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BUREAU OF OCEAN ENERGY MANAGEMENT
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Information Memorandum

To: Amanda Lefton
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From: James F. Bennett
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Date: 2021.05.10 13:09:18 -04'00'

Subject: Compliance Review of the Construction and Operations Plan for the Vineyard Wind 1 Offshore Wind Energy Project for Commercial Lease OCS-A 0501

1.0 Summary

On April 9, 2021, the Department of the Interior (DOI) published M-Opinion 37067, entitled "*Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf*." Subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§ 1331 *et seq*., requires the Secretary of the Interior ("Secretary") to consider 12 enumerated factors before authorizing an activity under subsection 8(p) of OCSLA. Citing a well-established body of law applicable to statutes such as OCSLA, M-37067 concludes that "subsection 8(p)(4) [] and similar statutes require only that the Secretary strike a rational balance between Congress's enumerated goals, i.e., a variety of uses. In making this determination, the Secretary retains wide discretion to weigh those goals as an application of her technical expertise and policy judgment."[1] M-37067 guides the Bureau of Ocean Energy Management's (BOEM) compliance review of the Construction and Operations Plan (COP) for the Vineyard Wind 1 Project on Commercial Lease OCS-A 0501, and BOEM's consideration of the 12 factors enumerated in subsection 8(p)(4) of OCSLA (hereinafter, "8(p)(4) factors").[2]

[1] *Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf*, M-37067 at 1-2 (Apr. 9, 2021), http://doi.gov/sites/doi.gov/files/m-37067.pdf; *see id*. at 3–4.

[2] Solicitors' M-Opinions are legal interpretations that are binding on DOI as a whole. Dep't of the Interior, Departmental Manual, 209 DM 3.1, 3.2A(11) (2020).

This memorandum assesses the Preferred Alternative identified in the Vineyard Wind 1 Offshore Wind Energy Project Final Environmental Impact Statement (FEIS) in relation to the 8(p)(4) factors and implementing regulations at 30 C.F.R. part 585.[3]

2.0 Background and Project Overview

DOI's efforts to consider whether to lease areas offshore Massachusetts and assess the feasibility of allowing wind energy activities therein began in 2009, approximately 12 years ago.[4] As a result of said efforts, in January 2015, BOEM held a competitive lease sale pursuant to 30 C.F.R. § 585.211 for certain lease areas within the Rhode Island/Massachusetts Wind Energy Area (WEA).[5] This lease sale resulted in BOEM's issuance of Commercial Lease OCS-A 0501 to Offshore MW LLC, which subsequently changed its name to Vineyard Wind LLC (Vineyard Wind).[6] Lease OCS-A 0501 became effective on April 1, 2015, and covers the area identified in Addendum "A" of the lease ("leased area"). Lease OCS-A 0501 does not authorize Vineyard Wind to conduct construction activities within the leased area. Under Lease OCS-A 0501 and 30 C.F.R. part 585, Vineyard Wind must submit and receive approval of a COP before any construction activities may take place on the Outer Continental Shelf (OCS).[7] Submittal and processing of the COP is governed by the provisions set forth in 30 C.F.R. §§ 585.620 through 585.629.

On December 19, 2017, Vineyard Wind submitted a COP to BOEM for review and approval. The COP proposes the development of an offshore wind energy project ("Proposed Project") limited to an area within the northern portion of Lease OCS-A 0501, as shown in Figure 1 below.[8] The Proposed Project area is referred to as the Wind Development Area (WDA) and consists of 75,614 acres (306 km^2).

[3] The FEIS identified the preferred alternative as a combination of Alternatives C, D2, and E, with mitigation measures included in Appendix D of the FEIS ("Preferred Alternative"). Bureau of Ocean Energy Mgmt., BOEM 2021-0012, Vineyard Wind 1 Offshore Wind Energy Project Final Env't Impact Statement, vol. I, Exec. Summary, at 9 & app. D (2021) [hereinafter FEIS].

[4] For a more detailed explanation of the steps taken before issuance of the lease, *see* FEIS vol. I, § 1.1 and vol. II, app. C.

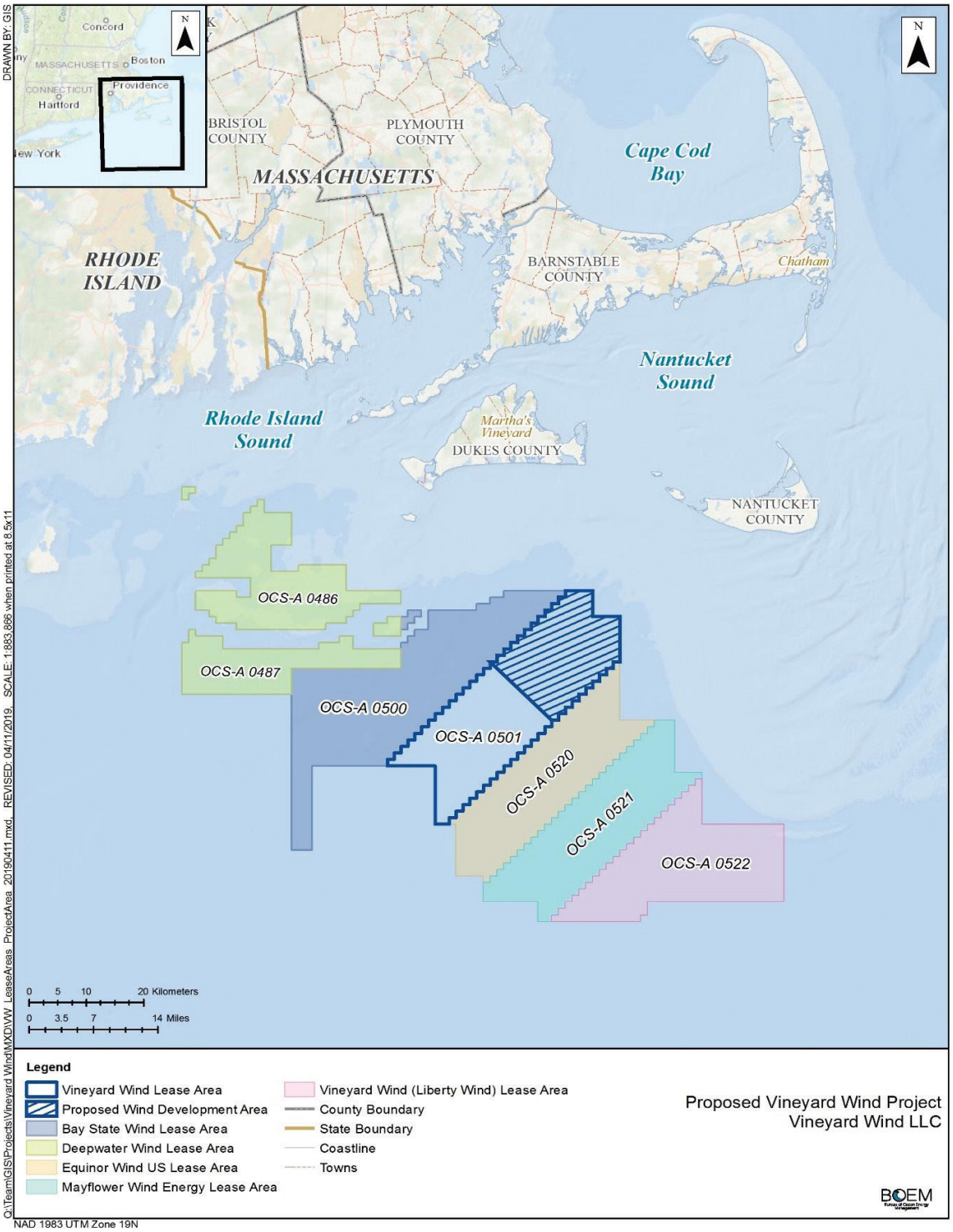
[5] *See* Bureau of Ocean Energy Mgmt., Atl. Wind Lease Sale 4 (ATLW4) Com. Leasing for Wind Power on the Outer Continental Shelf Offshore Massachusetts—Final Sale Notice, 79 Fed. Reg. 70,545 (Nov. 26, 2014).

[6] *See* Bureau of Ocean Energy Mgmt., Change of Name Recognized (Aug. 29, 2017), https://www.data.bsee.gov/PDFDocs/Scan/RENLEASES/0/230.pdf.

[7] *See* 30 C.F.R. § 585.600(b).

[8] Vineyard Wind LLC, Construction and Operations Plan vol. I, § 2, at 1 (2020) [hereinafter COP]; *see also* FEIS vol. I, § 2 (setting forth additional details regarding the Proposed Project) and sec. 3.3 *infra*. The COP, FEIS, and other Proposed Project documents are available at https://www.boem.gov/Vineyard-Wind.

FIGURE 1 – Project Area



Vineyard Wind has proposed the Vineyard Wind 1 Project using a Project Design Envelope (PDE) framework, under which multiple aspects of the Project are potentially variable, but would remain within the limits defined in the PDE. Within this PDE framework, the Proposed Project (Alternative A in the FEIS) consists of up to 100 wind turbine generators (WTGs) in any of the 106 identified locations, each of which would have an 8 to 14 megawatt (MW) generation capacity, and up to two electrical service platforms (ESPs). The WTGs would be placed in a grid-like array (with WTGs in rows oriented northeast-southwest and northwest-southeast) within the WDA, with typical spacing between WTGs of 0.75 to 1 nautical mile (nmi). An export cable would make landfall at Covell's Beach in the Town of Barnstable. Vineyard Wind's COP details the proposed construction, operation, and eventual decommissioning of the WTGs, electrical service platforms, and associated cabling to shore for the Project, as well as biological and physical survey information.

The Preferred Alternative, which fits within the PDE, differs from the Proposed Project in that DOI will allow 84 or fewer turbines to be installed in 100 of the 106 locations proposed by Vineyard Wind and will prohibit the installation of WTGs in 6 locations in the northern-most portion of the project area. In addition, the turbine layout would be arranged in a north-south/east-west orientation and would have a minimum spacing of 1 nmi between them, consistent with the United States Coast Guard's (USCG) recommendations in the Final Massachusetts and Rhode Island Port Access Route Study (MARIPARS).[9] If BOEM approves the COP, Vineyard Wind could choose where to place the 84 or fewer turbines among the remaining 100 locations available. Under the Preferred Alternative, the export cable would still make landfall at Covell's Beach in the Town of Barnstable.

Section 585.200(b) entitles a lessee to one or more project easements, without further competition, for the purpose of installing transmission and distribution cables and appurtenances on the OCS as necessary for the full enjoyment of the lease. In accordance with 30 C.F.R. § 585.622(b), Vineyard Wind requested a project easement as part of its COP. This project easement would pass through approximately 14.3 nmi of Federal waters. The remainder of the Offshore Export Cable Corridor (OECC) would pass through approximately 20.4 nmi of state waters. The total length, from Lease OCS-A 0501 to shore, would measure approximately 34.8 nmi. Vineyard Wind's proposed project easement would accommodate two export cables, spaced 50 meters (m) apart, with a 250-m width extending outwards from each cable for a total easement width of 550 m.

3.0 Section 585.628 Review

As noted in Section 2, the regulations at 30 C.F.R. §§ 585.620 through 585.629 govern BOEM's review and processing of COPs. 30 C.F.R § 585.628 requires BOEM to review the COP and all information provided therein pursuant to 30 C.F.R. §§ 585.626 and 585.627, to determine whether the COP contains all of the information necessary to be considered complete and sufficient for BOEM to conduct technical and environmental reviews. Once BOEM determines that the COP is complete and sufficient, BOEM and the Bureau of Safety and Environmental Enforcement (BSEE) conduct a technical review, and BOEM conducts an environmental review.

[9] U.S. Coast Guard, USCG 2019-0131, The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study (2020), https://www.navcen.uscg.gov/pdf/PARS/FINAL_REPORT_PARS_May_14_2020.pdf.

As described below, BOEM's Office of Renewable Energy Programs (OREP) has completed the sufficiency, technical, and environmental reviews of the Vineyard Wind 1 COP.

3.1 Completeness and Sufficiency Review

With regard to the regulations pertaining to COPs, 30 C.F.R. § 585.620 provides the general requirements of what must be described in a COP,[10] while 30 C.F.R. § 585.621 sets forth what a COP must demonstrate. 30 C.F.R. § 585.626 describes what specific information must be included in the COP, including the results of required surveys, as well as other project-specific information, including financial assurance. Pursuant to 30 C.F.R. § 585.627, the Lessee must submit information and certifications necessary for BOEM to comply with the National Environmental Policy Act of 1969 (NEPA)[11] and other relevant laws.

By letter dated August 23, 2017, and a revised letter submitted on October 19, 2017, Vineyard Wind requested a departure from BOEM's regulations to allow it to submit its WTG- and cable-specific geophysical and geotechnical survey and archaeological information after COP submittal, but before the completion of BOEM's environmental and historical/cultural reviews and issuance of a record of decision (ROD) on the FEIS for the COP. OREP's Projects and Coordination Branch (PCB) evaluated the departure request and coordinated BOEM's review.

On December 19, 2017, Vineyard Wind submitted a COP to BOEM for review and approval. On December 28, 2017, PCB verified that the COP included an adequate level of information required in 30 C.F.R. §§ 585.626 and 585.627 for BOEM to begin reviewing the sufficiency of that information. On January 19, 2018, BOEM approved the departure request.[12] On November 1, 2018, and February 15, 2019, Vineyard Wind provided the geophysical, geotechnical, and archaeological information for which it had requested the departure, thereby fulfilling its obligations under the approved departure.

PCB coordinated BOEM's sufficiency review of the Vineyard Wind 1 COP. Throughout this process, BOEM evaluated the information provided in response to its requests for additional information, as well as the updated COPs Vineyard Wind submitted, and determined that the information provided was sufficient in accordance with the regulations.

On December 1, 2020, Vineyard Wind withdrew its COP via letter, citing the need to conduct a final due diligence review of its project design resulting from the selection of the 13-MW General Electric Haliade-X turbines (Haliade-X). On January 22, 2021, Vineyard Wind submitted a letter requesting that BOEM resume its review of the existing COP, and stating that,

[10] Section 585.620 provides that a COP must contain information describing all planned facilities that the Lessee proposes to construct and use for its project, along with all proposed activities including the proposed construction, operations, and conceptual decommissioning plans, including the anticipated project easement(s); and describe all planned facilities to be constructed and used for the project, including onshore support facilities. *See also* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Information Guidelines for a Renewable Energy Construction and Operations Plan (2020).

[11] 42 U.S.C. § 4321 *et seq*.

[12] *See* Letter from James F. Bennett, Chief, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt., to Rachel Pachter, Vice President, Permitting Affairs, Vineyard Wind, LLC (Jan. 19, 2018), https://www.boem.gov/about-boem/ocs-0501pdf-0.

based on its due diligence review, the selection of the Haliade-X would require no changes to the COP. After reviewing the information Vineyard Wind submitted, BOEM concluded on February 2, 2021, that no changes to the COP were necessary.
OREP has determined that the COP includes all the information required in 30 C.F.R. §§ 585.626 and 585.627 for the Proposed Project. If the Proposed Project is approved as modified by the Preferred Alternative, then Vineyard Wind must submit the following information no later than when it submits its Facility Design Report (FDR):

- All items required in the Memorandum of Agreement (MOA) executed under section 106 of the National Historic Preservation Act (NHPA);[13]
- Updated information required in 30 C.F.R. §§ 585.626(a)(1) on shallow hazards, (2) the results of the geological survey relevant to the design and siting of the facility, and (6) the overall site investigation for the facility;
- Updated location plat and cable and easement information required in 30 C.F.R. §§ 585.626(b)(5) and (7); and
- Updated information on man-made hazards such as those defined as Munitions and Explosives of Concern (MEC).[14]

3.2 Technical Review

OREP's Engineering and Technical Review Branch (ETRB) reviewed the proposed facilities, project design, project activities, shallow hazards, geological conditions, physical and oceanographic conditions, cables, and fabrication and installation details in the COP, and coordinated with the following agencies:

- BSEE, for safety [Safety Management System (SMS) and Oil Spill Response Plan];
- Federal Aviation Administration (FAA) and National Oceanic and Atmospheric Administration (NOAA), for aviation and radar interference; and
- USCG, for vessel navigation.

Furthermore, ETRB and BSEE reviewed the statement of work and qualification submitted in the COP for the Certified Verification Agent (CVA) nomination. On May 10, 2019, BOEM approved the nomination of DNV to be the CVA for the Vineyard Wind 1 Project. DNV will review and certify that the project facilities are designed, fabricated, and installed in conformance with accepted engineering practices, as described in the FDR and the Facility Installation Report (FIR), to be submitted by Vineyard Wind if BOEM approves the COP.

As a result of said reviews, ETRB has determined that both the technical information and supporting data provided with the COP meet the requirements of 30 C.F.R. § 585.626 and are sufficient to allow the safe installation of the Proposed Project on the OCS. ETRB has also

[13] 54 U.S.C. § 300101 *et seq.*
[14] MEC is a term that distinguishes specific categories of military munitions that may pose unique explosives safety risks, such as: (i) unexploded ordnance, as defined in 10 U.S.C. § 101(e)(5); (ii) discarded military munitions, as defined in 10 U.S.C. § 2710(e)(2); or (iii) munitions constituents (MC) (e.g., TNT, cyclotrimethylenetrinitramine (RDX)), as defined in 10 U.S.C. § 2710(e)(3), present in high enough concentrations to pose an explosive hazard. *See generally* Dep't of Defense, DESR 6055.09 (2019).

concluded that the COP proposes the use of properly trained personnel and the best available and safest technology, pursuant to 30 C.F.R. § 585.621. ETRB provided the attached memorandum (Attachment A), which recommends the approval of the COP subject to the proposed conditions described therein.[15]

3.3 Environmental Review

OREP's Environment Branch for Renewable Energy conducted an environmental review of the COP. On March 30, 2018, BOEM published the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for Vineyard Wind's COP,[16] which started BOEM's formal scoping process pursuant to NEPA. The Notice of Availability (NOA) of the Draft EIS (DEIS) for the Project was published on December 7, 2018.[17] The U.S. Army Corps of Engineers (USACE), the National Marine Fisheries Service (NMFS), DOI, BSEE, USCG, and the U.S. Environmental Protection Agency (USEPA) were cooperating agencies during the development and review of the FEIS. The Narragansett Indian Tribe was a cooperating tribal nation. Cooperating state agencies included the Massachusetts Office of Coastal Zone Management, the Rhode Island Coastal Resources Management Council, and the Rhode Island Department of Environmental Management.[18]

On June 12, 2020, BOEM published the NOA of a Supplement to the DEIS (SEIS).[19] The SEIS analyzed reasonably foreseeable effects from an expanded cumulative activities scenario for offshore wind development, previously unavailable fishing data, a new transit lane alternative, and changes to the COP since publication of the DEIS.

After Vineyard Wind withdrew its COP on December 1, 2020, as noted above in Section 3.1, BOEM published a notice in the *Federal Register* on December 16, 2020, informing the public that preparation of an EIS for the COP was no longer necessary and, therefore, the process had been terminated.[20] As also noted in Section 3.1, Vineyard Wind submitted a letter on January 22, 2021, requesting BOEM to resume its review of the COP, since, according to Vineyard Wind, its due diligence review revealed that there were no required changes. Consequently, after confirming that no changes to the COP or the SEIS were needed, BOEM announced on March 3, 2021, that it was resuming preparation of the FEIS.[21]

On March 12, 2021, BOEM published an NOA of the FEIS in the *Federal Register*.[22] The FEIS identified the Preferred Alternative and included BOEM's responses to comments on the DEIS and SEIS in Appendix K. The FEIS found that the Preferred Alternative would have negligible to moderate adverse impacts on most resources, and only the potential for major adverse impacts on (i) cultural, historical, and archeological resources (not overall, but depending on the specific

[15] *See infra* attach. A.
[16] Notice of Intent to Prepare an Env't Impact Statement, 83 Fed. Reg. 13,777 (Mar. 30, 2018).
[17] Notice of Availability of a Draft Env't Impact Statement, 83 Fed. Reg. 63,184 (Dec. 7, 2018).
[18] For more details, *see* FEIS vol. II, app. C, § 1.2.
[19] Notice of Availability of a Supplement to the Draft Env't Impact Statement, 85 Fed. Reg. 35,952 (June 12, 2020).
[20] Vineyard Wind LLC's Proposed Wind Energy Facility, 85 Fed. Reg. 81,486 (Dec. 16, 2020).
[21] Notice to Resume the Preparation of a Final Env't Impact Statement, 86 Fed. Reg. 12,494 (Mar. 3, 2021). The FEIS was made available in electronic form at https://www.boem.gov/vineyard-wind.
[22] Notice of Availability of a Final Env't Impact Statement, 86 Fed. Reg. 14,153 (Mar. 12, 2021).

resource affected); (ii) environmental justice (not overall, but depending on the specific community affected); and (iii) scientific research and surveys.[23] The FEIS also found that the Project could have, to some extent, beneficial impacts on the following resources: (i) coastal habitats; (ii) benthic resources; (iii) finfish, invertebrates, and essential fish habitat; (iv) marine mammals; (v) sea turtles; (vi) demographics, employment, and economics; (vii) environmental justice; (viii) recreation and tourism; (ix) air quality; (x) birds; and (xi) land use and coastal infrastructure.

Concerning impacts from future planned actions, including the Project, the FEIS found that the following resources could be subject to major impacts if future planned actions materialize and no further actions are taken to mitigate their impacts: (i) commercial fisheries and for-hire recreational fishing and (ii) scientific research and surveys. The FEIS also found that future planned actions could have beneficial impacts on the following resources: (i) demographics, employment, and economics; (ii) recreation and tourism; and (iii) land use and coastal infrastructure. The 30-day waiting period for the FEIS closed on April 12, 2021. Several consultations were conducted as part of the environmental review process. On September 11, 2020, NMFS issued a Biological Opinion (BiOp) for the Proposed Project under section 7 of the Endangered Species Act (ESA).[24] The BiOp concluded that the proposed activity is not likely to jeopardize the continued existence of any ESA-listed species under NMFS' jurisdiction. To minimize impacts on ESA-listed species, NMFS provided several Reasonable and Prudent Measures that must be made conditions of approval if the COP is approved.[25] BOEM also completed an informal consultation with the U.S. Fish and Wildlife Service (FWS).[26] Using the best available information, the FWS concurred with BOEM's determination that approval of the COP may affect, but is not likely to adversely affect, federally endangered or threatened birds. BOEM also completed Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and received conservation recommendations for consideration in the FEIS and ROD.[27] BOEM also consulted under section 106 of the NHPA and, through that consultation, identified historic properties that may be adversely affected by COP approval, as well as measures to resolve those effects. Consultation under section 106 of the NHPA concluded with the execution of the MOA between BOEM, Vineyard Wind, the Massachusetts Historical Commission, and the Advisory Council on Historic Preservation on May 7, 2021.

Vineyard Wind voluntarily submitted consistency certifications to the States of Rhode Island and Massachusetts under the Coastal Zone Management Act (CZMA).[28] The coastal management programs for the States of Rhode Island and Massachusetts concurred with Vineyard Wind's

[23] FEIS vol. I, Exec. Summary, at 13–14.
[24] 16 U.S.C. § 1531 *et seq.*; *see generally* Nat'l Marine Fisheries Serv., GARFO-2019-00343, Biological Opinion, Construction, Operation, Maintenance and Decommissioning of the Vineyard Wind Offshore Energy Project (Lease OCS-A 0501) (2020), https://www.boem.gov/renewable-energy/final-biological-opinion-noaa-fisheries [hereinafter BiOp].
[25] *See* BiOp § 11.2.
[26] *See* Letter from Thomas Chapman, Supervisor, New Eng. Field Office, Fish and Wildlife Serv., to David Bigger, PhD, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt. (Oct. 16, 2020), https://www.boem.gov/renewable-energy/usfws-letter-concurrence.
[27] *See* FEIS vol. II, apps. C, D (discussing consultation correspondence).
[28] 16 U.S.C. § 1451 *et seq*.

consistency certification, finding that the Proposed Project is consistent to the maximum extent practicable with the enforceable policies of each state's coastal management plan. Vineyard Wind provided BOEM with the CZMA concurrence letters issued by these states.[29]

4.0 Compliance Review[30]

The regulations at 30 C.F.R. part 585 set forth responsibilities for both BOEM and Vineyard Wind that are similar to those imposed by the 8(p)(4) factors.[31] 30 C.F.R. § 585.102 requires BOEM to ensure that any activities authorized under part 585 are carried out in a manner that provides for 12 enumerated goals. Similarly, 30 C.F.R. § 585.621 requires the COP to demonstrate that Vineyard Wind has planned and is prepared to conduct the proposed activities in a manner that conforms to its responsibilities listed in 30 C.F.R. § 585.105(a), as well as seven other goals listed therein. BOEM and Vineyard Wind share some of the responsibilities (e.g., ensuring that activities are carried out in a safe manner), while others are the responsibility of either BOEM (e.g., ensuring a fair return to the United States) or Vineyard Wind (e.g., using properly trained personnel). The discussion in the following sections 4.1 to 4.12 provides an overview of how BOEM has assessed the Preferred Alternative in accordance with the 8(p)(4) factors and the regulations at 30 C.F.R. part 585. Because many of these goals are related to the same topic or overlap one another, some are analyzed together.

4.1 Conforms to all applicable laws, regulations, and lease provisions of Vineyard Wind's commercial lease[32]

Consultations and reviews for the Proposed Project under NEPA, ESA, MSA, CZMA, and NHPA have been completed.[33] Further, approval of the COP would prohibit Vineyard Wind from commencing construction activities before obtaining all applicable permits and authorizations, including a Clean Water Act section 404 dredge and fill permit from the USACE, an Incidental Harassment Authorization from NMFS, and Determinations of No Hazard to Air Navigation from the FAA. Section 5.0 of the COP (Regulatory Framework) lists all expected Federal, Massachusetts, regional (county), and local-level reviews and permits for the Proposed Project.[34]

This memorandum assesses whether approval of the Preferred Alternative conforms with the 8(p)(4) factors and their implementing regulations.

[29] *See* FEIS vol. II, app. C (discussing Coastal Zone Management Act concurrences).
[30] *See* 43 U.S.C. § 1337(p)(4) (OCSLA Subsection 8(p)(4)); 30 C.F.R. §§ 585.102, 585.621.
[31] *See* 30 C.F.R. §§ 585.102, 585.621.
[32] *See id.* §§ 585.102(b), 585.621(a).
[33] *See* discussion *supra* sec. 3.3.
[34] *See also* FEIS vol. II, app. B, § 1, tbl. 1.3-1.

4.2 Safety, best available and safest technology, best management practices, and properly trained personnel[35]

As provided in the COP and Vineyard Wind's January 22, 2021, letter providing project design updates, Vineyard Wind proposes the construction and operation of an 800-MW wind energy project consisting of the following major offshore components:

- 62 WTGs placed on monopile foundations connected by a network of 66-kilovolt (kV) Inter-Array Cables;
- One 800-MW conventional ESP, or two 400-MW conventional ESPs connected by an inter-link cable; and
- Two 220-kV export cables, co-located within a single OECC.[36]

These project specifications, as well as Vineyard Wind's selection of the Haliade-X WTG, which would be designed specifically for the Proposed Project, fit within the parameters of the PDE presented in the COP and discussed further in Section 2. The Haliade-X is GE's latest WTG and the most powerful offshore WTG in the world.[37] The Haliade-X is one of the most efficient ocean-based WTG platforms, with a leading capacity factor of 60 to 64 percent.[38] Although the Haliade-X is a new WTG, a prototype Haliade-X has been operating and generating electricity at the Port of Rotterdam since November 2019. If BOEM approves the COP, BOEM and the CVA will verify that all major components of the Proposed Project, as well as all planning, design, and construction activities, meet or exceed industry standards/certifications at the FDR/FIR stage.[39]

ETRB has assessed the geotechnical and geophysical information provided by Vineyard Wind and determined that the information is adequate and sufficient for ETRB to conclude that the geotechnical and geophysical characteristics of the WDA would allow for the safe installation and operation of the components as considered in both the COP and the January 22, 2021, letter. Further, OREP consulted with BSEE, USCG, FAA, and NOAA on safety requirements during the COP review process. BSEE's recommendations and relevant requirements have been incorporated into the proposed conditions of approval for the COP to ensure that this project is carried out in a safe manner.[40] Also, oversight of the review of future submissions (e.g., FDR and FIR activities) will allow BOEM to ensure that the "facilities are designed, fabricated, and installed in conformance with accepted engineering practices."[41]

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[35] *See* 43 U.S.C. § 1337(p)(4)(A); 30 C.F.R. §§ 585.102(a)(1), 585.621(b), 585.621(e)-(g).
[36] The DEIS and SEIS contemplated two Onshore Export Cable Routes, with alternative options within each route; however, following the publication of the SEIS, Vineyard Wind stated that all necessary state and local permits for the Covell's Beach landfall location had been acquired, and also updated its COP to officially remove the New Hampshire Avenue landfall site.
[37] Gen. Electric, Haliade-X Offshore Wind Turbine, https://www.ge.com/renewableenergy/wind-energy/offshore-wind/haliade-x-offshore-turbine (last visited Apr. 28, 2021).
[38] *Id.*
[39] 30 C.F.R. § 585.115(e) (incorporating by reference Am. Petroleum Inst., API RP 2A-WSD, Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms—Working Stress Design (21st ed. 2000); Errata and Supplement 1 (2002); Errata and Supplement 2 (2005); Errata and Supplement 3 (2007)).
[40] *See infra* attach. B.
[41] *See* 30 C.F.R. § 585.705(a)(1).

BSEE also reviewed the COP to ensure that it proposes the use of properly trained and otherwise qualified personnel in the design, fabrication, and installation of facilities. The COP also provides a description of its proposed SMS[42] as required by 30 C.F.R. § 585.627(d). The proposed SMS, which will be finalized following COP approval, if BOEM approves the COP, includes a description of the processes and procedures listed in 30 C.F.R. § 585.810(a)-(f), and how Vineyard Wind proposes to carry them out. BOEM determined that Vineyard Wind's proposals are consistent with acceptable industry practices and standards. Specifically, the SMS provides that all contractors will be fully qualified to perform the roles for which they are contracted, including any prescribed safety standards and awareness training. Vineyard Wind will provide safety orientation to familiarize contractors with any site-specific safety issues,[43] including USCG regulations on workplace safety and health, design and equipment, and emergency response, as well as hazard identification and risk management.

Also, as discussed in Section 4.9, approval of the Preferred Alternative would require, to the extent possible, the design of the Project to be compliant with applicable marking and lighting guidelines issued by the USCG and recommended by BOEM. Additionally, if BOEM approves the COP, BOEM will incorporate safety measures, as needed, into the Department of Defense (DoD) COP approval conditions. For example, all of Vineyard Wind's WTGs must have control mechanisms to enable operators to shut down any WTGs for national security or defense purposes within an agreed-upon timeframe following DoD notification.

Concerning Vineyard Wind's proposed easement, 30 C.F.R. § 585.628(g) limits the width of project easements to 61 m, unless safety and environmental factors during construction and maintenance of the associated cables require a greater width. OREP conducted technical and environmental reviews of Vineyard Wind's proposed 550-m easement and determined that the 550-m width was justified because of safety considerations associated with the construction and maintenance of the project's cables.[44] For example, the increased width of Vineyard Wind's easement would accommodate anticipated emergency cable repairs such as an omega bight joint configuration, which requires an accommodation space of up to four times the water depth extending to one side of the cable. Vineyard Wind calculated that a worst-case-scenario repair in the deepest waters would extend 156 m from the cable centerline.

Vineyard Wind has also adopted all of the best management practices identified in BOEM's 2014 report "Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Outer Continental Shelf.[45] While BOEM has adopted only the fisheries communication and outreach plan as official guidance to lessees, the report identifies considerations for project siting,

[42] *See* COP vol. I, app. B.
[43] *See* COP vol. I, app. B, §§ 6, 9.
[44] *See* 30 C.F.R. § 585.628(g). Also, if BOEM approves the COP and project easement, BOEM will: (i) apply any necessary avoidance buffers for the easement, as determined through BOEM's environmental and technical reviews and included as recommended conditions of COP approval; and (ii) incorporate the approved easement into the lease as Addendum D specifying the terms of the easement.
[45] *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS Study BOEM 2014-654, Development of Mitigation Measures to Address Potential Use Conflicts between Com. Wind Energy Lessees/Grantees and Com. Fishermen on the Atlantic Outer Continental Shelf (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/Fishing-BMP-Final-Report-July-2014.pdf.

navigation, access, safety, environmental monitoring, and financial compensation.[46] Vineyard Wind developed a public fisheries communication plan.[47] Vineyard Wind also has had a full-time fisheries liaison for the duration of the project development. Measures Vineyard Wind has taken in response to the other best management practices are detailed in other parts of this memorandum.

Based on the foregoing, it has been determined that Vineyard Wind proposes to use the best available and safest technology,[48] best management practices,[49] and properly trained personnel[50] for the construction and operation of the Proposed Project.

4.3 Protection of the environment and prevention of undue harm or damage to natural resources; life (including human and wildlife); property; the marine, coastal, or human environment; or sites, structures, or objects of historical or archaeological significance[51]

Minimizing environmental impacts through the assessment of environmental resources is integral to BOEM's planning and leasing phase of offshore wind development. BOEM's efforts to protect the environment and prevent undue harm to the resources listed herein began before Lease OCS-A 0501 was issued to Vineyard Wind. For example, on February 6, 2012, as part of the WEA development process offshore Massachusetts, BOEM published in the *Federal Register* a Call for Information and Nominations ("Call") to identify locations within the offshore Call Area[52] in which there was industry interest to seek commercial leases for developing wind projects. The Call Area was located off the coast of Massachusetts beginning approximately 12 nmi south of Martha's Vineyard and 13 nmi southwest of Nantucket.[53] It contained 826,241 acres, 132 whole OCS lease blocks, and 19 partial blocks.[54]

After considering the comments submitted in response to the Call, BOEM excluded certain areas identified as important habitats that could be adversely affected if developed with wind

[46] *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Providing Information on Fisheries Social and Economic Conditions for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585 (2020), https://www.boem.gov/sites/default/files/documents/about-boem/Social%20%26amp%3B%20Econ%20Fishing%20Guidelines.pdf.
[47] *See* Vineyard Wind LLC, Fisheries Commc'n Plan (7th rev. 2019), https://static1.squarespace.com/static/5a2eae32be42d64ed467f9d1/t/5d67ff3ec44e15000183fb46/1567096638987/Rev+7+Fishery+Communication+Plan.pdf.
[48] *See* COP vol. I, §§ 1.5.1, 4.2.2 & apps. B, D, E.
[49] *See id.* vol. III, § 4, tbl. 4.1-2.
[50] *See id.* vol. I, §§ 4.2.2, 4.3.1, 4.3.2.
[51] *See* 43 U.S.C. § 1337(p)(4)(B); 30 C.F.R. §§ 585.102(a)(2), 585.621(d).
[52] *See* Bureau of Ocean Energy Mgmt., Massachusetts Call Area, https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/MA%20Call%20Area_2-3-12.pdf.
[53] *See generally* Com. Leasing for Wind Power on the Outer Continental Shelf Offshore Mass.—Call for Info. and Nominations, 77 Fed. Reg. 5820 (Feb. 26, 2012).
[54] *Id.* at 5824.

turbines.[55] Specifically, BOEM removed from the Call Area 14 lease blocks[56] that overlapped with an area of high sea duck concentration, to avoid impacts to this high-value habitat.[57] On May 30, 2012, BOEM publicly announced the resulting WEA.[58] In the Environmental Assessment (EA), discussed below, BOEM evaluated the potential environmental effects of lease issuance and subsequent site assessment activities in this WEA.[59]

On February 6, 2012, BOEM published an NOI to prepare an EA for Commercial Wind Leasing and Site Assessment Activities on the Atlantic OCS Offshore Massachusetts. The NOI requested public comments on: important environmental issues and alternatives to be considered in the EA; measures (e.g., limitations on activities based on technology, distance from shore, or timing) that would minimize impacts to environmental resources; and socioeconomic conditions that could result from leasing, site characterization, and site assessment in and around the lease area.[60] In November 2012, BOEM published an NOA for the EA, which assessed reasonably foreseeable impacts resulting from commercial wind lease issuance and site characterization activities (including geophysical, geotechnical, archaeological, and biological surveys) in the WEA on the OCS offshore Massachusetts.[61] BOEM considered the comments received on the EA and, on June 18, 2014, published in the *Federal Register* an NOA for a Revised EA and Finding of No Significant Impact (FONSI).[62] Also, it is worth noting that issuance of Lease OCS-A 0501 took place after the successful completion of all applicable consultations on protected resources. For a more detailed discussion of the leasing process for Lease OCS-A 0501 and the environmental consultations performed, see section 1.5.2 of the Revised EA.

As described in Section 3.3 above, BOEM analyzed in the FEIS the potential environmental effects of the proposed activities described in the COP. Appendix D of the FEIS specifically references measures to be taken or mitigations recommended to protect the environment. BOEM has also engaged in consultations under the ESA, the MSA, and the NHPA. As a result of the

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[55] Bureau of Ocean Energy Mgmt., Mass. Leases OCS-A 0500 (Bay State Wind) and OCS-A 0501 (Vineyard Wind), https://www.boem.gov/renewable-energy/state-activities/massachusetts-leases-ocs-0500-bay-state-wind-and-ocs-0501 (last visited Apr. 28, 2021).

[56] *See* Bureau of Ocean Energy Mgmt., Announcement of Area Identification: Com. Wind Energy Leasing on the Outer Continental Shelf Offshore Mass. 3 fig. 1 (May 30, 2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/MA_AreaID_Announcement_052412_Final.pdf.

[57] *Id.* at 1–2.

[58] *Id.*

[59] Bureau of Ocean Energy Mgmt., Mass. Leases OCS-A 0500 (Bay State Wind) and OCS-A 0501 (Vineyard Wind), https://www.boem.gov/renewable-energy/state-activities/massachusetts-leases-ocs-0500-bay-state-wind-and-ocs-0501 (last visited Apr. 28, 2021).

[60] Com. Wind Leasing and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass., 77 Fed. Reg. 5830 (Feb. 6, 2012).

[61] Env't Assessment for Potential Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf (OCS) Offshore Mass., 77 Fed. Reg. 66,185 (Nov. 2, 2012). The EA did not analyze the development and operation of a wind energy facility since Lease OCS-A-0501 did not authorize the construction of an OCS facility and, at the time the EA was prepared, there was no proposal for a wind energy project that could be meaningfully evaluated under NEPA.

[62] Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf (OCS) Offshore Mass., 79 Fed. Reg. 34,781 (June 18, 2014). The revised EA and FONSI are available at https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/MA/Revised-MA-EA-2014.pdf.

ESA consultation, NMFS issued the BiOp for the Proposed Project on September 11, 2020. The BiOp concluded that approval of the COP is not likely to jeopardize the continued existence of fin, sei, sperm, or North Atlantic Right Whales (NARW), the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles, or the North Atlantic DPS of green sea turtles, Kemp's ridley or leatherback sea turtles.[63] NMFS also concluded that the proposed action is not likely to adversely affect blue whales, the Northeast Atlantic DPS of loggerhead sea turtles, or any DPS of Atlantic sturgeon; thus, it is also not likely to jeopardize the continued existence of these species. NMFS also found that the proposed action will have no effect on critical habitat designated for the NARW.

In response to BOEM's informal ESA consultation with FWS, the service issued a letter dated October 16, 2020, concurring with BOEM's determination that the Proposed Project may affect, but is not likely to adversely affect, three listed species of birds (i.e., roseate terns, piping plovers, and red knots).[64]

BOEM also conducted an EFH consultation with NMFS to analyze potential adverse impacts of the Project on EFH. NMFS issued a Final EFH Assessment in April 2019, concluding that the adverse impacts associated with the construction and installation, operations and maintenance, and decommissioning of the Proposed Project are likely to have impacts that are temporary or small in proportion to the overall habitat available regionally.[65] To avoid and reduce effects of the proposed action, NMFS provided 12 conservation recommendations. BOEM responded to NMFS regarding how each of the conservation recommendations would be applied for the Proposed Project. BOEM fully or partially adopted 10 of the 12 recommended measures. Two measures were not adopted as they were either not technically feasible or beyond BOEM's regulatory authority.

BOEM also engaged in consultation under section 106 of the NHPA with the Advisory Council on Historic Preservation, the State Historic Preservation Officers for both Massachusetts and Rhode Island, the National Park Service, Indian Tribes, USACE, Vineyard Wind, and several organizations with an interest in the affected historic properties.[66] Through that consultation, BOEM identified historic properties that may be adversely affected by activities resulting from COP approval, as well as measures to resolve those effects. Because BOEM's selection of the Preferred Alternative would result in a turbine layout with locations different from those where Vineyard Wind performed its marine archeological surveys, Vineyard Wind and other consulting parties agreed in the MOA to measures to defer the identification of potential historic properties around some turbine locations.[67] These measures require Vineyard Wind to investigate and identify historic properties within the area of potential effects that have not already been fully surveyed and to either avoid them or take additional, appropriate measures.

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[63] *See* BiOp at 289.
[64] *See* Letter from Thomas Chapman, Supervisor, New Eng. Field Office, Fish and Wildlife Serv., to David Bigger, PhD, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt. (Oct. 16, 2020).
[65] *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Essential Fish Habitat Assessment (2019), https://www.boem.gov/renewable-energy/vineyard-wind-efh-assessment.
[66] For a full list of consulting parties, *see* Bureau of Ocean Energy Mgmt., Finding of Adverse Effect for the Vineyard Wind 1 Project Construction and Operations Plan app. A-2 (Nov. 13, 2020), https://www.boem.gov/sites/default/files/documents/oil-gas-energy/Vineyard-Wind-Finding-of-Adverse-Effect.pdf.
[67] *See* MOA, Article III; 36 CFR § 800.4.

The COP proposed impact avoidance, minimization, and mitigation measures, some of which BOEM included in its environmental analysis and consultations. Measures proposed by Vineyard Wind can be found in section 4.2 of the COP and the 2019 COP addendum, and include measures to avoid, minimize, and mitigate impacts to resources such as air quality, birds, and bats, among others.[68] Some of these resource protection measures were the result of the consultations performed by Vineyard Wind under the CZMA with the states of Massachusetts and Rhode Island, which, as noted in Section 3.3, issued letters concurring with Vineyard's certification that approval of the Project would be consistent with their enforceable policies.[69] If BOEM approves the COP, BOEM will incorporate Vineyard Wind's proposed measures as COP conditions of approval and require Vineyard Wind to comply with all measures and commitments resulting from state consistency determinations.

BOEM's Preferred Alternative also includes mitigation and monitoring measures to avoid or reduce impacts on existing ocean uses and on environmental and socioeconomic resources associated with construction, operation, and maintenance activities across the various resource areas analyzed in the FEIS. Table D-1 in Appendix D of the FEIS contains resource-by-resource details on mitigation and monitoring measures considered for the Preferred Alternative.

Based on the foregoing, BOEM has determined that approval of the COP as contemplated under the Preferred Alternative will result in the protection of the environment and prevention of undue harm or damage to natural resources; life (including human and wildlife); property; the marine, coastal, or human environment; or sites, structures, or objects of historical or archaeological significance.

4.4 Prevention of waste and conservation of natural resources[70]

Natural resources are defined in 30 C.F.R. § 585.112 to "include, without limiting the generality thereof, renewable energy, oil, gas, and all other minerals (as defined in section 2(q) of the OCS Lands Act), and marine animal and marine plant life." In this Section 4.4 analysis, BOEM is focused on the prevention of waste and conservation of natural resources only in the context of *wind energy resources, oil and gas, and marine minerals*. While reviewing this COP, BOEM considered how the Proposed Project would prevent waste by considering the location, installation, and operation of wind energy facilities proposed in the COP. Discussion of the conservation of *marine animal and plant life* can be found in Section 3.3 and the FEIS [section 3, Affected Environment and Environmental Consequences], both of which consider how BOEM addresses the Project's impacts on the marine environment.

Lease OCS-A 0501 was developed through a comprehensive planning process, as discussed in section 1.1 and Appendix C of the FEIS. The initial stages of the planning process evaluated

[68] COP vol. III, § 4.2; Vineyard Wind LLC, Draft Construction and Operations Plan, Addendum to Volumes I, II, and III (2019), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Vineyard-Wind-COP-Addendum-Final.pdf.
[69] *See* FEIS vol. II, app. C (CZMA concurrences).
[70] *See* 43 U.S.C. §§ 1337(p)(4)(C)-(D); 30 C.F.R. §§ 585.102(a)(3)-(4), 585.105(a).

natural resources in the region and removed from consideration areas that would be incompatible with oil, gas, and other mineral extraction activities in the area covered by Lease OCS-A 0501.

The technical information (including the prevailing wind speed and direction) provided to BOEM in a National Renewable Energy Laboratory (NREL) report, as a result of an interagency agreement between BOEM and NREL, heavily influenced the number, size, and orientation of the Massachusetts lease areas (Nos. 500, 501, and 520-522).[71, 72] While delineating these lease areas based on this technical information, BOEM sought to equalize the amount of shallow water in each of the leasing areas and minimize external wake effects.[73] For example, BOEM delineated the lease lines on a 45-degree southwest-to-northeast diagonal to align with the prevailing southwest wind direction.[74, 75]

The proposed COP reflects current industry practices (e.g., equipment, design, and orientation) for the region in which the Project will be located. The mitigation measures to be adopted with the selection of the Preferred Alternative strike a rational balance between deconflicting OCS uses and maximizing the harvesting of the wind energy resource in the area where the Project is proposed to be located. Indeed, the Alternative D2 component of the Preferred Alternative is consistent with the "developers' agreement" (discussed further in Section 4.7), in which Vineyard Wind and four other leaseholders off Massachusetts and Rhode Island proposed 1 x 1 nmi spacing in an east-west/north-south formation in November 2019 to prevent irregular transit corridors, despite significant reductions in their resulting area available for offshore wind development.[76]

Therefore, while BOEM is cognizant that the Alternative D2 layout does not maximize the potential wind energy produced, the Preferred Alternative strikes a rational balance between the conservation of natural resources and the prevention of interference with reasonable uses of the OCS.

4.5 Coordination with relevant Federal agencies[77]

Throughout BOEM's regulatory process, BOEM engaged with relevant Federal agencies to obtain expert advice, comply with regulatory requirements, and ensure proper coordination. Documentation of this coordination with Federal agencies through BOEM's Intergovernmental Renewable Energy Task Force meetings, Habitat Working Groups, Fisheries Working Groups, and public meetings from the early pre-lease planning stages to the Area Identification process

[71] W. Musial, Z. Parker, J. Fields, G. Scott, and D. Elliott, Nat'l Renewable Energy Lab'y, Assessment of Offshore Wind Energy Leasing Areas for the BOEM Mass. Wind Energy Area (2013), https://www.nrel.gov/docs/fy14osti/60942.pdf.
[72] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Decision Mem., Options for the BOEM Director to Consider Regarding the Lease Areas for the Mass. Offshore Wind Lease Sale (Mar. 12, 2014).
[73] *Id.*
[74] Musial, et al., Nat'l Renewable Energy Lab'y, *supra* note 72.
[75] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Options for the BOEM Director, *supra* note 73.
[76] *See* Letter from Equinor Wind US, Eversource Energy, Mayflower Wind, Orsted North America Inc., and Vineyard Wind LLC, to Michael Emerson, Director, Marine Transportation Systems (CG-5PW), U.S. Coast Guard (Nov. 1, 2019).
[77] *See* 43 U.S.C. § 1337(p)(4)(E); 30 C.F.R. § 585.102(a)(5).

(which resulted in the final WEA and, in turn, the lease area for the Vineyard Wind 1 Project) can be found in Section 1.5.2 of the Revised EA.[78] Throughout the environmental and technical review of the COP, BOEM met with various Federal agencies, including BSEE, Department of the Navy (DON), EPA, USACE, FWS, NOAA, North American Aerospace Defense Command (NORAD), United States Air Force (USAF), and USCG. Furthermore, during the EIS process, BOEM met with the Cooperating and Participating agencies approximately 12 times. Many of these meetings were to obtain concurrence on decision points as required under the previous One Federal Decision process. In addition, BOEM hosted three sets of five public meetings (scoping, DEIS, and SEIS).[79] Furthermore, both NOAA and the USACE have extensively participated in the preparation of the FEIS and have indicated their intention to adopt it and sign a joint ROD with BOEM.

4.6 Protection of national security interests of the United States[80]

At each stage of the regulatory process involving Lease OCS-A 0501, BOEM has consulted with the DoD for the purposes of assessing national security considerations in its decision-making processes. Before publishing the Request for Interest (RFI) on December 29, 2010 – to gauge the level of commercial interest in wind energy development offshore Massachusetts[81] – BOEM consulted on multiple RFI drafts with DoD, NMFS, and the State of Massachusetts during several Task Force meetings and consultations.[82] Furthermore, BOEM consulted with DoD on the Revised EA (described above in Section 4.3), which examined the potential environmental effects of issuing commercial wind energy leases and approving site assessment activities in the Massachusetts WEA.[83] The WEA contained no USACE-established danger zones or restricted areas,[84] and also had no military training routes or restricted airspaces directly overhead. However, the WEA was within the Narragansett Bay Operating Area, and most of the WEA was

[78] Bureau of Ocean Energy Mgmt., OCS EIS/EA BOEM 2014-603, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass. (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/MA/Revised-MA-EA-2014.pdf.

[79] *See* FEIS vol. II, app. C, § 1 (detailing consultation and coordination process with other Federal and State agencies).

[80] *See* 43 U.S.C. § 1337(p)(4)(F); 30 C.F.R. §§ 585.102(a)(6), 585.621(c).

[81] Bureau of Ocean Energy Mgmt., Mass. Leases OCS-A 0500 (Bay State Wind) and OCS-A 0501 (Vineyard Wind), https://www.boem.gov/renewable-energy/state-activities/massachusetts-leases-ocs-0500-bay-state-wind-and-ocs-0501 (last visited Apr. 28, 2021).

[82] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS EIS/EA BOEM 2014-603, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass., Revised Env't Assessment 8–9 (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/Fishing-BMP-Final-Report-July-2014.pdf.

[83] Bureau of Ocean Energy Mgmt., Mass. Leases OCS-A 0500 (Bay State Wind) and OCS-A 0501 (Vineyard Wind), *supra*, note 82.

[84] Danger zones are water areas used for various hazardous operations and may be closed to the public on either a full-time or intermittent basis. Restricted areas are water areas where public access is limited or prohibited. In general, restricted areas provide security for Government property or public protection from damage or injury from the Government's use of that area. *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS EIS/EA BOEM 2014-603, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass: Revised Env't Assessment 219 (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/Fishing-BMP-Final-Report-July-2014.pdf.

within the U.S. Navy Aviation Warning Area.[85] Following BOEM's consultation with the DoD on the proposed action to issue leases in the entire WEA, DoD concluded that site-specific stipulations, designed in consultation with DoD, could mitigate the impact of site characterization surveys and the installation, operation, and decommissioning of meteorological towers/buoys on the Navy's training areas and other DoD activities in the WEA. Therefore, when addressed through coordination with the DoD, impacts would be negligible and avoidable.[86]

While reviewing the COP, BOEM coordinated with DoD to develop measures necessary to safeguard against potential liabilities and impacts on DoD activities. BOEM requested that the Military Aviation and Installation Assurance Siting Clearinghouse coordinate within the DoD a review of the COP. As a result of this review, the USAF, NORAD, and DON (hereinafter, collectively, "DoD Agencies") identified concerns with the Project. BOEM, the DoD Agencies, and the DoD Siting Clearinghouse held consultations to discuss these concerns[87] and coordinate on how to avoid or mitigate them. The DoD Agencies requested the specific mitigation measures listed below, which BOEM included in Appendix D of the FEIS:

- Address USAF's liability concerns pertaining to the 104th Fighter Wing's training operations within Warning Area 105;
- Mitigate impacts on NORAD's air defense mission due to turbine interference with two radar systems (the Falmouth Air Surveillance Radar (ASR)-8 and the Nantucket ASR-9); and
- Mitigate potential impacts on DON's naval operations.

To protect the security interests of the United States, BOEM will incorporate these measures as conditions of approval if the COP is approved.

4.7 Protection of the rights of other authorized users of the OCS[88]

BOEM must ensure that activities authorized by the COP provide for protection of the rights of other authorized users of the OCS. "Authorized users of the OCS" means other users authorized by BOEM to conduct OCS activities pursuant to any OCS lease, easement or grant, including those authorized for renewable energy, oil and gas, and marine minerals.[89] BOEM's regulatory authority allows the agency to protect the rights of other authorized users by virtue of its right to determine the location of leases, easements, and grants issued and, thereafter, to approve, disapprove, or require modification of plans to conduct activities on such leases, easements, and grants. Approval of the Preferred Alternative, including the project easement, will not result in adverse impacts to rights granted by BOEM pursuant to any other OCS lease or grant, including leases or grants for renewable energy, oil and gas, or marine minerals. The activities that would

[85] *Id.* at 217–219.
[86] *Id.* at 221.
[87] For more information on these concerns, see FEIS vol. I, § 3.12.2.1 (Military and National Security Uses).
[88] *See* 43 U.S.C. § 1337(p)(4)(G); 30 C.F.R. § 585.102(a)(7).
[89] BOEM's Marine Minerals Program manages Outer Continental Shelf mineral leasing (primarily sand and gravel) for coastal restoration, and commercial leasing of gold, manganese, and other hard minerals.

be authorized by the COP do not restrict equitable access and sharing of the seabed in a manner that significantly interferes with those parties' authorized uses.

Specifically, there are no nearby oil and gas leases or grants or deposits of sand, gravel, and shell resources subject to § 1337(k)(2) of OCSLA that would be affected by the activities proposed in the COP. While there are adjacent wind energy leases held by four other wind energy lessees, the five New England offshore wind leaseholders (including Vineyard Wind) entered into the developers' agreement to establish a regional 1 x 1 nmi wind turbine layout across their respective leases. This layout is consistent with the Alternative D2 component of the Preferred Alternative and would arrange the WTGs in an east-west/north-south orientation and require a minimum spacing of 1 nmi between the WTGs.

Based on the foregoing, BOEM has determined that approval of the COP, as contemplated under the Preferred Alternative, will result in the protection of the rights of other authorized users of the OCS.

4.8 A fair return to the United States[90]

BOEM has determined that the terms of the lease provide a fair return to the United States. Lease payments are enumerated in Lease OCS-A 0501, beginning with a cash bonus of $150,197 received as consideration for award of lease OCS-A 0501 pursuant to the competitive lease sale held in January 2015. Thereafter, Addendum "B" of Lease OCS-A 0501 requires payment of annual rent calculated per acre or fraction thereof. Once a project begins commercial generation of electricity, a lessee must pay an operating fee, calculated in accordance with the formula found in Addendum "B' of Lease OCS-A-0501 and BOEM's regulations.[91] Upon COP approval, and annually thereafter, Vineyard Wind would be required to submit its first project-easement rent payment, calculated based on the acreage of the easement and the formula provided at 30 C.F.R. § 585.500(c)(5).

Based on the foregoing, BOEM has determined that approval of the COP as contemplated under the Preferred Alternative will result in a fair return to the United States.

4.9 Prevention of interference with reasonable uses of the OCS, the exclusive economic zone, the high seas, and the territorial seas; does not unreasonably interfere with other uses of the OCS, including national security and defense[92]

Under OCSLA and its implementing regulations, the Secretary shall ensure that any authorized activities are carried out in a manner that provides for the prevention of interference with reasonable uses (as determined by the Secretary) of the exclusive economic zone, the high seas, and the territorial seas;[93] and that activities authorized by the Secretary may "not unreasonably

[90] *See* 43 U.S.C. § 1337(p)(4)(H); 30 C.F.R. § 585.102(a)(8).
[91] 30 C.F.R. § 585.506.
[92] *See* 43 U.S.C. § 1337(p)(4)(I); 30 C.F.R. §§ 585.102(a)(9), 585.621(c). It is worth noting that approval of a COP would not restrict the legal rights of others to conduct reasonable uses of the exclusive economic zone, the high seas, and the territorial sea (e.g., innocent passage, fishing).
[93] *See* 43 U.S.C. § 1337(p)(4)(I); 30 C.F.R. § 585.102(a)(9).

interfere with other uses of the OCS."[94] Consistent with Solicitor's Opinion M-37067, the Secretary must strike a rational balance between this and all other goals enumerated in subsection 8(p)(4) of OCSLA and discussed in Section 4 of this Memorandum. The Secretary's striking of a rational balance among the enumerated goals of subsection 8(p)(4) of OCSLA results in the prevention of unreasonable interference with other OCS uses.

Throughout the planning and leasing process for Lease OCS-A 0501, as well as the NEPA process for the COP review, BOEM considered numerous other OCS uses in order to minimize or eliminate interference. To develop the WEA offshore Massachusetts, BOEM worked closely with the Massachusetts Intergovernmental Task Force, Federal agencies, federally recognized Tribes, the public, and other stakeholders between November 2009 and May 2012. BOEM also met five times during 2011 and 2012 with state-led working groups established to facilitate non-governmental consultation: the Fisheries Working Group on Offshore Renewable Energy and the Massachusetts Habitat Working Group on Offshore Renewable Energy. As a result of the Request for Interest, Call for Information, and Area Identification processes, BOEM removed more than 50 percent of the originally identified area in order to avoid specific areas, including shipping lanes and traffic separation schemes, commercial and recreational fishing areas of interest, and the Nantucket Lightship Habitat Closure Area.[95] As a result, BOEM selected a lease area that struck a rational balance between identifying an area suitable for wind energy development and preventing interference with other reasonable uses of the OCS. Moreover, BOEM specifically selected the lease area "to reduce potential use conflicts between the wind energy industry and fishermen[,]" since the area does not have high revenue intensity compared to nearby waters.[96]

During the NEPA process for the COP, BOEM assessed alternatives and mitigations that could further avoid, minimize, or mitigate impacts to other OCS uses, including sealanes and navigation, aviation, fishing activities, and NOAA scientific research and surveys. The discussion below summarizes how BOEM considered these other OCS uses in the lease area and the actions taken to ensure that the proposed activities, if approved, would be carried out in a manner that provides for the prevention of interference with those uses.

- **Sealanes and Navigation.**[97] The major ports in the vicinity of the Proposed Project include ProvPort, Fall River, New Bedford, and Davisville. These ports serve the commercial fishing industry, passenger cruise lines, cargo, and other maritime activities. Of these, the largest deep draft port by volume is ProvPort.[98] The primary vessel traffic and commercial shipping lanes to these ports are outside the Project area.[99]

[94] *See* 30 C.F.R. § 585.621(c).
[95] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS EIS/EA BOEM 2014-603, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass: Revised Env't Assessment § 1.5.2 (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/Fishing-BMP-Final-Report-July-2014.pdf.
[96] FEIS vol. I, § 3, at 222; *see also* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Revised Env't Assessment, *supra*, note 95, § 4, figs. 4-21, 4-22.
[97] *See* FEIS vol. I, § 3.11.
[98] COP vol. III, app. I, § 4.1.
[99] *Id.* § 5.5.1.

The navigational risk assessment prepared for the Project shows that it is technically feasible to navigate and maneuver fishing vessels and mobile gear through the WDA.[100] The foregoing is consistent with USCG's determination that, if the Massachusetts/Rhode Island WEA turbine layout is developed along a standard and uniform grid pattern, formal or informal vessel routing measures would not be required, and, as such, a grid pattern will result in the functional equivalent of numerous navigation corridors that can safely accommodate both transits through and fishing within the WEA.[101] The USCG has indicated that no navigation-related measures within their jurisdiction conflict with the Proposed Project. This includes any approved routing measures (e.g., Traffic Separation Schemes, Precautionary Areas, Fairways).[102] In addition, the USCG's Final MARIPARS evaluated vessel traffic through the lease areas and concluded that: "(1) lanes for vessel transit should be oriented in a northwest to southeast direction, 0.6 [nautical miles] NM to 0.8 NM wide. This width will allow vessels the ability to maneuver in accordance with the International Regulations for Preventing Collisions at Sea while transiting through the Rhode Island/Massachusetts WEA; (2) lanes for commercial fishing vessels actively engaged in fishing should be oriented in an east to west direction, 1 nm. wide; and (3) lanes for USCG search and rescue operations should be oriented in a north to south and east to west direction, 1 NM wide. This will ensure two lines of orientation for USCG helicopters to conduct Search and Rescue operations."[103] The Alternative D2 component of the Preferred Alternative in the FEIS is consistent with these recommendations.

As described in the FEIS, Vineyard Wind has committed to voluntarily employ a Marine Coordinator who would "act as a liaison with the USCG, pilots, port authorities, state and local law enforcement, volunteer marine patrols and commercial operators."[104] Vineyard Wind would ensure that a Marine Coordinator would remain on duty for the life of the Proposed Action. Further, if the COP is approved, BOEM would require Vineyard Wind to: (i) obtain USCG approval for private aids to navigation to be installed in the WDA; and (ii) coordinate with the USCG District 1 so that, to the extent possible, the FDR is consistent with the recommendations provided in the marking and lighting guidelines

[100] FEIS vol. I, § 3, at 216.
[101] *See* Port Access Route Study: The Areas Offshore of Mass. and R.I., Notice of Availability, 85 Fed. Reg. 31,792 (May 27, 2020) (MARIPARS). By letter dated June 29, 2020, the Responsible Offshore Development Alliance (RODA) requested corrections to MARIPARS, citing five perceived errors in the study. The USCG reviewed RODA's request for corrections and, by letter dated October 27, 2020, advised RODA of its conclusion that neither retraction nor correction of information was warranted. BOEM's subject matter expert reviewed the USCG response and observed no facial errors that would indicate that the USCG was incorrect. Therefore, BOEM has no reason to believe that the conclusions in MARIPARS are incorrect.
[102] USCG does not have the authority to establish safety zones outside the territorial sea without rulemaking. FEIS vol. I, § 3.12.
[103] U.S. Coast Guard, USCG 2019-0131, The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study (2020), https://www.navcen.uscg.gov/pdf/PARS/FINAL_REPORT_PARS_May_14_2020.pdf.
[104] *See* FEIS vol. I, § 3, at 241, 444; COP vol. III, app. I, at 206.

published by the USCG District 1[105] and BOEM[106] and chapter 4, section G of *Aids to Navigation Manual* (*COMDTINST Manual*(CIM 16500.7A)).

- **Aviation and Air Traffic.**[107] Under the Proposed Action, the proposed 14-MW, 837-foot (ft) (255-m) blade tip could impact approximately 10 percent of the air traffic that flies over the WDA at altitudes lower than 1,500 ft (457 m) above mean sea level (AMSL). The remaining 90 percent of the existing air traffic over the WDA occurs at heights above 1,500 ft (457 m) above AMSL,[108] and would not be affected. This impact would be lessened under the Preferred Alternative because fewer turbines would be installed. The 10 percent of air traffic that might be affected would come from the Nantucket Memorial Airport and Martha's Vineyard Airport, as well as from the Boston Consolidated and Providence Terminal Radar Approach Control sectors, and a Boston Air Route Traffic Control Center Minimum Instrument Flight Rule Altitude sector. Changes to air traffic patterns in the region would be initiated by the FAA.[109] Vineyard Wind filed FAA Form 7460-1, Notice of Proposed Construction or Alteration, for WTGs located in territorial waters with a maximum height of 696 ft (212 m) and received a Determination of No Hazard to Air Navigation.[110] The Determination expired on February 5, 2021. On October 28, 2020, Vineyard Wind made a new filing to the FAA to reflect the Haliade-X WTG and new locations (i.e., higher tip height, and 1x1 nmi spacing). The FAA's approval is pending.

  As described in in the FEIS, Vineyard Wind has committed to voluntarily "employ a Marine Coordinator for the life of the Project to liaise with aviation interests to reduce potential conflicts."[111] The FAA has established methods for marking potential obstructions, mitigating potential impacts, and notifying aviation interests about any changes to airspace management. Implementation of these standard procedures is required within FAA jurisdiction and would reduce risks associated with impacts from structures on aviation and air traffic. As stated in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*, BOEM recommends consistency with FAA conditions for WTGs beyond FAA jurisdiction. If the COP is approved, BOEM would require, to the extent possible, Vineyard Wind's FDR to be consistent with the recommendations in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*.[112]

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[105] Dep't of Homeland Sec., U.S. Coast Guard, Local Notice to Mariners, Dist. 1, Week 15/21, Coastal Waters from Eastport, Me. to Shrewsbury, N.J., https://www.navcen.uscg.gov/pdf/lnms/lnm01152021.pdf.
[106] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Dev. (2021), https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf.
[107] *See* FEIS vol. I, § 3.12.
[108] COP vol. III, § 7.9.2.1.2.
[109] *See* FEIS vol. I, § 3.12.
[110] *See* Fed. Aviation Admin., Determination of No Hazard to Air Navigation (Aug. 5, 2019), https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=displayOECase&oeCaseID=392868242&row=0.
[111] *See* FEIS vol. I, § 3, at 266; COP vol. III, app. I, at 206.
[112] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures, *supra* note 106.

- **Commercial Fisheries and For-Hire Recreational Fishing.**[113] Federally permitted fishing occurs in the lease area and OECC. NMFS currently has active permits for approximately 4,300 vessels engaged in various commercial and for-hire recreational fisheries in the Northeast Region (Virginia to Maine). Of these federally permitted vessels, approximately 225 (approximately 5 percent) have reported fishing in the Vineyard Wind WDA.[114] Of approximately 225 vessels, NMFS data from 2008 to 2018 shows that most permits source less than 2 percent of their income from the Project area.[115] The FEIS found that the Preferred Alternative would result in negligible to moderate impacts to commercial and for-hire recreational fisheries with an overall moderate impact.[116] The FEIS also found that impacts from future planned actions, including future offshore wind approvals, could result in major impacts to commercial fisheries and for-hire recreational fishing.[117] The offshore wind factors that contributed to these impact determinations were mainly driven by the presence of structures and the resulting navigational hazards, space-use conflicts, and gear loss/damage.

  It is important to clarify that approval of the Proposed Project would not limit the right to navigate or fish within the Project area. That said, some project activities and components (e.g., foundations, cable protection measures) are expected to impact some types of fishing within the WDA.[118] For example, temporary safety zones may be established in coordination with the USCG around active construction within 12 nmi of the shore for the safety of the Project and the public. During this time, all fishing and transit would need to avoid the construction zone. During the operational period, fishing and transit would be permitted; however, some larger vessel size classes and/or vessels towing fishing gear may choose to avoid foundations due to operational concerns. It is anticipated that vessel operators that choose to avoid the area will fish or transit in other locations. Static gear fishing including hook and line, lobster and crab traps, and gillnets are not anticipated to have the same operational constraints as mobile gear fishing although fishing methodology (e.g., direction of setting the gear and/or length of set gear) may need to be adjusted for fishing within the Project Area.

  While BOEM expects that with time, many fishermen will adapt to spacing and be able to fish successfully in the WDA, BOEM has identified several ways to reduce the level of interference the Project would have with commercial fisheries. For example, selection of the Preferred Alternative would remove the 6 northernmost WTGs to provide more unobstructed space in the northernmost area, which is commonly used by commercial fisheries, including scallop and surf clam/ocean quahog fishery. The Preferred Alternative would also require an east-west/north-south project layout with 1 nmi between WTGs. This project layout reduces interference with commercial fisheries,

[113] *See* FEIS vol. I, § 3.10.
[114] Nat'l Marine Fisheries Serv., 2020a, Descriptions of Selected Fishery Landings and Estimates of Vessel Revenue from Areas: A Planning-level Assessment (Mar. 10, 2021), https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/WIND_AREA_REPORTS/Vineyard_Wind_1.html#percentage_of_revenue_by_permit.
[115] *Id.*
[116] FEIS vol. I, § 3, at 232.
[117] *Id.* at 225.
[118] Nat'l Marine Fisheries Serv., *supra* note 115.

since the layout is representative of the traditional fishing arrangements in the area (e.g., mobile gear and fixed gear fishermen would fish in a nearly east-west orientation along alternating latitudinal lines).[119] Further, time-of-year restrictions on in-water construction will also reduce potential interference with commercial fishing. For example, cable laying of nearshore segments (Nantucket Sound) would occur only from early September to late October (from the landfall site to the northeast portion of Martha's Vineyard) to avoid fisheries use in the spring and summer.[120] Including mitigation measure Nos. 18, 73, and 74 as part of the Preferred Alternative also reduces the potential for interference with commercial fisheries. These mitigation measures require Vineyard Wind to: (1) continuously monitor the export cable using an as-built distributed-temperature sensing system that can assess if conditions have deteriorated or changed significantly and warrant remedial action to avoid adverse impacts to fisheries; (2) establish clear daily two-way communication channels between fishermen and the Project during construction; and (3) make available to the fishing community electronic chart information showing the as-built location of Project components, including buried cable, cable protection measures, turbine foundations (including scour protection extent) and ESPs.[121]

Concerning potential loss of revenues, it should be noted that Vineyard Wind will be establishing the following compensation/mitigation funds to address expected impacts to fisheries:[122]

- Rhode Island Compensation Fund - $4,200,000[123]
- Massachusetts Compensation Fund - $19,185,016[124]
- Other States' Compensation Fund - $3,000,000[125]
- Rhode Island Fisherman's Future Viability Trust - $12,500,000[126]
- Massachusetts Fisheries Innovation Fund - $1,750,000[127]

These funds generally cover two areas: (i) financial compensation for lost income and gear as a result of the Proposed Project's construction and operation; and (ii) programs to support future compatibility of offshore wind facilities and fishing activity. The total gear loss and revenue compensation funds for fishing interests totals $26.7 million over the 25-year operations term and 5-year decommissioning period of the Project. Vineyard Wind has defined fishing interests (those eligible to submit compensation claims) as

[119] FEIS, vol. I, § 3, at 231.
[120] *Id.* at 226.
[121] *See* FEIS vol. II, app. D.
[122] As applicable, these compensation/mitigation funds must also be established in accordance with consistency certifications issued for the Project under the Coastal Zone Management Act. Vineyard Wind must submit annual certifications to BOEM, beginning on the second anniversary of the Project's commercial operation date. The certification must attest that the compensation/mitigation funds have been established and are currently processing claims/providing assistance to mitigate impacts to fisheries. The certification must be signed by Vineyard Wind's Lease Representative.
[123] FEIS app. B, at 133 & app. D, Mitigation Measure No. 75.
[124] FEIS app. B, at 133 & app. D, Mitigation Measure No. 76.
[125] FEIS app. D, Mitigation Measure No. 77.
[126] FEIS app. B, at 133 & app. D, Mitigation Measure No. 78.
[127] FEIS app. B, at 133 & app. D, Mitigation Measure No. 79.

inclusive of owners and operators of vessels, vessel crews, shoreside processors, vessel suppliers and support services, and other entities that can demonstrate losses directly related to the Proposed Project. Vineyard Wind's economic revenue exposure analysis considered economic impacts from construction and operations within the WDA, as well as impacts from cable laying, fishing congestion, and shore-side indirect and induced impacts. The compensation/mitigation funds are generally consistent with the revenue exposure information provided in Table 3.10-4a in Appendix B of the FEIS, which shows an annual average revenue exposure of $478,824 over 11 years. When multiplied over 30 years (25-year operations term and 5-year decommissioning term), the sum is approximately $14.4 million. Based on these analyses, BOEM finds that the $26.7 million in proposed compensation funds should be adequate to cover any gear and/or revenue losses over the life of the Project.

As noted above, Vineyard Wind also reached agreements with Massachusetts and Rhode Island for additional funds to support the fishing industry more broadly under the Massachusetts Fisheries Innovation Fund ($1.75 million) and the Rhode Island Fishermen's Future Viability Trust ($12.5 million), bringing the total fisheries compensation package to $40.9 million.

Including all the measures above would mitigate impacts the Project is expected to have on commercial fisheries and for-hire fisherman and will prevent unreasonable interference with said fishing interests.

- **NOAA Scientific Research and Surveys.**[128] As described more fully in section 3.12.2.5 of the FEIS, the Vineyard Wind lease area overlaps with three different coast-wide Northeast Fisheries Science Center fishery resource monitoring surveys. For the spring and fall multi-species bottom trawl surveys, 6 percent of the area in one stratum, or depth range within a geographic area, would be within the Vineyard Wind lease area. For the ocean quahog survey, 3 percent of the area in one stratum would be within the lease area. Based on layout and spacing of WTGs and current survey vessel operation policies, NMFS decided that its vessels would not transit through or sample within 1 nmi of wind energy lease areas. Aerial survey track lines at the altitude used in current cetacean and sea turtle abundance surveys (600 ft [183 m] AMSL) could not occur in offshore wind areas, because the planned maximum-case scenario WTG blade tip height (837 ft [255 m] AMSL for the Proposed Action and 853 ft [260 m] AMSL for other projects would exceed the survey altitude with current surveying methodologies. The Rhode Island and Massachusetts Lease Areas comprise less than 1.5 percent of the aerial survey stratum, although the visual aerial abundance surveys for this stratum contribute to the estimates of 30 or more stocks of cetaceans and sea turtles. As recognized in section 3.12.2.5 of the FEIS, the approval of future offshore wind energy projects is expected to increase impacts to NMFS surveys.

  Since the COP decision is not a programmatic or regional decision, it is not legally possible for BOEM to require Vineyard Wind to comply with mitigation measures that would address future regional impacts not directly resulting from the Proposed Project.

[128] FEIS vol. I, § 3, at 268.

Therefore, following the publication of the FEIS, BOEM and NOAA worked together to identify a path forward on how to address impacts to NOAA scientific surveys. Through these discussions, BOEM and NMFS determined that given the regional nature of the survey impacts expected to materialize if future projects are approved, and thus the shared responsibility of government and the offshore wind energy industry to address regional impacts as a whole, a-programmatic approach to mitigate impacts to surveys, rather than a narrower site-specific approach, is the most appropriate method to ensure the ongoing reliability of NMFS surveys and to "holistically mitigate impacts on NMFS core surveys."[129] BOEM and NMFS are of the view that the solution is a collaborative effort between both agencies and the offshore wind industry to establish a programmatic survey mitigation program to address the impacts to NOAA surveys identified in the FEIS.

Impacts to NOAA surveys result principally from the inability of established sampling platforms to access the WDA due to NOAA's Office of Marine and Aviation Operations restriction of large vessel operations closer than 1 nmi of wind installations and flight height restrictions.[130] The exclusion of sampling platforms from within the WDA impacts the random-stratified statistical design used in surveys and could create uncertainty in survey results for fish and protected species population assessments, affecting both protected species and fisheries management. Accordingly, "[u]ncertainty in estimating fishery quotas could lead to unintentional underharvest or overharvest of individual fish stocks, which could have both beneficial and adverse impacts on fish stocks, respectively . . . . However, such lower quotas would result in lower associated fishing revenue that would vary by species, which could result in impacts on fishing communities."[131] For a complete discussion on the potential impacts on NMFS' surveys, please see section 3.12.2.5 of the FEIS.

To address these impacts, as discussed in the FEIS, NMFS recommended the development and implementation of a Federal Survey Mitigation Program that includes the following elements: 1) Evaluate survey design, 2) Identify and develop new survey approaches, 3) Calibrate new survey approaches, 4) Develop interim provisional survey indices, 5) Monitor wind energy to fill regional scientific survey data needs over the life of offshore wind operations, and 6) Develop and communicate new regional data streams (hereinafter, Federal Survey Mitigation Program). The Federal Survey Mitigation Program would evaluate impacts to NOAA surveys and identify potential regional solutions that could be applied to future offshore wind projects. BOEM and NMFS have committed to this Federal Survey Mitigation Program and will take several steps to implement it within the next two years, depending on available resources. These efforts are in line with the Federal Survey Mitigation Program described in the FEIS.[132] In addition to the foregoing, BOEM and NMFS have agreed to include mitigation measure No. 95 in Appendix A of the ROD, which requires Vineyard Wind to participate in the

[129] FEIS vol. I, § 3, at 271.
[130] *Id.* at 260.
[131] *Id.* at 271.
[132] *See* FEIS vol. I, § 3.12.2.5 (Scientific Research and Surveys)

efforts led by NMFS, in coordination with BOEM, for purposes of establishing the Federal Survey Mitigation Program.[133]

Until a comprehensive programmatic plan is established to mitigate impacts on NMFS' core surveys, information generated from project-specific monitoring plans may be necessary to supplement or complement existing survey data. With this understanding, BOEM is proposing the adoption of mitigation measures to supplement existing data, given that NOAA will be unable to continue sampling in the WDA. The mitigation measures incorporate NMFS data collection standards and requirements to the maximum extent practicable so that the data is usable and available to help document biological changes in the WDA. Specifically, Vineyard Wind's existing commitment to conduct bottom trawl surveys, drop camera surveys, ventless trap surveys, plankton surveys, and passive acoustic monitoring for large whales in the WDA will be extended for an additional two years post-construction (for a total of up to six years). Bottom trawl surveys will use standardized Northeast Area Monitoring and Assessment protocols. Additionally, the measures require Vineyard Wind to collect biological parameters on a subset of the trawl surveys including weight, length (to the nearest centimeter, consistent with the species-specific measurement type (e.g., total vs. fork) identified in the Northeast Observer Program Biological Sampling Guide); age through age-length keys, stomach contents, and sex and spawning condition (e.g., spent, ripe, ripe and running, etc.) consistent with Northeast Fisheries Science Center sex and maturity codes. These measures were designed to evaluate the effect of the Vineyard Wind 1 development on specific components of the marine ecosystem, not as mitigation to NMFS scientific surveys, which will be addressed through a programmatic solution. These measures will provide data using standardized protocols to collect and analyze biological and environmental data that can be integrated with existing data and other ongoing research to allow for a better understanding of the "new strata" (e.g., modified habitat) created by wind energy project structures. See Appendix A of the ROD for additional details on the survey plans and protocols.

- **National Security and Defense.** As explained in Section 4.6, BOEM has consulted extensively with the DoD. If BOEM approves the COP, BOEM will include in any COP approval the mitigation measures identified as a result of said consultations.

4.10 Consideration of (i) the location of, and any schedule relating to, a lease or grant under this part for an area of the OCS, and (ii) any other use of the sea or seabed, including use for a fishery, a sealane, a potential site of a deepwater port, navigation[134]

For a discussion on how BOEM selected the lease area, see section 1.1 and Appendix C of the FEIS. Approval of the COP is not expected to adversely affect the development of adjoining lease areas. Also, as noted above, the Alternative D2 component of the Preferred Alternative is consistent with the "developers' agreement," which proposed 1 x 1 nmi spacing in an east-

[133] *See* app. A to Record of Decision, Mitigation Measure No. 96.
[134] *See* 43 U.S.C. § 1337(p)(4)(J); 30 C.F.R. § 585.102(a)(10).

west/north-south formation to prevent irregular transit corridors.[135] Further, there are currently no scheduled lease sales or deepwater ports proposed in the vicinity of the project area.

For a discussion on how BOEM considered potential conflicts with fisheries, sealanes, navigation, and aviation, see Section 4.9.

4.11 Public notice and comment on any proposal submitted for a lease or easement[136]

For a detailed discussion on public notice and comment opportunities associated with the issuance of the lease, please see section 1.1 and Appendix C of the FEIS, and section 1.5.2 of the Revised EA,[137] discussed in Sections 4.3, 4.5, and 4.6.

Prior to preparation of the DEIS, BOEM held five public scoping meetings near the Proposed Project area to solicit feedback and to identify issues and potential alternatives for consideration. The topics most referenced in the scoping comments included commercial fisheries and for-hire recreational fishing, Lewis Bay, the Project description, socioeconomics, and alternatives. On December 7, 2018, BOEM published an NOA for the DEIS consistent with the regulations implementing NEPA to assess the potential impacts of the Proposed Action and alternatives.[138] The NOA commenced the public review and comment period of the DEIS. BOEM held five public hearings (February 11-15, 2019) in the vicinity of the Proposed Project area to solicit feedback and identify issues for consideration in preparing the FEIS. Throughout the public review and comment period, Federal agencies; state, local, and tribal governments; and the general public had the opportunity to provide comments on the DEIS. The topics most referenced during the DEIS comment period included commercial fisheries and for-hire recreational fishing, mitigation, finfish, invertebrates, and EFH, and purpose and need. In addition, comments received from stakeholders and cooperating agencies on the DEIS requested BOEM to expand the cumulative impact analysis for the Proposed Project. Considering such comments, and taking into account recent state offshore wind procurement announcements since DEIS publication, BOEM expanded its planned action analysis in its SEIS based on the determination that a greater build-out of offshore wind capacity is more reasonably foreseeable than was analyzed in the DEIS.

The NOA for the SEIS was published on June 12, 2020. The NOA commenced another public review and comment period for the Proposed Project. Throughout the public review and comment period, Federal agencies; state, local, and tribal governments; and the general public had the opportunity to provide comments on the SEIS. In addition, BOEM held five virtual public meetings via Zoom in late June and early July 2020. The topics most referenced during the SEIS comment period included commercial fisheries and for-hire recreational fishing,

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[135] *See* Letter from Equinor Wind US, Eversource Energy, Mayflower Wind, Orsted North America Inc., and Vineyard Wind LLC, to Michael Emerson, Director, Marine Transportation Systems (CG-5PW), U.S. Coast Guard (Nov. 1, 2019).
[136] *See* 43 U.S.C. § 1337(p)(4)(K); 30 C.F.R. § 585.102(a)(11).
[137] Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS EIS/EA BOEM 2014-603, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Mass: Revised Env't Assessment (2014), https://www.boem.gov/sites/default/files/renewable-energy-program/Fishing-BMP-Final-Report-July-2014.pdf.
[138] Notice of Availability of a Draft Env't Impact Statement, 83 Fed. Reg. 63,184 (Dec. 7, 2018).

planned action impacts analysis, employment and economics, alternatives, and purpose and need. BOEM reviewed and considered all public submissions in the development of this FEIS. On March 12, 2021, BOEM published an NOA for the FEIS in the *Federal Register*.[139] The FEIS was also made available in electronic form at https://www.boem.gov/vineyard-wind. BOEM's 30-day waiting period for the FEIS closed on April 12, 2021. BOEM's responses to comments on the DEIS and SEIS are included in Appendix K of the FEIS.

4.12 Oversight, inspection, research, monitoring, and enforcement relating to a lease, easement, or right-of-way[140]

Following approval of the COP, BOEM maintains the authority to perform oversight, inspection, research, monitoring, and enforcement relating to Lease OCS-A 0501, as authorized under the lease, OCSLA, and its implementing regulations. Under BOEM's authority, BSEE will assist with ensuring that offshore renewable energy development in Lease OCS-A 0501 is conducted safely and maintains regulatory compliance. BSEE has reviewed the proposed COP and recommended technical conditions for the design, construction, operation, maintenance, and monitoring of the Project, and for periodic review and reporting. These proposed technical conditions are included as Attachment B to this OCSLA compliance memorandum and, if the COP is approved, will be included as COP conditions of approval.

5.0 Status of the Lease

Vineyard Wind is currently in compliance with the terms of Lease OCS-A 0501. Vineyard Wind has maintained the lease in full force and effect by virtue of annual rent payments, all of which have been timely paid by Vineyard Wind and received by BOEM. By letter dated April 21, 2021, Vineyard Wind submitted a lease assignment request, the approval of which is pending with BOEM. If approved, the portion of the lease where the Vineyard Wind 1 Project is located will be assigned from Vineyard Wind LLC to Vineyard Wind 1 LLC. BOEM has decided not to make a decision on the lease assignment request until the ROD for the FEIS has been signed. The assignment, if approved, will not impact any analysis or conclusions set forth herein.

6.0 Financial Assurance

As required by 30 C.F.R. § 585.625(b)(19), section 1.8 of the COP contains Vineyard Wind's statement attesting that the activities and facilities proposed in the COP are or will be covered by an appropriate bond or security as required by 30 C.F.R. §§ 585.515 and 585.516. Vineyard Wind has provided and currently maintains a $100,000 lease-specific bond and a $670,658 supplemental bond to guarantee compliance with all terms and obligations of the lease. BOEM's regulations at 30 C.F.R. § 585.516(a)(3) provide that, before BOEM will approve a COP, the lessee must provide a supplemental bond or other financial assurance in an amount determined by BOEM based on the complexity, number, and location of all facilities in the lessee's planned activities and commercial operation. If BOEM approves the COP, Vineyard Wind must provide supplemental financial assurance beforehand to cover the additional annual rental amount for the project easement where transmission lines to shore will be located. In addition, BOEM may

[139] Notice of Availability of a Final Env't Impact Statement, 86 Fed. Reg. 14,153 (Mar. 12, 2021).
[140] *See* 43 U.S.C. § 1337(p)(4)(L); 30 C.F.R. § 585.102(a)(12).

increase the amount of supplemental financial assurance at any time if BOEM determines it is necessary to guarantee compliance with the terms and conditions of the lease.[141] As required under 30 C.F.R. § 585.516(a)(4), Vineyard Wind is required to satisfy its decommissioning financial assurance obligations prior to the installation of any facilities authorized in the COP. If approved, said obligation will be included as a COP condition of approval.

7.0 Conclusion

Minimizing environmental impacts and interference with other uses of the OCS is integral to OCS wind energy planning, leasing, and development. Over the last 12 years, the United States government on behalf of the American people has, through the DOI, BOEM, and other agencies, devoted significant time and resources to identifying, analyzing, and developing strategies to mitigate potential environmental impacts and interference with other OCS uses. In 2009, OREP established and began meeting with an Intergovernmental Renewable Energy Task Force, as well as with other stakeholders and ocean users, to identify areas of interest for wind energy offshore Massachusetts and Rhode Island as well as areas deemed unsuitable. OREP then conducted an EA, resulting in a FONSI, which concluded that reasonably foreseeable environmental effects associated with lease issuance, including those resulting from site characterization surveys in the WEA and the deployment of meteorological towers or buoys, would not significantly impact the environment. By the time BOEM held the lease sale and issued Lease OCS-A 0501 in 2015, OREP had also identified potential conflicts with other uses, including commercial fisheries, and had minimized those conflicts by significantly reducing the size of the WEA.

Once Vineyard Wind submitted its proposed COP in 2017, BOEM conducted a project-specific NEPA analysis, as well as other environmental consultations required by the ESA, CZMA, MSA, and NHPA. Throughout its environmental and technical review of the COP, BOEM also coordinated with various Federal agencies, including BSEE, DON, USEPA, USACE, FWS, NOAA, NORAD, USAF, and USCG. All of those reviews, consultations, and coordination efforts enabled BOEM to assess whether approval of the Preferred Alternative conforms with the 8(p)(4) factors and implementing regulations.

The Alternative D2 component of the Preferred Alternative, plus the mitigation measures discussed further in Section 4.9 of this memorandum, balance the need to prevent interference with OCS uses with BOEM's duty to further the United States policy to make OCS energy resources available for expeditious and orderly development, subject to environmental safeguards, including the consideration of natural resources and existing ocean uses.[142] The FEIS shows that approving the Project as modified by the Preferred Alternative would have negligible to moderate adverse impacts on most resources, including navigation and vessel traffic.

The Preferred Alternative is expected to have moderate impacts on commercial fisheries and for-hire fishing, and only the potential for major adverse impacts on: (i) certain, but not all, cultural, historical, and archeological resources; (ii) certain, but not all, environmental justice communities; and (iii) scientific research and surveys.[85] As discussed in Section 4.9 above, there

[141] *See* 30 C.F.R. § 585.517.
[142] 43 U.S.C. § 1332(3).

are a suite of mitigations that are intended to ensure that authorized activities are carried out in a manner that provides for the prevention of unreasonable interference with OCS uses, including fishing activities, within the Project area and adjoining areas. The expected impacts on environmental justice and cultural, historical, and archaeological impacts will depend on the community or specific resource affected.

Impacts on scientific research and surveys in the Project area ultimately will require a programmatic approach to mitigation. As described in Section 4.9, BOEM is committed to establishing a programmatic approach that will address potential impacts expected not only from Vineyard Wind 1 but also from future planned actions. While the programmatic approach is in development, BOEM will require the project-specific mitigation described in Section 4.9, which is intended to generate information related to the impacts of construction and operations through project-specific monitoring plans. The expectation is for the regional, programmatic approach to replace the project-specific approach in a two-year period. In addition, as the FEIS concluded, the Preferred Alternative could have beneficial impacts on the following resources: (i) coastal habitats; (ii) benthic resources; (iii) finfish, invertebrates, and EFH; (iv) marine mammals; (v) sea turtles; (vi) demographics, employment, and economics; (vii) environmental justice; (viii) recreation and tourism; (ix) air quality; (x) birds; and (xi) land use and coastal infrastructure. The numerous consultations performed under various Federal statutes, as well as the analysis in the FEIS, indicate that approval of the Preferred Alternative would not result in undue harm to resources of interest or in unreasonable interference with other OCS uses.[143]

Moreover, approval of the Preferred Alternative would further some of the goals stated in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*,[144] by increasing renewable energy production on the OCS, "with the goal of doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs."

In conclusion, OREP has evaluated all the information that Vineyard Wind provided in its COP and has assessed it in relation to the enumerated goals in OCSLA subsection 8(p)(4) and BOEM's implementing regulations at 30 C.F.R. part 585. In our view, approval of the COP – as modified by the Preferred Alternative and the proposed technical, and navigational and aviation safety terms and conditions attached herein – would be in accordance with the regulations at 30 C.F.R. part 585 and would strike a rational balance among the various goals enumerated in subsection 8(p)(4) of OCSLA.

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Attachments:

A. ETRB Recommendation Memo
B. Proposed Technical and Navigational and Aviation Safety Conditions of Vineyard Wind 1 COP Approval

[143] *See* secs. 4.3 and 4.9 *supra*.
[144] Exec. Order No. 14008, 86 Fed. Reg. 7619 (Jan. 27, 2021).