinement of the cable alignment within the installation corridor to avoid and minimize impacts to areas of hard bottom and complex bottom based on the ongoing engineering analysis of results from the 2018 marine surveys.
- Revised estimates and assumptions for anchoring, cable protection, and dredging.
- Selection of the Covell's Beach Route as the Preferred Route using Variant 1 based on:
  - A Host Community Agreement (HCA) which outlines the Town of Barnstable's support and will facilitate execution of onshore elements;
  - Barnstable Town Council granting an easement across Covell's Beach and the associated parking lot and voting to petition the state legislature to approve the grant of easement to the Proponent on October 18, 2018;
  - Shortest offshore route option (4.5 miles shorter than Noticed Alternative);
  - Refined HDD approach using additional mapping and data to avoid mapped eelgrass and hard bottom; and
  - Elimination of crossing of National Grid Cape Cod to Nantucket Cable.
- Enhanced noise mitigation at the proposed substation.

Subsequent to the filing of the SDEIR, the Proponent indicated its decision to select the offshore cable route to Covell's Beach in Barnstable (previously identified Noticed Alternative) as its Preferred Route based on support from the Town of Barnstable and community, shorter cable length and associated reduction in impacts.[4] The FEIR clearly identifies the selection of the Covell's Beach landing site as the Preferred Route and identifies the Proponent's commitment to design and permit the project accordingly. The New Hampshire Avenue landing site in Yarmouth will continue to be referenced as the Noticed Alternative and changes to and mitigation associated with the Noticed Alternative are included in the FEIR and reflected in this Certificate. The selection of Covell's Beach will reduce environmental impacts compared to the Noticed Alternative and is supported by State Agencies. In the unlikely event that the Preferred Route were to be deemed infeasible and the Noticed Alternative was proposed, the Proponent will be required to file a NPC.

Project Area

The cable route through Nantucket Sound includes sections within the area of federal waters in the center of the sound. A portion of the cable route within state waters lies within the Cape and Islands Ocean Sanctuary (CIOS) and the OMP planning area. The offshore cable corridor to the preferred landing site passes through 20.9 miles and 22.6 miles of state waters using the western route and eastern route through Muskeget Channel, respectively. The Noticed Alternative would extend through 21.4 miles and 23.3 miles of state waters using the western route and eastern route through Muskeget Channel, respectively.

[4] Email to Purvi Patel, MEPA from Rachel Pachter, Vineyard Wind, on October 5, 2018.

The substation is proposed within a 6.35-acre site that is zoned for industrial use. It is located on Independence Drive within the Independence Park commercial/industrial area. The majority of the site is wooded and includes some limited parking areas and a small building. The site is bordered to the north by the Barnstable Switching Station, to the west by the former Cape Cod Times building, to the south by Independence Drive, and to the east by a 150- to 200-foot wide electric transmission corridor. The surrounding area has been zoned, permitted and developed or is proposed to be developed with residential, commercial, and recreational uses. A residential neighborhood is located approximately 2,000 feet from the site. Onshore transmission lines are proposed primarily within paved roadways and other existing ROWs in Yarmouth and Barnstable.

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), portions of the project area are mapped as Priority and Estimated Habitat for rare species including Roseate Tern (*Sterna dougallii*)[5], Common Tern (*Sterna hirundo*), Least Tern (*Sternula antillarum*), Water-willow Borer Moth (*Papaipema sulphurata*), Scarlet Bluet (*Enallagma pictum*), and Piping Plover (*Charadrius melodus*).[6] North Atlantic Right Whale (*Eubalaena glacialis*)[7], 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) indicates that the cable routes will pass through 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 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).

Lewis Bay supports a variety of marine resources including winter flounder (*Pseudopleuronectes americanus*), horseshoe crabs, and shellfish. Sections of the Lewis Bay shoreline are mapped soft shell clam (*Mya arenaria*), American oyster (*Crassostrea virginica*), and quahog habitat. Oyster aquaculture grants are present along the eastern shoreline. Most of Lewis Bay is identified as bay scallop habitat and it supports a seasonal bay scallop fishery. Covell's Beach is mapped as a horseshoe crab nesting beach and waters offshore of the beach are mapped as surf clam habitat. Waters offshore of portions of Covell's Beach and the entrance channel to Lewis Bay contain mapped eelgrass (*Zostera marina*) habitat. The 2018 marine surveys located an area of eelgrass offshore from Covell's Beach around Spindle Rock in Centerville Harbor.

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. A number of properties included in the Massachusetts Historical Commission (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory)

[5] Species also federally protected pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11).
[6] Ibid.
[7] Species federally protected pursuant to the ESA and Massachusetts Endangered Species Act (MESA).

and State and National Registers are located along the onshore segment of the transmission route. Both the Preferred Route and Noticed Alternative extend through and are adjacent to archaeological sites.

In addition, portions of the project area include land held in accordance with Article 97 of the Amendments of the Constitution of the Commonwealth (Article 97) and land permanently protected through a conservation restriction (CR).

Environmental Impacts and Mitigation

Potential environmental impacts[8] of the project in Massachusetts include alteration of up to 8.3 acres of land, creation of up to 0.6 acres of impervious area, and alteration to wetland resource areas. The project will impact a significant amount of Land Under the Ocean (LUO), of which up to 6.7 acres is Land Containing Shellfish (LCS)[9] associated with installation of the submarine cable, dredging of sand waves, sediment dispersion, anchoring, cable protection and installation of the cofferdam at the end of the alternate landfall site. Installation of the onshore section of the transmission line for the Noticed Alternative would alter approximately 19,350 square feet (sf) of Land Subject to Coastal Storm Flowage (LSCSF) and 5,600 sf of Riverfront Area (RFA) and open-cut trenching at the alternate landfall site would alter approximately 1,500 sf of Coastal Beach. Installation of the onshore section of the transmission line for the Preferred Alternative will alter approximately 7,500 sf of LSCSF. The project will include up to approximately 85,000 cubic yards (cy) of dredging of sand waves within state waters and 162,000 cy total within state and federal waters based on the eastern route of the installation corridor through Muskeget Channel.

The submarine cable will be installed using jetting, jet-plow, or mechanical trenching to minimize the area of dredging and direct seafloor impact. The Proponent is evaluating use of a cable installation tool that can achieve an eight foot burial depth below the seafloor. HDD will be used for the transition to landfall to avoid impacts to coastal wetland resource areas along the Preferred Route (Covell's Beach). Open trench and HDD have been considered for the Noticed Alternative. Areas of Coastal Beach, RFA, and LSCSF impacted during construction will be restored. The project will be required to comply with management standards in the OMP to minimize impacts to marine resources. Best management practices (BMPs) will be employed during the construction period. The substation is designed for full containment of any components containing dielectric fluids plus an incremental volume sufficient to account for a simultaneous 100-year, 24-hour rainfall event (9 inches of rain).

Permits and Jurisdiction

The Project is subject to a Mandatory Environmental Impact Report (EIR) because it requires Agency Action and it will alter ten or more acres of other wetlands (LUO) pursuant to 301 CMR 11.03(3)(a)(1)(b) of the MEPA regulations. The project also exceeds ENF thresholds at 301 CMR 11.03(3)(b)(3) for dredging of 10,000 or more cy of material and at 301 CMR 11.03(7)(b)(4) for construction of electric transmission lines with a capacity of 69 or more kV that are over one mile in length. The Project may exceed the ENF threshold at 301 CMR 11.03(2)(b)(2) for disturbance of greater than two acres of designated priority habitat that results in a take of a state-listed rare species.

[8] Certain impacts identified in the FEIR are associated with the Vineyard Wind Connector only, while others are associated with elements of the project under state and federal jurisdiction.
[9] Email to Purvi Patel, MEPA from Holly Johnston, Epsilon Associates, on behalf of the Proponent on January 25, 2019.

Depending on the onshore transmission route selected, the Project may also exceed ENF thresholds at 301 CMR 11.03(1)(b)(3) for conversion of land held for natural resources purposes in accordance with Article 97 to any purpose not in accordance with Article 97 and 301 CMR 11.03(1)(b)(5) for release of an interest in land held for conservation purposes.

The Project will require a Section 401 Water Quality Certification (WQC), a Chapter 91 (c. 91) License, and Approval of Easement pursuant to 310 CMR 22.00 from the Massachusetts Department of Environmental Protection (MassDEP); review under the Massachusetts Endangered Species Act (MESA) by NHESP; review under the OMP and Ocean Sanctuaries Act; a Non-Vehicular Access Permit, Road Crossing Permits, and a Rail Division Use and Occupancy License from the Massachusetts Department of Transportation (MassDOT); a Letter of Authorization and/or Scientific Permit from DMF for surveys and for the pre-lay grapnel run; and Approval under MGL Chapter 164 Sections 69J and 72, and Chapter 40A Section 3 Zoning Exemption from the Energy Facility Siting Board (EFSB) and DPU. The Project also requires Federal Consistency review by the Massachusetts Office of Coastal Zone Management (CZM). The Project is subject to the MEPA GHG Emissions Policy and Protocol (the Policy). It may require authorization from the State Legislature in accordance with Article 97.

Consistent with the request for proposals issued pursuant to Section 83 of Chapter 169 of the Acts of 2008 (An Act Relative to Green Communities), as amended by Chapter 188 of the Acts of 2016, the distribution companies must submit any long-term contract proposed to the DPU for review and approval. Executed Power Purchase Agreements were filed with DPU on July 31, 2018. The Power Purchase Agreements negotiated between the Proponent and the Massachusetts electric distribution companies are currently under review by DPU. DPU issued the procedural notice and ground rules on September 6, 2018; the review process is expected to conclude in March 2019.

The Project will require Orders of Conditions from Conservation Commissions in Edgartown, Yarmouth, and Barnstable, and potentially, Nantucket and Mashpee (or in the case of an appeal, Superseding Orders of Conditions from MassDEP).

Vineyard Wind and elements of the Vineyard Wind Connector require approvals from BOEM[10]; an Individual Permit from the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA); review from the U.S. National Marine Fisheries Service (NMFS), USCG, and Federal Aviation Administration (FAA); consultation with and Field Investigation Permits from MHC in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and M.G.L. Chapter 9, Sections 26-27C; a Special Use Permit from BUAR; Development of Regional Impact (DRI) review from the Cape Cod Commission (CCC) and Martha's Vineyard Commission (MVC); 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).

[10] 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).

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 Agency Actions that are likely, directly or indirectly, to cause Damage to the Environment. The subject matter of the EFSB/DPU approvals and the c. 91 License are sufficiently broad such that 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 FEIR

The FEIR is generally responsive to comments submitted on the SDEIR. I commend the Proponent for its extensive consultation with federal, state and local agencies and officials, and stakeholders and the public. The majority of comments indicate strong support for the Project's development of renewable energy to support state and regional GHG emission reduction goals. The Proponent has identified measures to avoid and minimize impacts, and will continue to engage in consultations with appropriate agencies and groups to refine mitigation strategies and monitoring protocols.

The FEIR provides an updated description of baseline environmental conditions informed by recent surveys and impacts associated with proposed Project elements within State jurisdiction. Baseline conditions for project elements located in federal waters are available in the Construction and Operations Plan (COP) found on the BOEM website. The FEIR describes changes to the project since the filing of the SDEIR and steps the Proponent has taken to further reduce project-related impacts. The 2018 survey data was used to identify preliminary cable alignments that avoid and minimize sensitive ocean resources, sediment dispersion analysis in Lewis Bay, revised dredging calculations, potential dredge material disposal areas, and an outline of monitoring plans. Methods for dredging sand waves and installation (including timing) of the cables will be refined upon selection of a construction contractor and cable vendor.

The FEIR provides an update on applicable time-of-year (TOY) restrictions and a project schedule and construction sequencing for both onshore and offshore project elements. Upon selection of a contractor and cable vendor, the schedule and sequencing will be modified to the extent feasible to accommodate offshore TOY restrictions protective of rare species, wildlife, and marine resources. The FEIR indicates that consultation with state and federal agencies regarding construction scheduling and final TOY restrictions for offshore elements is ongoing. Agencies have identified a potential TOY restriction along the offshore cable corridor to protect fisheries resources and activity during the spring and summer months, which are the same months when the weather conditions are most suitable for cable-laying (April to June). Based on an interagency meeting on January 31, 2019 with BOEM, NMFS, CZM, DMF, and MassDEP, the Proponent has proposed to install the section of cable that passes through the portions of Nantucket Sound with an active squid fishery (specifically, from the Preferred Landfall Site to a distance of approximately 24-27 kilometers offshore) in the fall of 2020. The rest of the cable route which extends to the Lease Area will be installed in early spring/early summer of 2021.[11] Final TOY restrictions will be incorporated into the 401 WQC. Onshore construction is expected to take slightly more than one year (starting late 2019) and will generally occur between Labor Day and Memorial Day to avoid summer traffic on Cape Cod. Activities at the landfall site will be avoided from June through September.

[11] Email to Purvi Patel, MEPA from Holly Johnston, Epsilon Associates, on behalf of the Proponent on January 31, 2019.

Duct banks must be fully prepared prior to cable installation, and cable installation must be complete and tested prior to turbine installation to allow turbines to be energized immediately after construction. Construction in federal waters is scheduled to begin in summer of 2020. Offfshore construction will continue through the summer; onshore construction will be limited to off-road areas. The start of commercial operation, with production from a limited number of WTGs, is expected to begin in summer 2021, with full commissioning and operation by the end of 2021.

The FEIR includes a more comprehensive assessment of data from the 2018 marine surveys and the results have enabled the Proponent to further refine the OMP mapping of hard bottom, complex bottom, and eelgrass within the offshore cable corridor (Figure 1-4). The data have been used to delineate site conditions, evaluate impacts associated with cable routes and support micro-siting of cables within the corridor; provide information regarding sensitive environmental resources for avoidance, minimization and/or mitigation of impacts; and inform the proposed cable design, burial techniques and cable protection. The FEIR includes updated project plans and graphics (Attachment A) and map set along the offshore corridor (Attachment D), including engineering plans for the Covell's Beach Route (Attachment G), which depict existing and proposed conditions (engineering plans for the New Hampshire Avenue Route were previously provided as Attachment H of the SDEIR). In addition, the FEIR includes a sediment dispersion modeling study specific to Lewis Bay (Attachment E).

The FEIR includes an updated list of State, federal and local permitting and review requirements and provides an update on the status of each of these pending actions. It includes an assessment of the Project's consistency with the OMP. The FEIR provides draft Section 61 Findings and generally describes measures to mitigate environmental impacts. Additional details regarding mitigation will be developed during review and permitting. The Benthic Habitat Monitoring Plan (Attachment F) has been developed to document habitat and benthic community disturbance and recovery as a result of construction and installation. The Proponent indicates it will consult with NHESP, DMF, research and other organizations, and interested stakeholders to identify parameters that will be monitored, methodology and frequency of monitoring, development of monitoring reports and distribution of monitoring reports.

CZM review will extend to the entire Vineyard Wind project. While the DEIR and the SDEIR included a brief description of the activities proposed in federal waters and referenced the COP for additional information on elements outside State jurisdiction, the FEIR continues to focus on impacts within State jurisdiction; it provides an impact analysis for LUO associated with certain activities within federal waters such as dredging. A comprehensive review of the entire project, including a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS), is being conducted by BOEM. The Draft EIS (DEIS) was issued on November 30, 2018. BOEM is expected to conduct public meetings in New Bedford, Barnstable, Nantucket, Martha's Vineyard, and Rhode Island the week of February 11, 2019. The comment period was extended and will conclude on February 22, 2019.

The Proponent executed an agreement (January 22, 2019, NGO Agreement) with the Natural Resources Defense Council (NRDC), National Wildlife Foundation (NWF), and Conservation Law Foundation (CLF) to deploy additional mitigation measures to protect the North Atlantic Right Whale, and potentially other marine mammals, during construction and operation of the Vineyard Wind project. The agreement includes a commitment to funding to advance understanding of the effects of offshore

wind development on marine and coastal resources, the effectiveness of mitigation measures, and strategies to reduce other stressors facing affected species, such as the North Atlantic Right Whale.

Ocean Management Plan

The project is subject to review under the Massachusetts OMP.[12] 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" (SSUs) – and identifies key areas of water-dependent uses including commercial and recreational fishing and navigation. It 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, areas of hard/complex seafloor, intertidal flats, and eelgrass. SSU resources potentially impacted by the Project are primarily areas of hard/complex seafloor. Eelgrass and North Atlantic Right Whale core habitat will be avoided. OMP maps also depict areas of Sea duck core habitat, Concentrated Recreational Fishing, Concentrated Commerce Traffic, Concentrated Commercial Fishing Traffic and Concentrated Recreational Boating.

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 (LEDPA) than a project located within a mapped SSU resource. The OMP management standards require a demonstration that new, site-specific information provides more accurate delineation of the resource areas, that no other LEDPA exists, that the project has undertaken all practicable measures to avoid damage to SSU resources, that there will be no significant alteration of SSU resource values or interests, and that the public benefits of the project outweigh the public detriments posed by impacts to SSU resources. Marine survey results have been used to refine the SSU areas in compliance with the data standards requirements pursuant to 301 CMR 28.08(1). The Proponent has determined that it is not possible to completely avoid SSUs; however no LEDPA exists, all practicable measures have been or will be taken to avoid damage to SSU areas, and the public benefits outweigh the public costs. CZM comments concur that the Proponent has adequately met the siting standards in the OMP.

State agencies are reviewing field data (sediment grabs and cores, seafloor videos and photos, biological samples) and this review will continue to evaluate standards for avoiding, minimizing, and mitigating impacts to biogenic and hard and complex habitats during the permitting process.

As noted previously, consultation and prioritization of TOY restrictions and other mitigating measures that will provide a sufficient window for cable installation are ongoing with resource agencies. DMF has established a standard protocol for communicating the location and timing of survey activities to fixed gear fishermen which includes using various media sources to alert members of the Massachusetts Lobsterman's Association (MLA) to the location and start time of a survey, to provide daily updates on activities, to answer inquiries from fishermen, and to identify how to return intercepted gear. The FEIR indicates that the Fisheries Communication Plan (FCP), in consultation with DMF and fixed gear fishermen, will adopt aspects of the DMF protocol for communicating the location and timing of survey activities to minimize impacts to this commercial fishery.

[12] The OMP was developed pursuant to the Oceans Act (Chapter 114 of the Acts of 2008) in 2009 and was updated in 2015.

The offshore map plan set reflects additional results from the 2018 survey to delineate and describe the extent and area of hard bottom that cannot be avoided and must be excavated or covered to successfully bury the cables. The FEIR includes additional images obtained and habitat classification analysis conducted based on field surveys and investigations for areas where identified hard bottom and biogenic habitats are within or proximate to the cable footprint. It provides an updated description of proposed construction activity (dredging, vessel anchoring, dredged material disposal, cable burial) and identifies specific areas of dredging and dredged material disposal. The FEIR provides additional information regarding anchoring and the rationale for its use. The FEIR provides revised impact calculations associated with cable installation which include estimates of hard/complex bottom that are unavoidable (Table 2-1). Areas of eelgrass uncovered around Spindle Rock will be avoided by realigning the cable corridor at an angle as it approaches the Covell's Beach land site. The FEIR identifies areas along the corridor that are suitable and unsuitable for discharge of material associated with sand wave dredging.

The Proponent is prioritizing methods and equipment for cable installation that maximize avoidance and minimization of impacts to SSU resources. To the extent possible, installation methods, such as jet plowing and remotely operated seabed tractors that achieve burial with minimal seabed disturbance (including footprint, width of trench, and sidecast and suspension of sediments) will be used. Detection of any exposed offshore export cable during the post-construction monitoring program would result in subsequent reburial of the exposed cable if feasible, or, otherwise, placement of rock protection or concrete mattresses to protect the export cable.

The OMP includes mapped areas of commercial and recreational fishing and navigation in Nantucket Sound that could be affected by the project. Proponents must avoid, minimize, and mitigate impacts to areas of concentrations of water dependent uses identified in the OMP pursuant to 301 CMR 28.04(3). The FEIR indicates that the Proponent is developing designated construction-period transit vessel traffic routes from U.S. and Canadian ports considering a number of factors including North Atlantic Right Whale Critical Habitat, Marine Mammal Seasonal Management Areas, typical vessel traffic and recommended vessel routes in response to feedback from fixed gear fishermen. Fisherman have suggested that use of consistent transit lanes for construction vessels during the installation phase may reduce conflicts and minimize or eliminate loss of gear. The FEIR provides additional information to describe how cable installation and armoring could impact commercial and recreational fishing, including restrictions on navigation, on fishing and on the placement of fixed or mobile fishing gear.

The Proponent will minimize impacts to recreational/commercial fishing activities and navigation including employing a Marine Coordinator during the construction and installation phase to manage all construction vessel logistics; liaise with USCG, port authorities, and others; and coordinate with fisherman and other mariners in advance of cable laying (by providing notices to mariners to minimize conflicts between construction and recreational/commercial vessels); maintain temporary safety zones around all construction activities; establish a vessel traffic management plan; and coordinate with local pilots during construction. The Proponent will implement the FCP to alert mariners of the location and timing of activities in Nantucket Sound. The project will minimize the use of cable protection measures to avoid impacts to fisheries post-construction.

The Proponent is developing a framework for a fisheries monitoring program in consultation with the University of Massachusetts Dartmouth School for Marine Science and Technology (SMAST)

and local stakeholders. The duration of monitoring will be determined as part of the initial effort to determine the scope of the study, but it is anticipated to include the pre-construction period and at least one year of post-construction monitoring. The Proponent will continue to actively consult with DMF and fisheries groups and individuals to consider design and construction measures to minimize interference with fishing activity and impacts to fish habitat.

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 impacts to ocean resources and the broad public interests and rights in the lands, waters and resources of the OMP areas. The fee established through MEPA review is based upon the full extent of impacts including: direct cable laying and dredging area, dredged disposal area, sediment deposition area, and impacts to biota and habitat, and permanent hard cover. The guidance and fee structure contained in the OMP, the information and analysis contained in the FEIR and consultation with agencies has informed the fee identified in the FEIR.

The fee proposed in the FEIR is based on the project's footprint and impacts. Compared to the SDEIR, permanent impacts associated with cable protection will decrease from 27 acres to nine acres and temporary impacts associated with sand wave dredging will decrease from a maximum of 136,000 cy to 75,000 cy. Impacts associated with sediment dispersion and resettlement remain the same. The FEIR indicates that the Project should be classified within the Class II category and proposes a base fee of $240,000 with an adjustment based on post-construction impacts. The Proponent proposes an additional $10,000 per acre for every additional acre of hard cover beyond the estimated nine acres and $500 for every 1,000 cy of dredging required above the estimated 75,000 cy, with a maximum fee of $500,000. Also, payments were proposed in two equal installments over two years.

I have reviewed and considered the information in the FEIR and have determined that the project falls within the Class II category. The Ocean Development Mitigation fee will be structured as follows:

- a minimum of $240,000 based on nine acres of cable protection and 75,000 cy of sand wave dredging;
- the base fee will be deposited in the Oceans and Waterways Trust upon completion of State permitting 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 over nine acres and $500 per 1,000 cy of dredging for any amount of dredging more than 75,000 cy;
- 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 development of the fee is based on permanent impacts to the ocean floor associated with cable installation and on impacts associated with dredging of sand waves. The fee does not include consideration of public benefits associated with the provision of clean renewable energy or the $15 million Offshore Wind Accelerator Program identified in the Proponent's response to the RFP.

Monitoring and Mitigation

A comprehensive long-term monitoring plan (before, during, and after construction) is necessary to identify impacts and revise mitigation as necessary. The FEIR identifies a Benthic Habitat Monitoring Plan and a fisheries monitoring plan. A draft sampling and analysis plan (SAP) must be developed for the 401 WQC. Monitoring will support identification of project impacts, support final determination of the Ocean Management Fee and c. 91 Occupation Fee, and may demonstrate the need for additional mitigation.

The Benthic Habitat Monitoring Plan is designed to document disturbance and recovery of marine and benthic communities related to the construction and installation of the project. Pre- and post-construction monitoring surveys will be conducted. The benthic survey is proposed to begin in 2019 or 2020. The plan will focus on seafloor habitat and benthic community to measure potential impacts and the recovery of these resources comparable to controls outside the areas of construction activity. The plan outlines the schedule; parameters that will be monitored; content of monitoring reports; site locations and survey/sampling configurations; and monitoring methodologies. The plan will be supported through employment of a benthic ecologist.

Comments from DMF indicate that the Benthic Habitat Monitoring Plan does not include sufficient sample sizes and collection methods necessary to adequately assess impacts following cable installation. DMF comments include guidance for development of the plan. The Proponent is also developing a fisheries monitoring plan with SMAST and stakeholders. The Proponent must continue to consult with DMF and fisheries groups and individuals regarding development of the plan and development of design and construction measures to minimize interference with fishing activity and impacts to fish habitat.

Based on the proposed schedule, there is a limited window for pre-construction monitoring. It is important that finalization of monitoring plans be prioritized as soon as possible. In addition to individual monitoring plans identified in the FEIR, the Proponent should develop a summary plan that identifies all monitoring (benthic habitat, fisheries, rare species, water quality, etc.) that will be conducted in conjunction with the project to evaluate impacts on state resources. The Proponent must continue to work with MassDEP, CZM, DMF, NHESP and the other resource agencies on development of monitoring plans, establishment of a process for determining performance standards, and development of mitigation. If additional or new impacts are identified, the Proponent will work with federal and state agencies, to identify appropriate mitigation.

Comments from State Agencies identify importance of a robust pre-construction baseline; evaluation of turbidity and total suspended solids (TSS) dispersion during construction to verify estimates in the FEIR; evaluation of changes in seafloor topography and any disturbance of the seafloor habitats; evaluation of the adequate burial of the cables in the near and long term; and identification of means and metrics to detect differences in biological or geological parameters within the construction corridor and recovery times of resources. Monitoring plans should include a schedule, parameters that will be monitored; content of monitoring reports; site locations and survey/sampling configurations; and monitoring methodologies.

As part of the NGO Agreement, the Proponent has committed funding to evaluate the effects of offshore wind development on marine and coastal resources. Data gathered from these studies should be made publicly available and, as appropriate, incorporated into the Massachusetts Ocean Resource Information System and the Northeast Ocean Data Portal.

Wetlands, Waterways, and Water Quality

Vineyard Wind includes work within wetland resource areas and activities that trigger Federal, State and local wetland permitting jurisdiction, each with its own performance standards and regulations. The Conservation Commissions of Yarmouth, Barnstable, and Edgartown and potentially Nantucket and Mashpee will review the project to determine its consistency with the Wetlands Protection Act (WPA), the Wetlands Regulations (310 CMR 10.00), and associated performance standards, including the stormwater management standards (SMS). MassDEP will also review the Project to determine its consistency with the 401 WQC (314 CMR 9.00) and c. 91 regulations (310 CMR 9.00). Finally, ACOE review will determine its consistency with Section 404 of the Federal CWA and Section 10 of the RHA. Comments from State Agencies identify information that will be required during the permitting process to finalize construction, mitigation and monitoring plans to ensure the project's avoidance and minimization of impacts to sensitive resource areas.

The FEIR was required to demonstrate that the Project will avoid, minimize or mitigate wetland resource area impacts to the maximum extent practicable and outline a comprehensive wetland mitigation program designed to meet ACOE, MassDEP, and local bylaw requirements and performance standards. The mitigation program will include monitoring, construction period measures, and restoration. As noted previously, the Proponent provided interpreted and raw field data (photos, videos, bathymetry, sidescan, biological and sediment grab samples) from the 2018 marine survey to State Agencies including CZM, MassDEP, DMF and NHESP prior to the close of the comment period; however, agencies did not have sufficient time to review the data prior to the close of comments.

The submarine cable will be located within flowed tidelands of Nantucket Sound and Lewis Bay and will be subject to licensing under c. 91 and the Waterways Regulations. The SDEIR included information intended to document that the project is a water-dependent facility in accordance with the Waterways Regulations (310 CMR 9.00) and described why the project cannot be reasonably located away from tidal waters. Consistent with 310 CMR 9.12(2)(e), I have determined that the project is water-dependent because the facility requires location in tidal waters and cannot reasonably be located or operated away from tidal waters. Through c. 91 licensing, the Proponent will pay a Tidelands Occupation Fee to the Commonwealth. This fee will be calculated based on the area of jurisdictional seafloor that will be permanently occupied by the Project in state waters. The amount of the final fee will be determined at the completion of construction based on the documented area.

The FEIR identifies preliminary cable alignments within the installation corridor that avoid and minimize impacts to hard bottom and complex bottom and identifies the extent of cable that cannot avoid these areas. The FEIR provides revised estimates associated with impacts to onshore and offshore resource areas in Massachusetts including certain impacts within federal waters (discussion of seafloor impacts and dredging).[13] The FEIR describes the methodology and assumptions for quantifying impacts from cable installation on LUO.

[13] Certain impacts were disaggregated into those under MEPA jurisdiction and those under federal jurisdiction.

Maximum area of seafloor (LUO) impacts associated with installation of two cables are based on the most recent field data and summarized in the following table (Tables 2-2 and 2-3 of the FEIR summarize individual impacts to LUO from cable installation along each cable route). Estimates of dredge volume are significantly lower than those described in the SDEIR (25 to 40 percent reduction) based on preliminary cable alignments and identification of an installation tool that can achieve a deeper burial depth. CZM comments recommend that these refined impact estimates be used to help define performance standards in the 401 WQC.

Project Activity	State Waters	Total (State and Federal Waters)
Trench impact zone (acres)*	19	35
Disturbance zone from tool skids/tracks (acres)**	37	70
Length of preliminary cable alignment in complex bottom (miles)	20	N/A
Length of preliminary cable alignment in hard bottom (miles)	4.7	N/A
Volume of sand wave dredging (nearest 1,000 m^3)	65,000	124,000
Volume of sediment fluidized in trench (nearest 1,000 m^3)	138,000	259,000
Hard bottom impacted by trenching (acres)*	1.9	N/A
Complex bottom impacted by trenching (acres)*	8.0	N/A
Sediment deposition greater than 1 mm from dredging operations (acres)	200	329
Sediment deposition greater than 20 mm from dredging operations (acres)	22	36
Anchoring (acres)***	2.3	4.4
Cable Protection****	10	10

* based on 3.3-foot-wide trench
** based on a 6.6-foot-wide disturbance zone
*** Estimate based on entire length of the longest offshore corridor route
**** Up to 3.7 miles for each cable includes federal waters in Nantucket Sound

The FEIR indicates that the Proponent will maintain both options through Muskeget Channel to provide flexibility in design and installation. The FEIR provides an updated comparison of preliminary cable alignments through Muskeget Channel to each of the landfall sites; impacts are generally comparable. The FEIR identifies measures to reduce the risk of releases of contaminants including grouts, HDD fluids, plastics, and oils.

The majority of the export cable will be installed using simultaneous lay and bury via jet plowing, which is the preferred method for minimizing impacts. Other techniques may include mechanical plowing and mechanical trenching. Depending on which cable installation tool is selected, trench disturbance is expected to be up to approximately 3.3 feet wide along each of the two alignments. The tool is expected to move along the seafloor on skids or tracks which will slide over the surface of the seafloor (along an area 3.3 to 6.6 feet wide) and may disturb benthic habitat. The Proponent will prioritize the least environmentally impactful cable installation alternatives practicable for each segment of cable installation.

The Proponent is evaluating use of installation tools with deeper penetration depths, in consultation with contractors that would achieve sufficient burial depth while reducing or eliminating dredging in areas of sand waves; these options could require anchoring along the entire offshore

corridor, and particularly in areas of shallow water and/or strong currents. Anchoring impacts would be associated with disturbance of the substrate and anchor sweeps. Anchored vessels must avoid eelgrass and will avoid other SSU habitats to the greatest extent practicable. Although this option would increase the length of the corridor where anchoring may be necessary, the Proponent has refined the anchoring design to reflect a five-point anchor spread (instead of an eight-point anchor spread) and a modified strategy to reposition every 400 meters (rather than 200 meters) resulting in a reduction in potential impacts from approximately 3.7 acres to approximately 2.1 to 2.3 acres in state waters based on the Preferred Route. Mid-line anchor buoys, where feasible and safe, will be used.

The Proponent must develop and submit a draft sampling and analysis plan (SAP) to MassDEP for its review and comment pursuant to 314 CMR 9.07(2)(b)(5) as part of the 401 WQC pre-application process. MassDEP may require more detailed information on how cable installation tools can further minimize dredging and the impact to benthic organisms in the 401 WQC/c. 91 License/Permit application.

The FEIR estimates that up to 10 percent of the cable alignment may require cable protection (3.7 miles for each cable). The width of cable protection has been reduced from approximately 30 feet to 10 feet with a corresponding decrease in impacts from approximately 27 acres to approximately nine or ten acres. If burial depth is insufficient, the Proponent will attempt to rebury the cable to the appropriate depth or, if that is not feasible, cover the cable with sand bags and gravel/cobble cover to mimic adjacent seafloor conditions. The FEIR does not propose specific mitigation measures to offset conversion of benthic habitat. CZM comments emphasize the importance of minimizing armoring because it can result in increased scouring of the seafloor adjacent to the hard cover, increased substrate providing a vector for invasive species colonization, and impacts to commercial and recreational fishing operations.

It is anticipated that dredging of sand waves will be performed with a trailing suction hopper dredge (TSHD). Material will be removed from the seafloor using suction and it will be deposited in the vessel hopper. Dredged material will be released within approximately 825 feet of the surveyed installation corridor in a comparable area characterized by sand waves. Figure 2-1 depicts the areas within the cable corridor where deposition of dredge material associated with cable laying would be prohibited (coarse sediment areas) and where it would be allowed (sand bedform areas). Dredged corridors would be approximately 65 feet wide at the bottom with 1:4 side slopes.

The FEIR includes a sediment dispersion modeling report specific to Lewis Bay based on five vibracore samples collected from within the bay (Attachment E). As requested by CZM, the FEIR includes model results (Attachment J) for a representative day, including an hourly breakdown, within the avian hot spot in of Muskeget Channel. This was requested to assess potential impacts associated with sedimentation and visibility for diving birds. The attachment includes results for both dredging and associated disposal activities, as well as cable installation activities. Modeling results indicate that sediment deposition associated with cable installation would be less than 5 mm within Lewis Bay which is below the 20 mm sensitivity threshold for shellfish. Deposition above 1 mm (the sensitivity threshold for fish eggs) would be expected to cover 90.7 acres. The extent of deposition of 1 mm thickness was 297 feet (90 m) from the route centerline, and is not expected to impact areas of aquaculture. Results indicate impacts to the avian hot spot will be limited and of short duration.

Fisheries Resources

The FEIR addresses comments regarding potential impacts to fisheries and other marine resources and discusses measures to avoid, minimize, and mitigate these impacts along the length of the cable corridor and within the Project area. The Proponent is actively engaged in discussions with EEA, CZM and DMF regarding mitigation and monitoring for commercial and recreational fisheries that may be impacted by the project. The Proponent should continue to coordinate with State Agencies and fishermen regarding mitigation for Massachusetts fisheries interests including losses incurred during construction and potential loss of fishing opportunity over the lifespan of the project.

As recommended in comments from CLF et al, the Proponent should work closely with DMF and NMFS to consider and implement appropriate mitigation measures to avoid, minimize, and mitigate potential adverse impacts to Essential Fish Habitat, fish and invertebrate populations which may be affected by construction activities particularly during vulnerable times of spawning, larval settlement, and juvenile development.

The FEIR includes an updated discussion regarding TOY restrictions and describes potential construction sequencing. The period of April to June is identified by the Proponent as the preferred offshore cable installation timeframe for safety reasons and to ensure power delivery at a competitive rate by January 2022; however, it is a period of very high activity for most fisheries resources in Nantucket Sound during which cable installation should be avoided. The Proponent continues to evaluate options to avoid work within the TOY restriction, including sequencing and whether it could accept more weather-related risk in the earlier spring months (i.e., March). As noted previously, consultation between the Proponent and State Agencies resulted in a proposal to install the section of cable that passes through the portions of Nantucket Sound with an active squid fishery in the fall of 2020. The rest of the cable route which extends to the Lease Area would be installed in early spring/early summer of 2021.

The location and configuration of the WTGs in federal waters will have some impact on resources and uses of State waters. Significant marine traffic is present across the offshore wind lease areas. The Proponent is developing designated transit routes for construction vessels from U.S. and Canadian ports considering, but not limited to, typical vessel traffic, traffic separation schemes, recommended vessel routes, coastal maintained channels, anchorage areas, North Atlantic Right Whale Critical Habitat, and Maine Mammal Seasonal Management Areas. The Proponent anticipates continuing to develop vessel traffic routes through the construction planning process. The FEIR describes transit lanes in a northwest/southeast and northeast/southwest direction through the Lease Area in federal waters for the project's operations phase, in consultation with fishermen and the USCG. It also describes adoption of a 2-nautical-mile-wide regional transit lane that was developed through discussion among fishing stakeholders, adjacent lease holders, and state agencies.

The FEIR indicates that the FCP describes the information that will be provided to commercial fisheries, for-hire recreational fisheries, and other stakeholders. The Proponent will continue to develop a protocol for determining how potential impacts on commercial and recreational fisheries will be evaluated including impacts to fixed gear. The FCP includes a Fixed Gear Interactions Protocol. The Proponent will use high flyer buoys, among other marine traffic control measures, to delineate active and future cable laying areas. The Proponent will continue to distribute Notices to Mariners to notify

recreational and commercial vessels of project operations related to both the offshore WDA in federal waters as well as the offshore cable corridor. The FEIR indicates that the Proponent will develop a gear loss mitigation and compensation program and is working with the Massachusetts Fisheries Working Group and DMF to design the program. The Proponent indicated that lost fishing time is being addressed in a comprehensive mitigation plan being developed in support of the federal NEPA review process and in coordination with Massachusetts and Rhode Island agencies, and other regional stakeholders. The Proponent will provide funding for regional fisheries studies as part of such mitigation. The Proponent will develop a comprehensive mitigation strategy to address snags, lost revenue, and other potential impacts to the fishing industries operating in this area and in the WDA. DMF comments indicate that it will contribute to development and review of proposed mitigation. The Proponent anticipates finalizing mitigation during the 401 WQC and c. 91 permitting processes.

The FEIR describes the methods and presents results of all eelgrass surveys, including those at Spindle Rock and Egg Island. It identifies the basis for use of the 20 mm sediment deposition threshold for analysis of impacts to shellfish.

The FEIR provides additional information regarding marine resources in Lewis Bay and measures to avoid impacts. The FEIR provides a map of Lewis Bay and the Noticed Alternative route, indicating the spatial extent of features, including mooring areas, shellfish propagation areas, bay scalloping and fishing areas, and aquaculture sites. For the Noticed Alternative, DMF identified a TOY restriction from January 15 to October 30 to protect resources such as winter flounder and shellfish. The FEIR also describes how access to the boat ramp at Englewood Beach would be preserved.

Rare Species, Wildlife, and Marine Resources

The cable routes extend through diverse marine environments within the Outer Continental Shelf, Nantucket Sound, OMP Planning Area and the CIOS. As noted by the NHESP, CZM, and DMF, the area includes habitat and prey species important for rare species, including several state- and federally-listed terns (Roseate, Common, and Least), Piping Plover, as well as shellfish and finfish species that are important to the commercial and recreational fishing industries. North Atlantic Right Whales transit through this area and have been observed in areas outside of the Core Habitat SSU. Approximately 13.8 nautical miles of the offshore corridor passes through the hotspot identified around Muskeget Channel.

Components of the Project will occur within areas mapped as Priority Habitat and Estimated Habitat for state-listed species. These species and their habitats are protected pursuant to the MESA (M.G.L c. 131A) and its implementing regulations (321 CMR 10.00) as well as the rare wildlife provisions of the WPA and its implementing regulations (310 CMR 10.37, 10.58(4)(b) and 10.59). The Project requires review by NHESP for compliance with the MESA and rare species provisions of the WPA. The Preferred Route does not affect the NHESP Hyannis Ponds Wildlife Management Area.

The FEIR describes measures to avoid and minimize impacts to marine mammals during construction. Potential impacts to Right Whales associated with offshore wind energy development and operation include injury and disruption of normal feeding, breeding, and migratory behaviors due to pre-construction and construction noise and heightened collision risk from construction and service vessels. The NGO agreement includes mitigation measures to protect Right Whales that may be in the Core

Habitat through speed restrictions and enhanced monitoring and provide increased protection of the Core Habitat SSU. The Proponent has made a $3 million commitment to develop and deploy technologies that ensure heightened protections for North Atlantic Right Whales and other marine mammals as the U.S. offshore wind industry continues to grow.

The Covell's Beach landfall site occurs within mapped habitat for Piping Plover. Use of HDD to avoid eelgrass and horseshoe crab spawning habitat is proposed. The Proponent has proposed to begin HDD at the Covell's Beach landfall site in advance of April 1, or otherwise after Labor Day, to avoid and minimize noise impacts to Piping Plover during the breeding season. In a letter dated January 17, 2019, NHESP requested additional information to complete its review, including the submittal of a Piping Plover protection and contingency plan to ensure protection of these species and their habitats in the event that either delays or HDD issues arise during cable installation.

Discussions with resource agencies to determine appropriate TOY restrictions for construction to avoid impacts to Piping Plovers, bay scallops, whelks, squid eggs, and diving/plunging birds are ongoing. The Proponent has been evaluating how installation of export cables may be sequenced to observe TOY restrictions to the extent possible.

The FEIR describes potential impacts to state-listed species associated with the proposed cable installation process, including vessel traffic and suspended sediment. Comments from NHESP indicate that secondary impacts and their anticipated impacts on benthic organisms, particularly Sand Lance – a critical prey resource for state-listed terns – were not adequately addressed. Impacts to Sand Lance are considered in the Benthic Habitat Monitoring Plan and research will be conducted to document habitat and benthic community disturbance and recovery associated with project construction and installation within areas of the WDA and in the selected offshore cable corridor. NHESP will continue to evaluate these impacts as they relate to state-listed tern species and will provide comments on monitoring, including the Benthic Habitat Monitoring Plan. NHESP requests that the Proponent incorporate recommendations from DMF regarding the Benthic Habitat Monitoring Plan to ensure data collection for Sand Lance will adequately assess impacts.

The FEIR indicates that the duration of dredging activities within the marine avian hotspot will be approximately five days. Impacts may include temporary displacement during cable installation. The Proponent will reduce the number of lights on vessels and will ensure down-shielding or down-lighting of the lights when possible. The Sediment Dispersion Results (Attachment J) indicate that dredging and associated disposal will result in a maximum of 1.75 square kilometers (approximately 0.6 percent of the avian hot spot) with excess TSS concentrations greater than 10 mg/L. These concentrations would be present for a maximum of 12 hours in limited locations. Impacts on water quality are expected to be minor due to sediment dispersion and increased turbidity during installation and cable-laying because of the brief duration and small area of impact.

NHESP comments continue to express concerns regarding potential impacts of the WTGs on rare and endangered shorebirds including Roseate Tern and other species (e.g., Common Tern, Least Tern and Piping Plover) because a large proportion of the North American population is likely to travel within and through the WDA to access Massachusetts for nesting, feeding and staging. EEA comments to BOEM regarding its DEIS pursuant to NEPA incorporate concerns identified by NHESP. The DEIS concluded that effects of Vineyard Wind are insignificant and discountable and thus, "not likely to

adversely affect" ESA-listed bird species. NHESP comments identify several concerns with the conclusion of the DEIS including that it does not fully account for increased mortality risk and other negative impacts. The joint letter from CLF, NRDC, NWF, Mass Audubon, and the Environmental League of Massachusetts (CLF et al) also identify concerns and inaccuracies in avian survey efforts.

NHESP anticipates that the operation of WTGs will result in increased risk of direct mortality of individual ESA- and MESA-listed birds. This mortality is of greatest concern for the Endangered Roseate Tern given their small population size, recent population volatility, and the large proportion of the North American population expected to travel within and through the WDA. NHESP will continue to provide comments and recommendations through the NEPA process. NHESP comments reiterate concerns regarding impacts to state- and federally-protected Roseate Terns and other listed avian species. Similar to the development of mitigation for marine mammals, I encourage the Proponent to work with EEA and NHESP to 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.

Article 97

The Preferred Alternative and its Variant include subsurface installation of a cable conduit within Article 97 land at Covell's Beach. A change in use of Article 97 land requires legislative authorization 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.

The grant of easements for the Town of Barnstable's Covell's Beach property and associated parking area will require authorization from the legislature. The property includes a 630-foot-long stretch of beach, a two-acre paved parking lot, and a small bath house. The HCA with Barnstable identifies the Proponent's commitment to repave the parking area and to fund the construction by the Town of a new bathhouse at the site. On October 18, 2018, Town of Barnstable granted the Proponent an easement for the proposed work, subject to obtaining legislative approval, and has voted to petition the legislature for that approval. The area of the easement is limited and located entirely underground and HDD will be used at Covell's Beach to avoid permanent impacts to land and public recreation.

Port Facilities

The Proponent has signed an 18-month lease with the Massachusetts Clean Energy Center (MassCEC) for use of the New Bedford Marine Commerce Terminal for construction staging. Project operations and maintenance will be based at an existing industrial marina in Vineyard Haven on Martha's Vineyard. The owner of the marina intends to upgrade facilities to accommodate additional marine industrial uses and to improve storm protection. Proposed work includes, but is not limited to, the removal and replacement of a pier and dredging. The Proponent also intends to use port facilities at the New Bedford Terminal and potentially at Brayton Point.

Mitigation and Section 61 Findings

The FEIR includes an updated chapter that summarizes proposed mitigation measures and provides individual draft Section 61 Findings for each State Agency that will issue permits for the Project. The draft Section 61 Findings will be revised and finalized during permitting. The FEIR identifies mitigation measures that are limited to a specific route or landing site. As noted previously, Covell's Beach is the Preferred Route.

Ocean Development Mitigation Fee

- A minimum of $240,000 will be deposited in the Oceans and Waterways Trust upon completion of permitting and prior to construction;
- Additional impacts will be assessed at $10,000 per acre for any amount of cable protection over nine acres and $500 per 1,000 cy of dredging for any amount of dredging more than 75,000 cy.
- 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.

Wetlands

- Construction-period measures will include erosion controls. Road surfaces and shoulders will be restored to pre-construction conditions). For the Covell's Beach landfall site, drilling for the export cable conduits will begin between Labor Day and April 1.
- The alignment of the offshore cable corridor is based on the alternatives analysis and it will avoid and minimize potential impacts to sensitive resources, including SSU areas and LCS. Installation techniques will minimize the amount of seafloor disturbance.
- The project is designed to minimize the amount of dredging required to ensure sufficient cable burial beneath the seabed and to avoid and/or minimize the use of cable protection. Anchoring may be required along the entire corridor to enable the use of cable installation tools with greater achievable burial depths to minimize dredging. Impacts associated with anchoring have been reduced (based on five anchors and increase in spacing to 400 m).

Waterways

- During the construction and installation phase the Proponent will employ a Marine Coordinator to manage all construction vessel logistics and to act as a liaison with the USCG, port authorities, state and local law enforcement, marine patrol, and port operators.
- The project is designed to avoid the need for cable protection. If it is required, its exact location will be recorded on electronic charts that will be distributed to fishermen.
- Through additional route engineering and consideration of installation tools with greater achievable burial depths, the Proponent will minimize the amount of sand wave dredging required to achieve sufficient burial depth.
- For the New Hampshire Avenue landfall site, regardless of whether construction occurs via open trench or HDD, the Proponent would work with the Town of Yarmouth to maintain

access to Lewis Bay and seek to avoid and minimize any temporary restrictions on access to the Englewood boat ramp.

Rare Species

- For the Covell's Beach landfall site, use of HDD avoid direct impacts to habitat used by Piping Plovers. The Proponent will begin HDD process in advance of April 1, or will otherwise not begin HDD until after Labor Day, in order to minimize impacts to Piping Plovers during the breeding season.
- Development of a Piping Plover protection and contingency plan to ensure that state-listed species and their habitats are protected in the event that either delays or HDD issues arise during the cable installation process.
- The number of lights will be reduced to those necessary for safety or required by regulation and will include down-shielding where possible.

Marine Mammals

- Measures have been identified to protect the North Atlantic Right Whale during construction and operation to minimize the disruption of normal feeding, breeding, and migratory behaviors and prevent injury or mortality to right whales. These include TOY restrictions for pile driving (avoid between January 1 and April 30), vessel speed restrictions of ten knots, Protected Species Observers (PSOs), and techniques such as Passive Acoustic Monitoring (PAM), and other monitoring options such as aerial- or vessel-based visual observers. Funding of $3 million to a Wind and Whales fund to support development and demonstration of innovative methods and technologies to enhance protections for marine mammals as the offshore wind industry develops along the East Coast.

Noise

- Substation will include noise control measures to limit sound level impacts in the neighboring communities primarily to the northeast and east including a low-noise design for the main transformers, housing synchronous condensers in an existing building or acoustically treated equipment enclosure, and a series of strategically placed noise barriers of varying heights/lengths. Noise barriers will also provide complete visual screening of the substation from the north and east.

Water Quality

- Proposed cables will not contain any liquids, oils, or other substances that could leak.
- Substation will include an integrated fluid containment system with capacity capable of capturing at least 110 percent of contained fluids for any components containing dielectric fluid, including all transformers and capacitor banks, plus an incremental volume sufficient to account for a simultaneous 100-year, 24-hour rainfall event (i.e., nine inches of rain).

Historical and Archaeological Resources

- Completion of reconnaissance level survey (report provided to MHC on September 18, 2018) and completion of an intensive survey at the proposed substation site (November 2, 2018).
- Offshore surveys in 2018 extended seafloor and subsurface coverage in all areas where bottom disturbance could occur during construction activities along all routes still under consideration. Data collected will be analyzed and a draft archaeological report for marine aspects of the Project will be submitted to MHC and BUAR for review and comment.
- Avoidance, minimization, and mitigation measures for terrestrial and submarine historical and archaeological resources within the Project area will be determined in consultation with MHC and BUAR through the Section 106 process.

Air Quality

- Line losses will be minimized by optimizing the length of the overall offshore and onshore routes and avoided by transmitting power from the offshore ESPs to the Point of Interconnection at 220 kV.
- Optimize equipment sizing, selection, and configuration at the offshore and onshore substations. Onshore substation is located adjacent to the Point of Interconnection at the Barnstable Switching Station.

Construction

- Develop TMPs to minimize construction-period traffic disruptions for review and approval by municipalities. Fund a construction monitor, to be hired by municipalities, to ensure compliance with TMPs, communicate with the municipalities, and address concerns.
- Construction-period air quality mitigation measures include: track out pads to prevent off-site migration of soils; mechanical street sweeping of construction areas and surrounding streets/sidewalks; removal of construction waste in covered or enclosed trailers; wetting of exposed soils and stockpiles to prevent dust generation; minimizing stockpiling of materials and storage of construction waste on-site; turning off construction equipment when not in use and minimizing idling times; 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.
- Noise mitigation measures include: minimizing amount of work conducted outside of typical construction hours; installation/maintenance of mufflers; maintenance/lubrication of construction equipment; 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; 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.
- Majority of vehicle fueling and all major equipment maintenance will be performed off-site at commercial service stations or a contractor's yard. Large, less mobile equipment such as excavators and paving equipment will be refueled as necessary on-site and greater than 100 feet from wetlands, waterways, or known private or community potable wells, or within any municipal water supply Zone I area.

- Proper spill containment equipment will be maintained for immediate use if required. All operators will be trained in the use and deployment of such spill prevention equipment.
- Equipment will be inspected and documented daily for incidental leaks prior to site access.
- Small pieces of powered equipment such as generators and pavement saws will be placed in containment bins or on absorbent blankets/pads to contain any accidental fuel spills or leaks.
- Fuel or oils of any kind will be prohibited from storage or use in any duct bank vault; re-fueling of equipment will be prohibited either inside a vault or within 100 feet of any vault.

Shellfish

- For commercial shellfishing in Lewis Bay (New Hampshire Avenue landfall site), the Proponent proposes two main forms of support, in consultation with town officials and fishermen:
  - A compensation fund for lost fishing days calculated against historical landings, funded by the Proponent and administered by a third party agreed upon by the fishing community and the Proponent.
  - Support a multi-year scallop re-seeding program, which would enhance the fishery for several years and allow a predictable stream of scallop seed to be managed and administered by the shellfish warden. The Proponent would set aside funds to ensure that seed was available for an annual broadcast in coordination with the shellfish department.
- In conjunction with extra levels of communication with local fisheries, the Proponent will administer compensation for any gear loss with Yarmouth fishermen through the Proponent's protocols for gear loss throughout the Project's construction area.
- Avoidance and minimization of impacts to bay scallops in Lewis Bay could be accomplished through translocation whereby scallops within the cable corridor will be either harvested or temporarily relocated by local fishermen under the direction of the local Shellfish Constable immediately prior to cable installation.
- Avoidance and minimization of impacts to quahogs within the shallow water recreational shellfishing area off New Hampshire Avenue could be accomplished by coordinating with the Shellfish Constable to ensure that seeding of contaminated quahogs is temporarily suspended within the cable installation corridor until cable installation is complete.

Conclusion

Based on review of the FEIR and in consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. The project may proceed to State permitting. State Agencies and the Proponent should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.

February 1, 2019
Date

Matthew A. Beaton

Comments received:

12/19/2018 Jonathan Ryder
12/19/2018 Sayre Sheldon
12/19/2018 Don Mallinson (2nd comments on 01/25/2019)
12/24/2018 Jan Kubiac
12/31/2018 Susan and Gilbert Brinckerhoff
01/08/2019 Sheila B. Place
01/09/2019 Franziska Amacher
01/09/2019 Zelda Gamson, PhD
01/09/2019 Ronald Dagostino
01/09/2019 Rodolfo Cardona
01/09/2019 Carl K. Borchert
01/09/2019 Randi Allfather
01/10/2019 Michael B. Jacobs, Chairman, Vineyard Power Co-operative, Inc.
01/10/2019 William T. Lake, Board Member, Vineyard Power Co-operative, Inc.
01/10/2019 Paul F. Pimentel, Director, Vineyard Power Co-operative, Inc.
01/11/2019 Massachusetts Board of Underwater Archaeological Resources (BUAR)
01/12/2019 Robert Mason
01/14/2019 Susan Wasserman
01/15/2019 Nicola J. Blake, PhD
01/16/2019 Richard Andre, President, Vineyard Power Cooperative
01/16/2019 David E. Charles
01/17/2019 Association to Preserve Cape Cod (APCC)
01/17/2019 Kirstin Moritz
01/17/2019 Peter Bachant
01/18/2019 Town of Yarmouth
01/18/2019 Wendy K. Northcross, Chief Executive Officer, Cape Cod Chamber of Commerce
01/18/2019 Doug Pope, Pope Energy
01/18/2019 Massachusetts Historical Commission (MHC)
01/19/2019 Dorothy McIver
01/20/2019 Alan H. and Krisit S. Strahler
01/20/2019 Ann G. Berwick
01/21/2019 Jonathan Hartzband
01/21/2019 Jeffrey K. Kominers, Board Member, Island Wind, Inc.
01/22/2019 Larry Apfelbaum
01/22/2019 Lindsay Mis
01/22/2019 Carol Oldham, Executive Director, Massachusetts Climate Action Network
01/22/2019 Moncrieff M. Cochran, Executive Director, Cape Cod Climate Change Collaborative
01/22/2019 Alexander R. M. Boyle
01/22/2019 Kristin Daley
01/22/2019 Reno Mastrocola
01/22/2019 John Haran (2nd comments on 01/25/2019)
01/23/2019 Patricia Rego, The Marion Institute
01/23/2019 Louise Amyot
01/23/2019 Gregory Garrison, President, Northeast Solar

01/23/2019	Ashley Yehl Flanagan
01/23/2019	Ann Rosenkranz
01/23/2019	Susan Brita, 10 neighborhood and beach associations along Lewis Bay
01/23/2019	Vida Morris
01/24/2019	Cape Cod Commission (CCC)
01/24/2019	William Stark
01/24/2019	Donna Northrup
01/24/2019	Carol Shweder
01/24/2019	Federico Morales
01/24/2019	Carol B. Chittenden
01/24/2019	Phillip Cavallo
01/24/2019	James Leonard
01/24/2019	Bethia Brehmer
01/24/2019	Robert Myers
01/24/2019	John Matley
01/24/2019	Gary L. Harcourt
01/24/2019	Maureen Condon
01/24/2019	Tom Soldini
01/24/2019	Stephen Carvalho Jr.
01/24/2019	Bryan Mornaghi
01/24/2019	Dave Magee
01/24/2019	Jarrett Drake
01/24/2019	Tory Bramante, Atlantic Coast Seafood
01/25/2019	Massachusetts Department of Environmental Protection (MassDEP)
01/25/2019	Massachusetts Office of Coastal Zone Management (CZM)
01/25/2019	State Senator Julian Cyr, State Senator Vinny deMacedo, State Representative Dylan Fernandes, State Representative David Vieira, State Representative Timothy R. Whelan, State Representative Sarah K. Peake, State Representative William Crocker, and State Representative Randy Hunt
01/25/2019	Martha's Vineyard Commission (MVC)
01/25/2019	Massachusetts Division of Marine Fisheries (DMF)
01/25/2019	Joanne Treistman
01/25/2019	Christopher Anderson
01/25/2019	Jerald Katch
01/25/2019	Dr. David D. Dow
01/25/2019	Sharon Rounds
01/25/2019	Gordon Starr
01/25/2019	David Bernstein, Crowell Beach Associates, Inc., Englewood Shores Beach Association, Great Island Associates, Inc., Grist Mill Village Civic Association, Inc., Harborside Estates Beach Association, Hyannis Park Civic Association, Inc., Wimbledon Shores, Lewis Bay Neighborhood Association, Inc., and Ocean Harbor Estates Association, Inc.
01/25/2019	Sharon and Paul Davis
01/25/2019	Paul Minus, Senior Advisor, Cape & Island Faith Communities Environmental Network
01/25/2019	Brenden O'Neill, Executive Director, Vineyard Conservation Society
01/25/2019	Edward Barrett, Massachusetts Fishermen's Partnership
01/25/2019	JJ. Bartlett, Fishing Partnership Support Services

01/25/2019	Nicole Morris-McLaughlin, Marion Institute's Southcoast Energy Challenge
01/25/2019	Amanda Braga
01/25/2019	Christine K. and Paul M. Greeley
01/25/2019	Arthur and Judy Warren (includes correction)
01/25/2019	Michael H. Dunbar and Edmund J. Janiunas
01/25/2019	Conservation Law Foundation, Natural Resources Defense Council, National Wildlife Federation, Mass Audubon, and Environmental League of Massachusetts
01/25/2019	South Shore Lobster Fishermen's Association
01/25/2019	Clean Water Action
01/28/2019	Massachusetts Natural Heritage and Endangered Species Program (NHESP) (correction)
01/28/2019	Massachusetts Natural Heritage and Endangered Species Program (NHESP) (correction)

MAB/PPP/ppp