Record of Decision

Coastal Virginia Offshore Wind Commercial Project
Construction and Operations Plan

October 30, 2023

U.S. Department of the Interior
Bureau of Ocean Energy Management

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

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1. Introduction

This document constitutes the Bureau of Ocean Energy Management's (BOEM) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS)[1] joint Record of Decision (ROD) for the Final Environmental Impact Statement (EIS) prepared for the Coastal Virginia Offshore Wind Commercial (CVOW-C) Project Construction and Operations Plan (COP). The ROD addresses BOEM's action to approve the COP under subsection 8(p) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1337(p), and NMFS' action to issue a Letter of Authorization (LOA) to Virginia Electric and Power Company doing business as Dominion Virginia Power (Dominion Energy or Lessee) under Section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA), as amended, 16 U.S.C. § 1371(a)(5)(A). This ROD was prepared following the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 *et seq*., and 40 C.F.R. §§ 1500-1508.[2]

BOEM prepared the CVOW-C Final EIS with the assistance of a third-party contractor, ICF Jones & Stokes, Inc. (ICF). NMFS, the U.S. Army Corps of Engineers (USACE), the U.S. Coast Guard (USCG), the Bureau of Safety and Environmental Enforcement (BSEE), the U.S. Environmental Protection Agency (USEPA), and the U.S. Fish and Wildlife Service (USFWS) were cooperating agencies during the development and review of the document. The Virginia Department of Energy supported the preparation of the EIS as a cooperating agency. The Advisory Council on Historic Preservation, National Park Service and U.S. Navy supported the environmental review as participating agencies.

NMFS received a request for authorization to take marine mammals incidental to construction activities related to the Project, which NMFS may authorize under the MMPA. NMFS's issuance of an MMPA incidental take authorization in the form of a LOA for Incidental Take Regulations (ITRs) is a major Federal action and, in relation to BOEM's action, is considered a connected action (40 C.F.R. § 1501.9(e)(1)). The purpose of the NMFS action—which is a direct outcome of Dominion Energy's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving, marine site assessment surveys)—is to evaluate Dominion Energy's request pursuant to specific requirements of the MMPA and its implementing regulations administered by NMFS, considering impacts of the applicant's activities on relevant resources, and if appropriate, issue the authorization. NMFS needs to render a decision regarding the request for authorization due to NMFS's responsibilities under the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations.

In addition to analyzing potential impacts resulting from BOEM's approval of the COP pursuant to Section 8(p) of OCSLA, the Final EIS also analyzed potential impacts resulting from the proposed action that are relevant to USACE permitting actions under Section 10 of the Rivers and Harbors Act of 1899 (RHA), 33 U.S.C. § 403; Section 14 of the RHA, 33 U.S.C. § 408; Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344; and NMFS' action of issuing a

[1] For purposes of this Record of Decision, "NMFS," as an action agency has been delegated authority to issue marine mammal incidental take authorizations.
[2] The associated Final EIS was prepared using the 2022 Council on Environmental Quality (CEQ) NEPA Regulations. Therefore, this ROD follows the 2022 CEQ Regulations.

LOA for incidental harassment of small numbers of marine mammals during construction to Dominion Energy under the MMPA, 16 U.S.C. § 1371(a)(5)(A). See also 40 C.F.R. § 1501.9(e)(1)).

1.1. Background

In 2009, the U.S. Department of the Interior (DOI) announced final regulations for the Outer Continental Shelf (OCS) Renewable Energy Program, which was authorized by the Energy Policy Act of 2005. The Energy Policy Act provisions implemented by BOEM provide a framework for issuing renewable energy leases, easements, and rights-of-way for OCS activities. See Final EIS section 1.3. BOEM's renewable energy program occurs in four distinct phases: (1) regional planning and analysis, (2) lease issuance, (3) site assessment, and (4) construction and operations. The history of BOEM's planning and leasing activities offshore Virginia is summarized in Table 1-1.

Table 1-1 History of BOEM Planning and Leasing Offshore Virginia Related to Lease OCS-A 0483

Year	Milestone
2009	In 2009, BOEM formed the BOEM/Virginia Renewable Energy Task Force for coordination among affected Federal agencies and Tribal, state, and local governments through the leasing process. The first Task Force meeting was held on December 8, 2009, with subsequent meetings occurring on April 27, 2010; August 17, 2011; June 5, 2012; and September 22, 2016. The BOEM Virginia Task Force was integrated into the Virginia/North Carolina Intergovernmental Renewable Energy Task Force, for which meetings were held December 7, 2016, and July 23, 2019.
2012	On February 3, 2012, BOEM published a Call for Information and Nominations (Call) for Commercial Leasing for Wind Power on the OCS Offshore Virginia in the *Federal Register* (77 Fed. Reg. 5,545). The public comment period for the Call closed on March 19, 2012. In response, BOEM received eight commercial indications of interest.
2012	On February 3, 2012, BOEM published in the *Federal Register* a notice of availability (NOA) of a final Environmental Assessment (EA) and finding of no significant impact (FONSI) for commercial wind lease issuance and site assessment activities on the Atlantic OCS offshore New Jersey, Delaware, Maryland, and Virginia (77 Fed. Reg. 5,560).
2012	On December 3, 2012, BOEM published a Proposed Sale Notice requesting public comments on the proposal to auction one lease offshore Virginia for commercial wind energy development.
2013	On July 23, 2013, BOEM published a Final Sale Notice, which stated that a commercial lease sale would be held September 4, 2013, for the wind energy area (WEA)[3] BOEM had designated offshore Virginia. The Virginia WEA was auctioned as one lease, and Virginia Electric and Power Company (doing business as Dominion Virginia Power) was the winner (Renewable Energy Lease OCS-A-0483).

[3] BOEM works with its Federal, Tribal, state, and local partners to identify WEAs of the OCS that appear most suitable for commercial wind energy activities, while presenting the fewest apparent environmental and user conflicts (BOEM 2022). After WEAs are identified, BOEM prepares an Environmental Assessment (EA) under NEPA to determine potential impacts associated with activities reasonably expected to follow the issuance of one or more leases within a WEA. BOEM may then move forward with steps to hold a competitive lease sale for commercial wind development within the WEAs. The Project is located in BOEM Lease Area OCS-A 0483, which is located in the Virginia WEA. More information on BOEM WEAs, including maps, are found at https://www.boem.gov/renewable-energy/state-activities.

Year	Milestone
2016–2017	On March 2, 2016, Dominion Energy submitted a Site Assessment Plan (SAP) for Lease OCS-A-0483. BOEM approved the SAP on October 12, 2017.
2020–2021	On October 28, 2020, Dominion Energy submitted a new SAP for Lease OCS-A-0483. BOEM approved the SAP on October 1, 2021.
2020–2023	On December 17, 2020, Dominion Energy submitted a COP for the construction, operations, and conceptual decommissioning of the Project within the Lease Area. Updated versions of the COP were submitted on June 29, 2021; October 29, 2021; December 3, 2021; May 6, 2022; February 28, 2023; July 31, 2023; and September 8, 2023.
2021	On July 2, 2021, BOEM published a notice of intent (NOI) to prepare an EIS for the proposed Project in the *Federal Register* (86 Fed. Reg. 35,329).
2022	On December 16, 2022, BOEM published an NOA of a Draft EIS in the *Federal Register* (87 Fed. Reg. 77,135), initiating a 60-day public comment period for the Draft EIS.
2023	On August 31, 2023, the USFWS issued a Biological Opinion for Endangered Species Act (ESA)-listed species within its jurisdiction.[4] On September 18, 2023, NMFS issued a Biological Opinion for ESA-listed species and designated critical habitat within its jurisdiction (NMFS 2023).
2023	On September 29, 2023, BOEM published an NOA of a Final EIS in the *Federal Register* (88 Fed. Reg. 67,359) initiating a minimum 30-day mandatory waiting period, during which BOEM is required to pause before issuing a ROD.

[4] USFWS issued the Biological Opinion for the CVOW-C Project to BOEM via Memorandum dated August 31, 2023.

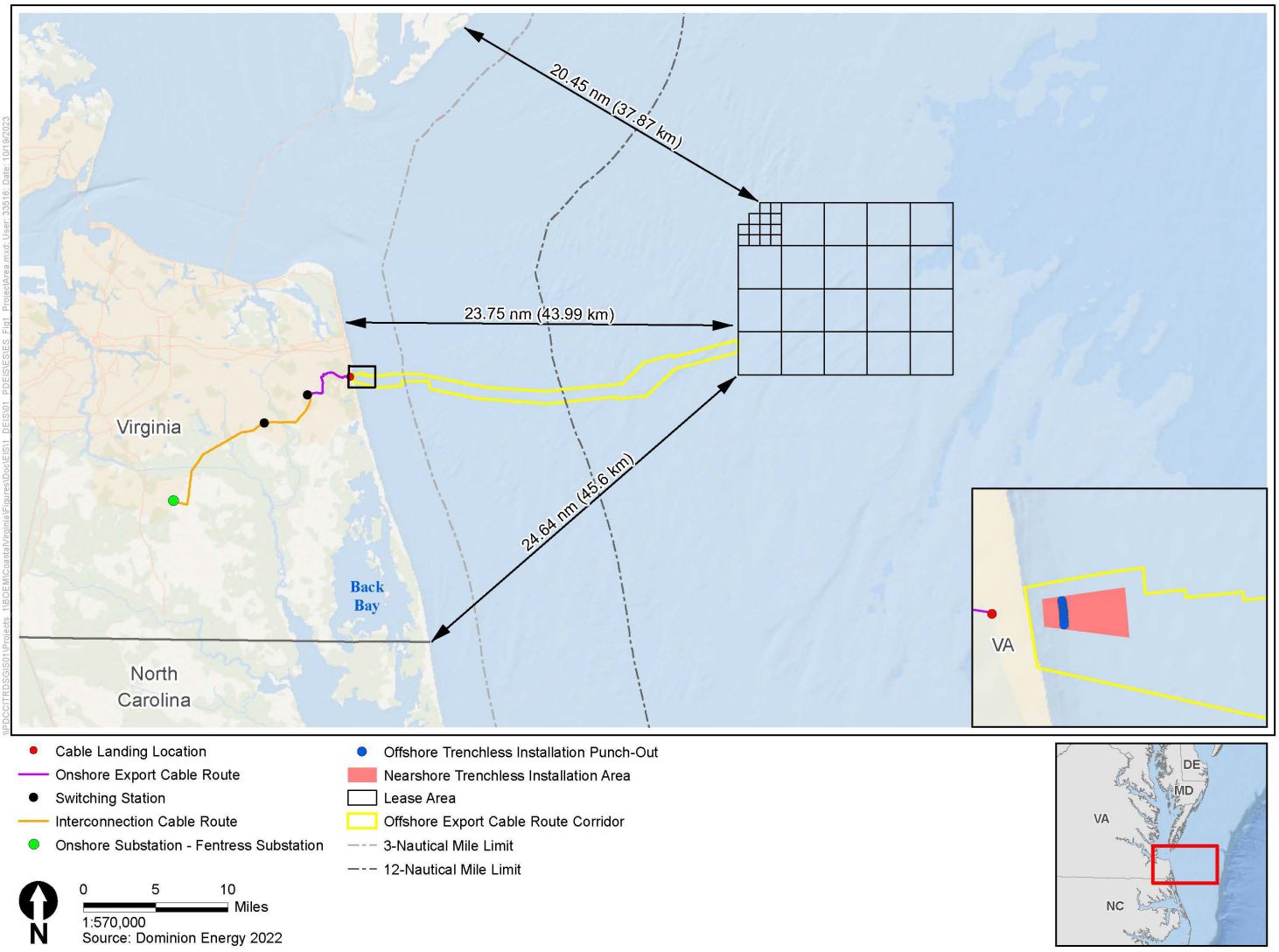

Figure 1-1 Proposed Project Area and Facilities

1.2. Authorities

The following summarizes BOEM's authority regarding the approval of the proposed Project, and NMFS' authority to authorize the take by harassment of marine mammals, incidental to the proposed Project. The Final EIS includes a description of consultations, authorizations, and permits related to the Project in Appendix A. The agencies adopting the Final EIS are those agencies that have defined authorizations and permitting responsibilities for the Project itself or for effects related to the Project. The NMFS MMPA LOA is briefly discussed here; its decision and supporting rationale are discussed in Section 5.2. NMFS is serving as a cooperating agency pursuant to 40 C.F.R. § 1501.8 because the scope of the Proposed Action and alternatives involves activities that could affect marine resources, and due to its jurisdiction by law and special expertise. Issuance of an LOA under the MMPA triggers independent NEPA compliance obligations, which may be satisfied by adopting the Final EIS prepared by BOEM. Aside from BOEM and NMFS, additional cooperating agencies participated in the NEPA process and will sign their ROD and make their permitting decisions at a later time (e.g., USACE).

1.2.1. BOEM Authority

The Energy Policy Act of 2005, Pub. L. No. 109-58, amended OCSLA, 43 U.S.C. §§ 1331 *et seq*., by adding a new subsection 8(p) to authorize the Secretary of the Interior to issue leases, easements, and rights-of-way in the OCS for renewable energy development, including wind energy projects.

The Secretary delegated to BOEM the authority to decide whether to approve COPs. Final regulations implementing this authority were promulgated by BOEM's predecessor agency, the Minerals Management Service, on April 29, 2009; 74 Fed. Reg. 19,637 (Apr. 29, 2009). These regulations prescribe BOEM's responsibility for determining whether to approve, approve with modifications, or disapprove Dominion Energy's COP. In accordance with CEQ NEPA regulations, 40 C.F.R. Part 1501, BOEM served as the lead Federal agency for the preparation of the EIS.

The Secretary of the Interior's authorization must comply with OCSLA subsection 8(p)(4), 43 U.S.C. § 1337(p)(4), which "imposes a general duty on the Secretary to act in a manner providing for the subsection's [various policy] goals." Sol. Op. M-37067, "Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf" (Apr. 9, 2021). According to M-Opinion 37067, "[t]he subsection does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension" (Sol. Op. M-37067).

1.2.2. NMFS Authority

Sections 101(a)(5)(A) and (D) of the MMPA allow NMFS to authorize, upon request, the incidental, but not intentional, take of small numbers of marine mammals, including incidental take by harassment, provided certain determinations are made and statutory and regulatory procedures are met; 16 U.S.C. § 1371(a)(5)(A), (D). To authorize the incidental take of marine mammals, NMFS evaluates the best available scientific information to determine whether the

take would have a negligible impact on affected species or stocks and whether the activity would have an unmitigable adverse impact on the availability of the species or stocks for subsistence use (if applicable). NMFS cannot issue an authorization if NMFS finds the taking would result in more than a negligible impact on marine mammal species or stocks or would result in an unmitigable adverse impact on the species or stocks for subsistence uses. NMFS must also prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations include additional requirements pertaining to monitoring and reporting.

Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA), NMFS must also ensure that issuing the marine mammal incidental take authorization is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(a)(2). For those marine mammal species that are listed under the ESA, NMFS Office of Protected Resources (OPR) must also consult with NMFS Greater Atlantic Regional Fisheries Office (GARFO) Protected Resources Division to receive an exemption for the take of those species and adhere to the requirements listed under Section 7 of the ESA to ensure that the MMPA-authorized incidental take is not likely to jeopardize the continued existence of those species. The ESA Section 7 consultation for this action resulted in issuance of a Biological Opinion (BiOp) that concluded the proposed Federal actions are not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification of any critical habitat (National Marine Fisheries Service 2023). The BiOp includes an Incidental Take Statement (ITS), which exempts that incidental take from ESA prohibitions subject to specified reasonable and prudent measures and implementing terms and conditions considered necessary and appropriate for NMFS OPR to minimize the effects of take on ESA-listed marine mammals. The BiOp and ITS also identify measures, which may be specific to the regulatory authorities of each action agency, to ensure compliance with the MMPA incidental take authorization with respect to the incidental take of ESA-listed marine mammals (i.e., measures in the Proposed Action and those identified as reasonable and prudent measures and terms and conditions, respectively).

NMFS promulgated regulations to implement the MMPA (50 C.F.R. Part 216), including application instructions for incidental take authorizations. Applicants must comply with these regulations, application instructions, and the MMPA. The decision being made by NMFS, including its decision to adopt BOEM's Final EIS, is discussed in section 5.2 of this ROD.

2. Proposed Project

2.1. Project Description

The Proposed Action would construct, operate, maintain, and eventually decommission an up-to 3,000 MW wind energy facility consisting of up to 202 wind turbine generators (WTGs) ranging from 14 MW to 16 MW each and three offshore substations (OSSs) in Lease Area OCS-A 0483 and associated export cables that would occur offshore Virginia (Figure 1-1). Dominion Energy would space WTGs in a 0.93- by 0.75-nautical-mile offset grid pattern (east–west by northwest by southeast gridded layout). The three OSSs would be placed within the rows of the gridded WTG layout. This configuration would still allow micrositing of WTGs (up to 500 feet) to avoid sensitive cultural resources and marine habitats. Onshore components include a cable landing location in Virginia Beach, Virginia. Onshore export cables would transfer electricity from the cable landing location to a switching station constructed north of Harpers Road in Virginia Beach, Virginia. An overhead interconnection cable route would then connect the new Harpers Switching Station to the Fentress Substation located in Chesapeake, Virginia. Development of the wind energy facility would occur within the range of design parameters described in Volume I of the CVOW-C Project COP (Dominion Energy 2023), as found on BOEM's webpage at https://www.boem.gov/renewable-energy/state-activities/CVOW-C, subject to applicable mitigation measures.

2.2. Purpose and Need for the Proposed Action

Through a competitive leasing process under 30 C.F.R. 585.211, Dominion Energy was awarded the Lease. Dominion Energy has the exclusive right to submit a COP seeking approval to engage in activities related to developing offshore wind facilities within the Lease Area, and it has submitted a COP to BOEM proposing the construction and installation, operations and maintenance (O&M), and conceptual decommissioning of an offshore wind energy facility in the Lease Area (the Project) in accordance with BOEM's COP regulations under 30 C.F.R. 585.626 *et seq*. Dominion Energy's goal is to develop a commercial-scale offshore wind energy facility in the Lease Area to provide between 2,500 and 3,000 MW of energy, making landfall in Virginia Beach, Virginia, and to use the offshore wind power generated from the proposed Project to supply its own customers. Dominion Energy's goal of "not less than 2,500 and not more than 3,000 MW" of offshore wind energy in service by 2028 is mandated for Dominion Energy under the 2020 Virginia Clean Economy Act.[5]

Based on BOEM's authority under the OCSLA to authorize renewable energy activities on the OCS, and Executive Order 14008; the shared goals of the Federal agencies to deploy 30 GW of offshore wind energy capacity in the United States by 2030, while protecting biodiversity and

[5] https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1526.

promoting ocean co-use;[6] and in consideration of Dominion Energy's goals, the purpose of BOEM's action is to determine whether to approve, approve with modifications, or disapprove Dominion Energy's COP. BOEM will make this determination after weighing the factors in subsection 8(p)(4) of the OCSLA that are applicable to plan decisions and in consideration of the above goals. BOEM's action is needed to fulfill its duties under the lease, which requires BOEM to make a decision on the Lessee's plans to construct and operate a commercial-scale offshore wind energy facility within the Lease Area (the Proposed Action).

NMFS, which has MMPA authorization decision responsibilities in addition to serving as a cooperating agency, has reviewed BOEM's purpose and need statement above, and has determined that it aligns with NMFS' purpose and need (more specific statements of the purpose and need for the actions by NMFS are found in section 5.2 of this ROD).

3. Alternatives

The Final EIS considered a reasonable range of alternatives to the Proposed Action.[7] BOEM carried forward four action alternatives for detailed analysis (one of which includes sub-alternatives) and the No Action Alternative. Other action alternatives were considered but not further analyzed because they did not meet the purpose and need or did not meet other screening criteria. Refer to Final EIS, section 2.2, *Alternatives Considered but not Analyzed in Detail*.

3.1 Alternatives Carried Forward for Detailed Analysis

Table 3-1 Description of Alternatives

Alternative	Description
Alternative A: Proposed Action	Under Alternative A, the Proposed Action, the construction, operation, maintenance, and eventual decommissioning of an up-to 3,000 MW wind energy facility consisting of up to 202 WTGs ranging from 14 MW to 16 MW each and three OSSs in the Lease Area and associated export cables would occur offshore Virginia and within the range of the design parameters outlined in the COP (Dominion Energy 2023), subject to applicable mitigation measures. Dominion would space WTGs in a 0.93- by 0.75-nautical-mile offset grid pattern (east–west by northwest by southeast gridded layout). The three OSSs would be placed within the rows of the gridded WTG layout. This configuration would still allow micrositing of WTGs (up to 500 feet) to avoid sensitive cultural resources and marine habitats.

[6] Fact Sheet: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs | The White House. Interior, Energy, Commerce, and Transportation Departments Announce New Leasing, Funding, and Development Goals to Accelerate and Deploy Offshore Wind Energy and Jobs: https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/. See also § 207 of E.O. 14008, Tackling Climate Change at Home and Abroad, 86 Fed. Reg. 7619 (Feb. 1, 2021) ("doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs").

[7] DOI's implementing NEPA regulations state that the term "reasonable alternatives" "includes alternatives that are technically and economically practical or feasible and meet the purpose and need of the proposed action." 43 C.F.R. § 46.420(b).

Alternative	Description
	Onshore components include a cable landing location in Virginia Beach, Virginia.[8] Onshore export cables would transfer electricity from the cable landing location to a switching station constructed north of Harpers Road in Virginia Beach, Virginia. An overhead interconnection cable route would then connect the new Harpers Switching Station to the Fentress Substation located in Chesapeake, Virginia.
Alternative B: Revised Layout to Accommodate the Fish Haven and Navigation (Preferred Alternative)	Under Alternative B, the Revised Layout to Accommodate the Fish Haven[9] and Navigation Alternative, the construction, operation, maintenance, and eventual decommissioning of a 2,587 MW wind energy facility consisting of 176 WTGs (inclusive of seven spare WTG positions) and three OSSs in the Lease Area and associated export cables would occur offshore Virginia within the range of design parameters outlined in the COP, subject to applicable mitigation measures. Dominion Energy would use only 14 MW WTGs, each capable of generating up to 14.7 MW using power boost capability, to avoid impacts due to construction and operation of WTGs. Similar to the Proposed Action, Dominion would utilize WTGs in a 0.93- by 0.75-nautical-mile offset grid pattern (east– west by northwest by southeast gridded layout). However, under Alternative B, the Fish Haven area located along the northern boundary of the Lease Area would be an exclusion zone (e.g., eight WTGs and associated infrastructure would not be developed or placed in the Fish Haven area). Additionally, three WTGs and associated inter-array cables would be excluded from the northwest corner of the Lease Area to avoid a proposed vessel traffic fairway. As under the Proposed Action, the three OSSs would be placed within the rows of the gridded WTG layout. This configuration would still allow micrositing of WTGs (up to 500 feet) to avoid sensitive cultural resources and marine habitats. Onshore components are the same as under the Proposed Action.
Alternative C: Sand Ridge Impact Minimization Alternative	Under Alternative C, the Sand Ridge Impact Minimization Alternative, the construction, operation, maintenance, and eventual decommissioning of a wind energy facility would include a similar offshore layout of Project components as Alternative B. However, in addition to avoiding the Fish Haven area and proposed vessel traffic fairway, Alternative C would also avoid sand ridge habitat by a combination of: micrositing WTGs, inter-array cables or OSSs (up to 500 feet); the removal of four WTGs within priority sand ridge habitat, and the relocation of one WTG. The removal and relocation of these WTGs would allow for a reconfiguration of inter-array cabling to minimize potential linear seafloor impacts and the potential cross-cutting impacts to priority sand ridge habitat. As a result, an up-to 2,528 MW wind energy facility consisting of up to 172 WTGs (inclusive of two spare WTG positions), and three OSSs and associated export cables would be developed under Alternative C. As under Alternative B, Alternative C would utilize 14 MW WTGs generating up to 14.7 MW each using power boost capability in a 0.93- by 0.75-nautical mile offset grid pattern. Onshore components are the same as under the Proposed Action.
Alternative D: Onshore Habitat Impact Minimization Alternative	Under Alternative D, the Onshore Habitat Impact Minimization Alternative, the construction, operation, maintenance, and eventual decommissioning of a wind energy facility would include the same offshore layout of Project components as described under the Proposed Action: an up-to 3,000 MW wind energy facility consisting of up to 202 WTGs ranging from 14 MW to 16 MW each and three OSSs in the Lease Area and associated export cables.

[8] The cable landing location would be adjacent to the existing CVOW-Pilot Project landing location and at a proposed parking lot west of the State Military Reservation (SMR) firing range (formerly known as Camp Pendleton). This is the only cable landing location carried forward in the Project Design Envelope (PDE) and would be the same under all alternatives (COP, Section 2.1.2.1; Dominion Energy 2023).

[9] The Fish Haven area is an area of documented recreational fisheries uses within the northern border of the Lease Area known as the Triangle Wrecks and Triangle Reef. The area consists of several large, scuttled World War II-era ships, tires, cable spools, and other materials deposited since the 1970s to facilitate an artificial reef development (COP Sections 2.1.1.1 and 4.2.4.2; Dominion Energy 2023).

Alternative	Description
	Unlike Alternatives A, B, and C, the construction of interconnection cables under Alternative D would follow either Interconnection Cable Route Option 1 or Interconnection Cable Route Option 6 (Hybrid Route), as described in the COP (Dominion Energy 2023). For purposes of comparative analyses, Interconnection Cable Route Option 1 will be evaluated in all action alternatives. However, under Alternative D, BOEM considered either Interconnection Cable Route Option 1 or 6 (Hybrid Route) to minimize impacts of the proposed Project on onshore sensitive habitats. Interconnection Cable Route Option 1 would be an entirely overhead route, while Interconnection Cable Route Option 6 (Hybrid Route) would involve installation of the Interconnection Cable using a hybrid of overhead and underground construction methods. Both interconnection cable route options are intended to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. Each of the following sub-alternatives may be individually selected or combined with any or all other alternatives or sub-alternatives, subject to the combination meeting the Project's purpose and need. • Alternative D-1 (Preferred Alternative): Interconnection Cable Route Option 1 would be approximately 14.3 miles (23.0 kilometers) long and installed entirely overhead. From the common location north of Harpers Road, Interconnection Cable Route Option 1 would continue to the onshore substation and the new Harpers Switching Station would be located at Naval Air Station (NAS) Oceana Parcel. This route has been approved by the Virginia State Corporation Commission (SCC). • Alternative D-2: Interconnection Cable Route Option 6 (Hybrid Route) would be approximately 14.3 miles (23.0 kilometers) long and would mostly follow the same route as Interconnection Cable Route Option 1, with the exception of the switching station. Interconnection Cable Route Option 6 would be installed via a combination of underground and overhead construction methods. Following Interconnection Cable Route Option 1 as an underground transmission line for approximately 4.5 miles (7.2 kilometers) to a point north of Princess Anne Road, Interconnection Cable Route Option 6 would transition to an overhead transmission line configuration. The Chicory Switching Station would be built north of Princess Anne Road; therefore, no aboveground switching station would be built at Harpers Road. From the Chicory Switching Station, Interconnection Cable Route Option 6 would align with Interconnection Cable Route Option 1 for the remaining 9.7 miles (15.6 kilometers) to the onshore substation.
Alternative E: No Action Alternative	Under Alternative E, the No Action Alternative, BOEM would not approve the COP, and the Project construction and installation, operation and maintenance, and conceptual decommissioning would not occur, and no additional permits or authorizations for the Project would be required. Any potential environmental and socioeconomic impacts, including benefits, associated with the Project as described under the Proposed Action would not occur. However, all other existing or other reasonably foreseeable future impact-producing activities would continue. The impact of the No Action Alternative serves as the baseline against which all action alternatives are evaluated.

Note: Components of alternatives may be individually selected and combined with any or all other alternatives, subject to the combination meeting the purpose and need.

3.2. Environmental Consequences of Alternatives

Table 3-2 summarizes and compares the potential impacts under the No Action Alternative and the impacts of each action alternative assessed in Chapter 3 of the Final EIS. Under the No Action Alternative, BOEM would not approve the COP. Therefore, any potential environmental and socioeconomic impacts, including benefits, associated with the Project, would not occur. However, impacts could occur from other ongoing and planned activities.

Table 3-2 Summary and Comparison of Impacts among Alternatives with Mitigation Measures

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
3.4 Air Quality	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on air quality because additional, fossil-fuel energy facilities would be built, or kept in service to meet future power demand. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all other planned activities (including other offshore wind activities) would result in moderate adverse impacts due to emissions of criteria pollutants, volatile organic compounds, hazardous air pollutants, and greenhouse gases, mostly released during construction and decommissioning, and moderate beneficial impacts on regional air quality after offshore wind projects are operational.	*Proposed Action:* The Proposed Action would have minor adverse impacts because overall emissions over the region would decrease as energy from the Proposed Action offsets the need for fossil-fuel energy facilities to meet future power demands. The Proposed Action would also have minor beneficial impacts on air quality near the Wind Farm Area and the surrounding region to the extent that energy produced by the Project would displace energy produced by fossil fuels. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have minor adverse and moderate beneficial impacts on air quality from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	*Alternative:* Alternatives B and C could have slightly less impacts on air quality compared to the Proposed Action due to a reduced number of WTGs. Alternatives B and C could have lesser minor adverse impacts on air quality compared to the Proposed Action, to the extent that Alternatives B and C would reduce the number of WTGs. Alternatives B and C would have lesser minor beneficial impacts on air quality in the long term due to reduced emissions from fossil-fueled power plants, considering the reduced number of WTGs. The overall impact level for Alternatives B and C would be the same as for the Proposed Action: minor adverse and minor beneficial. Alternatives D-1 and D-2 would have the same number of WTGs as the Proposed Action and, therefore, the same anticipated offshore emissions and impact levels. Under Alternatives D-1 and D-2, the onshore interconnection cables could differ in length and construction techniques from those of the Proposed Action, and thus their construction emissions and impacts could differ from those of the Proposed Action. However, the impact levels would be the same as for the Proposed Action: minor adverse and minor beneficial. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action: minor adverse and moderate beneficial.
3.5 Bats	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in minor adverse impacts on bats. *Cumulative Impacts of the No Action Alternative:* The No Action	*Proposed Action:* Impacts on bats from all IPFs resulting from the Proposed Action would range from negligible to minor adverse. The Proposed Action would result in overall minor adverse impacts on bats, especially if tree clearing is conducted outside of the active season. The primary risks to bats	*Alternative:* Alternatives B and C may result in slightly less, but not materially different, minor adverse impacts on bats than those described under the Proposed Action due to a reduced number of WTGs. Alternatives D-1 and D-2 would have the same Offshore Project components as the Proposed Action and, therefore, would have similar impacts on bats offshore. Onshore, Alternatives D-1 and D-2 would limit the onshore interconnection cable route

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts because bat presence on the OCS is anticipated to be limited and onshore bat habitat impacts are expected to be minimal.	would be from potential onshore removal of roosting and/or foraging habitat and operation of offshore WTGs; however, occurrence of bats offshore is low, and mortality is anticipated to be rare in the onshore or offshore environment. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have minor adverse impacts on bats from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	to either Interconnection Cable Route Option 1 (Alternative D-1) or Interconnection Cable Route Option 6 (Alternative D-2) to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. These route options are analyzed as part of the Proposed Action and so impacts on bats would be the same as for the Proposed Action. Therefore, the impact levels of Alternatives B, C, D-1, and D-2 would be the same as for the Proposed Action: minor adverse. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2, when separately combined with the impacts of ongoing and planned activities (including offshore wind activities), would be the same as for the Proposed Action: minor adverse.
3.6 Benthic Resources	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in negligible to moderate adverse impacts, with the potential for moderate beneficial impacts on benthic resources. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative, when combined with all planned activities (including other offshore wind activities), would result in moderate adverse impacts and could potentially include moderate beneficial impacts resulting from emplacement of structures (habitat conversion).	*Proposed Action:* Impacts on benthic resources from all IPFs resulting the Proposed Action would range from negligible to moderate adverse. Overall, the Proposed Action would have moderate adverse impacts resulting from offshore construction and moderate beneficial impacts on benthic resources resulting from emplacement of structures (habitat conversion). Adverse impacts would primarily result from new cable emplacement, pile-driving noise, anchoring, and the presence of structures. Beneficial impacts would result from the presence of new structures. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have moderate adverse and moderate beneficial impacts on benthic resources from the combination of the Proposed	*Alternative:* Alternatives B and C would reduce the number of WTGs compared to the Proposed Action by 29 and 33 WTGs, respectively, so the impacts would be slightly reduced compared to the Proposed Action, though not substantively different. Alternative C would remove WTGs from areas identified as priority areas to minimize impacts on the sand ridge habitat features. There would be fewer foundations and fewer inter-array cables, which would reduce impacts associated with the presence of structures and conversion of habitat from soft-bottom to scour protection. However, the reduction in impacts would not be substantial enough to reduce the impact level, so these alternatives would have the same overall impact levels as the Proposed Action: moderate adverse and moderate beneficial. Alternatives D-1, and D-2 differ from the Proposed Action only in respect to the routing of the onshore interconnection cable and therefore would be the same as for the Proposed Action, moderate adverse and moderate beneficial. *Cumulative Impacts of the Alternative:* Alternatives B and would slightly reduce impacts associated with the

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
		Action and other ongoing and planned activities (including offshore wind activities).	presence of structures and conversion of habitat from soft-bottom to scour protection. However, the reduction in impacts would not be substantial enough to reduce the impact level, so these alternatives in combination with other ongoing and planned activities (including offshore wind activities) would have the same impact levels as the Proposed Action: moderate adverse and moderate beneficial. As Alternatives D-1 and D-2 differ from the Proposed Action only regards to project infrastructure on land, these alternatives in combination with other ongoing and planned activities (including offshore wind activities) would have the same impact levels as the Proposed Action: moderate adverse and moderate beneficial.
3.7 Birds	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on birds. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including offshore wind activities) would have a moderate adverse impact on birds but could include moderate beneficial impacts because of the presence of offshore structures.	*Proposed Action:* Impacts on birds from all IPFs resulting from the Proposed Action would range from negligible to moderate adverse. The Proposed Action would have an overall moderate adverse impact on birds, primarily associated with habitat loss and collision-induced mortality from rotating WTGs and permanent habitat loss and conversion from onshore construction. Moderate beneficial impacts would result from increased foraging opportunities for marine birds. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have moderate adverse and moderate beneficial impacts on birds from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	*Alternative:* Alternatives B and C would reduce the number of WTGs compared to the Proposed Action, which would result in slightly fewer impacts on species with high collision sensitivity and high displacement sensitivity but would not change the overall impact level: moderate adverse impacts with moderate beneficial impacts. Alternatives D-1 and D-2 would have the same Offshore Project components as the Proposed Action and, therefore, would have similar impacts on birds offshore as the Proposed Action. Onshore, Alternatives D-1 and D-2 would limit the interconnection cable route to either Interconnection Cable Route Option 1 (Alternative D-1) or Interconnection Cable Route Option 6 (Alternative D-2) to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. These route options are analyzed as part of the Proposed Action and so impacts on birds from Alternatives D-1 and D-2 would be the same as for the Proposed Action. Therefore, the impact levels of Alternatives B, C, D-1, and D-2 would be the same as for the Proposed Action: moderate adverse impacts with moderate beneficial impacts on birds.

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
			Cumulative Impacts of the Alternative: The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action: moderate adverse and moderate beneficial.
3.8 Coastal Habitat and Fauna	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on coastal habitat and fauna. Currently, there are no other offshore wind activities proposed in the geographic analysis area. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including offshore wind activities) would have negligible adverse impacts on coastal habitat and fauna.	*Proposed Action:* Impacts on coastal habitat and fauna from all IPFs resulting from the Proposed Action, would range from negligible to moderate adverse. The Proposed Action would result in an overall moderate adverse impact on coastal habitat and fauna because habitat impacts would be limited, and coastal construction would predominantly occur in already developed areas where wildlife is habituated to human activity and noise. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have negligible to moderate adverse impacts on coastal habitat and fauna from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	*Alternative:* Because Alternatives B and C involve modifications only to offshore components, overall impacts on coastal habitat and fauna from those alternatives would be moderate adverse. Onshore, Alternatives D-1 and D-2 would limit the interconnection cable route to either Interconnection Cable Route Option 6 (Alternative D-1) or Interconnection Cable Route Option 1 (Alternative D-2) to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. These route options are analyzed as part of the Proposed Action and so impacts on coastal habitat and fauna would be the same. Therefore, the overall impact levels of Alternatives D-1 and D-2 would be moderate adverse on coastal habitat and fauna. *Cumulative Impacts of the Alternative:* Because Alternatives B and C involve modifications only to offshore components, impacts on coastal habitat and fauna from those alternatives in combination with other ongoing and planned activities (including offshore wind activities) would be consistent with the Proposed Action: negligible to moderate adverse. Onshore, Alternatives D-1 and D-2 were analyzed as part of the Proposed Action and so impacts on coastal habitat and fauna from these alternatives in combination with other ongoing and planned activities (including offshore wind activities) would be the same: negligible to moderate adverse.
3.9 Commercial Fisheries and For-Hire Recreational	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in a range of	*Proposed Action:* Impacts on commercial and for-hire recreational fishing from all IPFs resulting from the Proposed Action would range from	*Alternative:* Alternatives B and C could lead to negligible to major adverse impacts on commercial fisheries and for-hire recreational fishing and minor beneficial impacts on for-hire recreational fishing due to the increase in

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
Fishing	negligible to major adverse impacts on commercial fisheries and moderate adverse impacts on for-hire recreational fishing. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in a negligible to major adverse impact on commercial fisheries and moderate adverse impacts on for-hire recreational fishing due primarily to the presence of structures (e.g., through gear loss, navigational hazards, space use conflicts, and potential impacts on fisheries surveys), new cable emplacement and pile-driving noise. The presence of structures may also induce a minor beneficial impact on for-hire recreational fishing.	negligible to major adverse. The impacts of the Proposed Action could also include long-term minor beneficial impacts for some for-hire recreational fishing operations due to the artificial reef effect. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have negligible to major adverse impacts on commercial fisheries and for-hire recreational fishing in the analysis area, driven largely by the presence of structures from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities). The presence of structures may also induce a minor beneficial impact on for-hire recreational fishing	structures provided by WTGs, OSSs, and associated scour pads. Both adverse and beneficial impacts would be slightly less than for the Proposed Action considering the lower number of WTGs for Alternatives B and C. Alternative D differs from the Proposed Action only with respect to onshore routing of the interconnection cable. Alternative D would result in the same level of impacts as under the Proposed Action: negligible to major adverse on commercial fisheries and for-hire recreational fishing. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2, when separately combined with the impacts from ongoing and planned activities would be the same as for the Proposed Action on commercial fisheries and for-hire recreational fishing: negligible to major adverse. The presence of structures may also induce a minor beneficial impact on for-hire recreational fishing

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
3.10 Cultural Resources	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in overall moderate adverse impacts on cultural resources, primarily as a result of dredging, cable emplacement, and activities that disturb the seafloor. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in moderate adverse impacts on cultural resources.	*Proposed Action:* Impacts on cultural resources from all IPFs resulting from the Proposed Action would range from moderate to major adverse. The Proposed Action would have an overall major adverse impact on cultural resources, primarily from the introduction of intrusive visual elements, which alter character-defining ocean views of historic properties onshore that contribute to the resource's eligibility for the NRHP; and dredging, cable emplacement, and activities that disturb the seafloor, which result in damage to or destruction of submerged archaeological sites or other underwater cultural resources (e.g., shipwreck, debris fields, ancient submerged landforms) from offshore bottom-disturbing activities. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have moderate to major adverse impacts on cultural resources from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	*Alternative:* Alternatives B and C would have similar moderate to major adverse impacts on individual cultural resources as the Proposed Action assuming implementation of mitigation measures. Impacts would be slightly less than for the Proposed Action considering the lower number of WTGs for Alternatives B and C. Alternatives D-1 and D-2 would have the same impacts offshore as for the Proposed Action, as the offshore components of Alternatives D-1 and D-2 are the same as for the Proposed Action. Alternatives D-1 and D-2 would have similar moderate to major adverse impacts on individual cultural resources onshore as the Proposed Action assuming implementation of mitigation measures. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: moderate to major adverse.
3.11 Demographics Employment, and Economics	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in overall minor adverse impacts and minor beneficial impacts on demographics, employment, and economics. *Cumulative Impacts of the No Action Alternative:* The No Action	*Proposed Action:* Impacts on demographics, employment, and economics from all IPFs resulting from the Proposed Action would range from negligible to minor adverse. The Proposed Action would result in overall minor adverse impacts and minor beneficial impacts on demographics, employment, and economics.	*Alternative:* Alternatives B and C would result in a slight reduction in both adverse and beneficial impacts on demographics, employment, and economics compared to the Proposed Action because of the reduced number of WTGs, but the overall impact would be the same: minor adverse impacts and minor beneficial impacts. Alternatives D-1 and D-2 would not change the number of WTGs and therefore the impacts are anticipated to be the same as those of the Proposed Action: minor adverse and minor beneficial.

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts and minor beneficial impacts on demographics, employment, and economics.	*Cumulative Impacts of the Proposed Action:* The combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities) would result in impacts ranging from negligible to minor adverse and negligible to moderate beneficial on demographics, employment, and economics. Overall, impacts would be minor adverse and moderate beneficial.	*Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: minor adverse and moderate beneficial.
3.12 Environmental Justice	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in overall minor to moderate adverse and minor beneficial impacts on environmental justice populations. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts due to cable emplacement, construction-phase noise and vessel traffic, and the long-term presence of offshore structures, which could affect marine-dependent businesses, resulting in job losses for low-income workers. The combination of the Proposed Action and other ongoing and planned activities minor beneficial impacts on environmental justice populations.	*Proposed Action:* Impacts on environmental justice from all IPFs resulting from the Proposed Action would range from negligible to moderate adverse. The Proposed Action would result in overall moderate adverse and minor beneficial impacts. Impacts on environmental justice populations would primarily be due to the long-term presence of structures in the offshore environment. Potential minor beneficial impacts would result from port utilization and the enhanced employment opportunities. The Proposed Action would not result in disproportionately "high and adverse" impacts on environmental justice populations. *Cumulative Impacts of the Proposed Action:* The combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities) would result in negligible to moderate adverse impacts and minor beneficial impacts on environmental justice populations.	*Alternative:* Impacts of Alternatives B, C, D-1, and D-2 would be the same as those of the Proposed Action for environmental justice populations and would be moderate adverse and minor beneficial. These action alternatives would not result in disproportionately "high and adverse" impacts on environmental justice populations. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: negligible to moderate adverse impacts and minor beneficial impacts.
3.13 Finfish, Invertebrates,	*No Action Alternative*: Continuation of existing environmental trends and	*Proposed Action:* Impacts on finfish, invertebrates, and EFH from all IPFs	*Alternative:* Alternatives B and C would reduce the number of WTGs by 29 and 33 WTGs, respectively and

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
and Essential Fish Habitat	activities under the No Action Alternative would result in minor to moderate adverse impacts on finfish, invertebrates, and essential fish habitat (EFH). *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor to moderate adverse impacts on finfish, invertebrates, and EFH. It is anticipated that the greatest impact on finfish and invertebrates would be caused by ongoing regulated fishing activity and climate change.	resulting from the Proposed Action would range from negligible to moderate adverse. The Proposed Action would have an overall moderate adverse impact on finfish, invertebrates, and EFH. The primary adverse impacts on finfish would be from noise during construction and operation of the proposed Project. Adverse impacts on EFH would primarily result from construction as activities; however, the resources would likely recover naturally over time. Adverse impacts on invertebrates would result from temporary disturbance and displacement, habitat conversion, and behavioral changes, injury, and mortality of sedentary fauna; however, the resources would likely recover in time. The Proposed Action may have a minor beneficial impact on invertebrates through an "artificial reef effect." *Cumulative Impacts of the Proposed Action:* The combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities) would have negligible to moderate adverse impacts on finfish, invertebrates, and EFH and may have a minor beneficial impact on invertebrates through an "artificial reef effect."	would slightly reduce adverse impacts on finfish, invertebrates, and EFH compared to the Proposed Action, given that there would be fewer foundations developed and, therefore, less permanent loss of habitat and lower noise impacts during associated pile driving; however, the impact level would be the same as for the Proposed Action: negligible to moderate adverse. The presence of structures may have a minor beneficial impact on invertebrates through an "artificial reef effect." Despite invertebrate mortality and varying extents of habitat alteration, BOEM expects the long-term impact on invertebrates from construction and installation of the Proposed Action to be minor, as the resources would likely recover naturally over time. Alternatives D-1 and D-2 differ from the Proposed Action only in relation to the onshore routing of the interconnection cable and therefore impacts on finfish, invertebrates, and EFH would be the same as for the Proposed Action, with an overall finfish, invertebrate and EFH impact of moderate adverse. The presence of structures may have a minor beneficial impact on invertebrates through an "artificial reef effect." Despite invertebrate mortality and varying extents of habitat alteration, BOEM expects the long-term impact on invertebrates from construction and installation of the Proposed Action to be minor, as the resources would likely recover naturally over time. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: negligible to moderate adverse and minor beneficial.

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
3.14 Land Use and Coastal Infrastructure	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in minor adverse impacts and minor beneficial impacts on land use and coastal infrastructure. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts and minor beneficial impacts.	*Proposed Action:* Impacts on land use and coastal infrastructure from all IPFs resulting from the Proposed Action would range from negligible to minor adverse. The Proposed Action would result in overall minor adverse impacts and minor beneficial impacts on land use and coastal infrastructure. Beneficial impacts would result from port utilization. Adverse impacts would primarily result from land disturbance during onshore installation of the cable route and substation, accidental spills, and construction noise and traffic. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have minor adverse impacts and minor beneficial impacts from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	*Alternative:* Alternatives B and C would reduce the number of WTGs, resulting in slightly decreased visual impacts of WTGs on coastal communities compared to the Proposed Action, but would not change the impact levels. Alternatives B and C therefore would have the same levels of impacts on land use and coastal infrastructure as the those of Proposed Action—minor adverse impacts and minor beneficial impacts. Alternatives D-1 and D-2 would have similar impacts on land use and coastal infrastructure as those of Proposed Action: minor adverse impacts and minor beneficial impacts. Alternatives D-1 and D-2 impacts, when combined with ongoing and planned activities would be the same as the Proposed Action: minor adverse impacts and minor beneficial impacts. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action: minor adverse and minor beneficial.
3.15 Marine Mammals	*No Action Alternative (without Baseline)*[1]*:* Not approving the COP would have no additional incremental effect on marine mammals (i.e., no effect). *No Action Alternative (with Baseline)*[2]: Continuation of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on mysticetes (other than NARW), odontocetes, and pinnipeds, as impacts would be detectable and measurable, but populations would be expected to recover sufficiently. The presence of structures could	*Proposed Action (without Baseline):* The incremental impact of the Proposed Action when compared to the No Action Alternative would be minor adverse for NARWs. The incremental impact of the Proposed Action when compared to the No Action Alternative would be moderate adverse for other mysticetes, harbor porpoise, and pinnipeds due to the potential for PTS (but no population impacts are anticipated); and minor for all other odontocetes. *Proposed Action (with Baseline):* BOEM anticipates that the impacts from all IPFs resulting from the Proposed Action would range from	*Alternative (without Baseline):* Alternatives B and C would result in similar impacts on marine mammals as for the Proposed Action, with some impacts being minimally decreased in duration and geographic extent considering the reduction in the number of WTGs for Alternatives B and C. The incremental impacts resulting from the Alternatives B and C individually would be similar to those of the Proposed Action and would be moderate for mysticetes (other than NARW), harbor porpoise, and pinnipeds and would be minor for NARW and other odontocetes and could include minor beneficial impacts on odontocetes and pinnipeds. Alternatives D-1 and D-2 would have the same offshore components as for the Proposed Action; impacts of Alternatives D-1 and D-2 would therefore be the same as for the Proposed Action.

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	potentially result in minor beneficial impacts for pinnipeds and delphinids. Adverse impacts on mysticetes, odontocetes, and pinnipeds would be primarily due to underwater noise, commercial and recreational fishing gear interactions, and ongoing climate change. Vessel activity (vessel collisions) would also be a primary contributor to adverse impacts on mysticetes. For the NARW, continuation of existing environmental trends and activities under the No Action Alternative would result in major[3] adverse impacts due to low population numbers and potential to compromise the viability of the species from the loss of a single individual. *Cumulative Impacts of the No Action Alternative:*[4] The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in negligible to moderate adverse impacts on mysticetes, odontocetes, and pinnipeds, except for the NARW, on which impacts range from negligible to major adverse due to low population numbers and potential to compromise the viability of the species from the loss of a single individual. Adverse impacts would be primarily due to underwater noise, vessel activity (vessel collisions), fishing entanglement, and climate change.	negligible to moderate adverse for the mysticetes, (other than NARW), odontocetes, and pinnipeds and could include minor beneficial impacts for odontocetes (specifically delphinids) and pinnipeds. Impacts from all IPFs on NARW would range from negligible to major adverse. Adverse impacts, which would be detectable and measurable, are expected to result mainly from pile-driving noise, increased vessel traffic, and fishing gear entanglement. Populations are expected to recover fully from these individual IPFs. Beneficial impacts are expected to result from the presence of structures as related to the artificial reef effect. *Cumulative Impacts of the Proposed Action:* The range of impacts from all IPFs on mysticetes (other than NARW), odontocetes, and pinnipeds from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities) would range from negligible to moderate adverse, depending on the IPF. The range of impacts from all IPFs on NARW would range from negligible to major adverse, depending on the IPF. The main drivers for the more severe or permanent adverse impact levels are underwater noise, vessel activity (vessel strikes) and entanglement risk. There may potentially be minor beneficial impacts for delphinids and pinnipeds from reef effects.	*Proposed Action (with Baseline):* Alternatives B and C when considering the environmental trends and activities would result in impacts ranging from negligible to moderate adverse for mysticetes (other than NARW), odontocetes, and pinnipeds and would be negligible to major adverse for NARW and could include minor beneficial impacts on delphinids and pinnipeds. Alternatives D-1 and D-2 would have the same offshore components as for the Proposed Action; impacts of Alternatives D-1 and D-2 would therefore be the same as for the Proposed Action. *Cumulative Impacts of the Alternative (with Baseline) Plus Other Foreseeable Impacts:* The impacts of Alternatives B, C, D1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the similar to or the same as for the Proposed Action and would range from negligible to major adverse on NARW and negligible to moderate adverse for mysticetes (other than NARW), delphinids and pinnipeds and could include minor beneficial impacts for delphinids and pinnipeds.
3.16 Navigation	*No Action Alternative*: Continuation	*Proposed Action:* Impacts on	*Alternative:* Alternatives B and C may slightly reduce

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
and Vessel Traffic	of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on navigation and vessel traffic. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor to moderate adverse impacts primarily due to the presence of structures and increased vessel traffic, leading to congestion at affected ports, an increased likelihood of collisions and allisions, and increased risk of accidental releases.	navigation and vessel traffic from all IPFs resulting from the Proposed Action would range from minor to moderate adverse. The Proposed Action would have overall moderate adverse impacts on navigation and vessel traffic because of changes in navigation routes due to the presence of structures and cable emplacement, delays in ports, degraded communication and radar signals, and increased difficulty of offshore search and rescue or surveillance missions within the Wind Turbine Area. Some commercial fishing, recreational, and other vessels would choose to avoid the Wind Turbine Area, leading to potential congestion of vessels along the Wind Turbine Area borders. The increase in potential for marine accidents, which may result in injury, loss of life, and property damage, could produce disruptions for ocean users in the geographic analysis area. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have minor to major adverse impacts on navigation and vessel traffic from the combination of the Proposed Action and other ongoing and planned activities (including other offshore wind activities).	impacts on navigation and vessel traffic due to the reduction in WTG positions and alignment of OSSs within the rows of the WTGs, but would not change the impact levels. Alternatives B and C therefore would have the same levels of overall impacts on navigation and vessel traffic as that of the Proposed Action, moderate adverse impacts. Alternatives D-1 and D-2 would have the same overall impact as those under the Proposed Action, moderate adverse. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: minor to major adverse impacts.
3.17 Other Uses	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in negligible adverse impacts for marine mineral extraction, marine and national security uses, aviation and air traffic,	*Proposed Action:* The Proposed Action would result in negligible adverse impacts for aviation and air traffic and cables and pipelines; minor adverse impacts for marine mineral extraction, radar systems; moderate adverse impacts for military and national	*Alternative:* Impacts of Alternatives B and C would be similar to those of the Proposed Action for marine mineral extraction, military and national security uses, aviation and air traffic, cables and pipelines, and scientific research and surveys, with the overall impact ratings of negligible to major adverse. Alternatives B and C may slightly reduce impacts on other uses due to the

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	cables and pipelines, and radar systems and major adverse impacts on scientific research and surveys. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in negligible adverse impacts for aviation and air traffic, cables and pipelines, and radar systems; minor adverse impacts for marine mineral extraction and national security and military uses; and major adverse impacts for scientific research and surveys.	security uses; and major adverse impacts for NOAA's scientific research and surveys. The installation of WTGs in the Project area would result in increased navigational complexity and increased allision risk for vessel traffic and low-flying aircraft and would result in line-of-sight interference for radar systems. Additionally, the presence of structures would exclude certain areas within the Project area occupied by Project components (e.g., WTG foundations, cable routes) from potential vessel and aerial sampling and affect survey gear performance, efficiency, and availability for NOAA surveys supporting commercial fisheries and protected-species research programs. *Cumulative Impacts of the Proposed Action:* The Proposed Action when combined with the impacts of ongoing and planned activities (including offshore wind activities) would result in negligible to minor adverse impacts for aviation and air traffic, cables and pipelines, marine mineral extraction and radar systems; moderate adverse impacts for military and national security uses; and major adverse impacts for NOAA's scientific research and surveys.	reduction in WTG positions, but would not change the impact levels. Alternatives B and C could potentially decrease impacts on radar systems by removing the WTGs closest to the shore, which would possibly reduce line-of-sight impacts. Alternatives D-1 and D-2 would have the same offshore components as for the Proposed Action and therefore offshore impacts of Alternatives D-1 and D-2 would be the same as for the Proposed Action. Impacts of Alternatives D-1 and D-2 would be the same as or similar to those of the Proposed Action for cables and pipelines, marine mineral extraction, military and national security uses, radar, and aviation and air traffic, with the overall impact ratings of negligible to major adverse. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same impact levels as for the Proposed Action: negligible to minor adverse impacts for aviation and air traffic, cables and pipelines, marine mineral extraction and radar systems; moderate adverse impacts for military and national security uses; and major adverse impacts for NOAA's scientific research and surveys.
3.18 Recreation and Tourism	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in minor adverse on recreation and tourism. *Cumulative Impacts of the No Action*	*Proposed Action:* Impacts on recreation and tourism from all IPFs resulting from the Proposed Action would range from negligible to minor adverse and negligible to minor beneficial. The Proposed Action would have overall minor adverse and minor beneficial	*Alternative:* Impacts of Alternatives B and C would be similar to those of the Proposed Action for recreation and tourism except for the impact of the presence of structures. Construction of Alternatives B and C would install fewer WTGs and associated inter-array cables, which would slightly reduce the construction footprint and installation period. The overall impact levels are

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	Alternative: The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse and minor beneficial impacts on recreation and tourism.	impacts on recreation and tourism. Impacts would result from short-term impacts during construction: noise, anchored vessels, and hindrances to navigation from the installation of the export cable and WTGs; and the long-term presence of scour protection and structures in the Wind Turbine Area during operations, with resulting impacts on recreational vessel navigation and visual quality. Beneficial impacts would result from the reef effect and sightseeing attraction of offshore wind energy structures. *Cumulative Impacts of the Proposed Action:* The Proposed Action in combination with other ongoing activities (including offshore wind activities) would have minor adverse, and minor beneficial impacts on recreation and tourism.	anticipated to remain the same as for the Proposed Action: minor adverse and minor beneficial. Alternatives D-1 and D-2 would differ from the Proposed Action only with respect to the onshore interconnection cable routes, and Alternatives D-1 and D-2 would not result in a discernable difference in impacts on recreation and tourism compared to the Proposed Action. Alternatives D-1 and D-2 would result in the same overall minor adverse and minor beneficial impacts. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action: minor adverse and minor beneficial.
3.19 Sea Turtles	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in minor adverse impacts on sea turtles. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse and minor beneficial impacts on sea turtles. Potential impacts on sea turtles from multiple construction activities within the same calendar year could affect migration, feeding, breeding,	*Proposed Action:* Impacts on sea turtles from all IPFs resulting from the Proposed Action would range from negligible to minor adverse. The Proposed Action would have overall minor adverse impacts on sea turtles, as well as minor beneficial impacts throughout the life of the projects due to 'reef effect' associated with the presence of the structures. *Cumulative Impacts of the Proposed Action:* The combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities) would have an overall minor adverse impact on sea turtles.	*Alternative:* Alternatives B and C would have similar overall impacts on sea turtles as described for the Proposed Action and would be minor adverse and minor beneficial. Alternatives B and C would install fewer WTGs and associated inter-array cables, which would slightly reduce the construction footprint and installation period but would not change the impact levels. Alternatives D-1 and D-2 would differ from the Proposed Action only with respect to the onshore interconnection cable routes, and therefore Alternatives D-1 and D-2 would have the same impact on sea turtles as the Proposed Action: minor adverse and minor beneficial. *Cumulative Impacts of the Alternative:* The overall impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including offshore wind

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	and individual fitness. The foundations from WTG and OSS may provide foraging and sheltering opportunities.	The main drivers are pile-driving noise, the presence of structures, ongoing climate change, and ongoing vessel traffic posing a risk of collision. There would also be minor beneficial impacts throughout the life of the projects due to 'reef effect' associated with the presence of the structures.	activities) would be the same as for the Proposed Action: minor adverse. There would also be minor beneficial impacts throughout the life of the projects due to 'reef effect' associated with the presence of the structures.
3.20 Scenic and Visual Resources	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in minor adverse impacts on scenic and visual resources. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all other planned activities (including other offshore wind activities) would result in moderate to major adverse impacts on visual and scenic resources due to addition of new structures, nighttime lighting, onshore construction, and increased vessel traffic.	*Proposed Action:* The Proposed Action would have overall moderate adverse impacts on scenic and visual resources. The main drivers for this impact rating are the adverse impacts associated with the presence of structures, lighting, and vessel traffic. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have a moderate to major adverse impact on scenic and visual resources from the combination of the Proposed Action and other ongoing and planned activities (including other offshore wind activities).	*Alternative:* Alternatives B and C would reduce the number of WTGs visible from the seascape and landscape compared to the Proposed Action. However, because of the eliminated WTGs' offshore distance and location, these alternatives' impacts on scenic and visual resources and would not change the overall impact level. The overall impacts of Alternatives B and C on scenic and visual resources would be similar to the impacts of the Proposed Action: moderate adverse. Onshore, Alternatives D-1 and D-2 would limit the interconnection cable route to either Interconnection Cable Route Option 6 (Alternative D-1) or Interconnection Cable Route Option 1 (Alternative D-2) to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. Although the Chicory Switching Station would be visible to some residences, Interconnection Cable Route Option 6 (Alternative D-1) would reduce the overall visual impacts on suburban residential character compared to the other routes. The overall impact level of Alternatives D-1 and D-2 would be the same as the Proposed Action: moderate adverse. *Cumulative Impacts of the Alternative:* The impacts associated with Alternatives B, C, D-1, and D-2 when separately combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: moderate to major adverse.
3.21 Water Quality	*No Action Alternative*: Continuation of existing environmental trends and	*Proposed Action:* Impacts on water quality from all IPFs resulting from the	*Alternative:* Alternatives B and C may result in slightly less, but not materially different impacts on water quality

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	activities under the No Action Alternative would result in minor adverse impacts on water quality. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts because any potential detectable impacts are not anticipated to exceed water quality standards.	Proposed Action would range from negligible to moderate adverse. The Proposed Action would have overall moderate adverse impacts on water quality primarily due to sediment resuspension and potential accidental releases. The impacts are likely to be temporary or small in proportion to the geographic analysis area and the resource would recover completely after decommissioning. A larger offshore spill, although unlikely to occur based on BOEM modeling, could have minor to moderate adverse impacts on water quality. *Cumulative Impacts of the Proposed Action:* The Proposed Action when combined with the impacts from ongoing and planned activities (including offshore wind activities) would be minor adverse, primarily due to short-term, localized effects from increased turbidity and sedimentation. (BOEM has considered the possibility of a moderate adverse impact resulting from potential accidental releases; this level of impact could occur if there was a large-volume release. While it is an impact on water quality that should be considered, it is unlikely to occur based on BOEM's accidental release modeling.)	due to relocated or a reduced number of WTGs that would be constructed, operated, and maintained. Alternatives B and C would install fewer WTGs and associated inter-array cables, which would slightly reduce the construction footprint and installation period, but would not change the overall impact level: moderate adverse. Alternatives D-1 and D-2 would differ from the Proposed Action only with respect to the onshore interconnection cable routes, and therefore offshore impacts on water quality for Alternatives D-1 and D-2 would be the same as for the Proposed Action: moderate adverse. Alternatives D-1 and D-2 could have slightly less potential for onshore water quality impacts compared to the Proposed Action, but water quality regulatory requirements and Dominion Energy's proposed mitigation measures would be the same as for the Proposed Action. Therefore, onshore water quality impacts under Alternatives B, C, D-1, and D-2 would be the same as those of the Proposed Action: moderate adverse. Similar to the Proposed Action, a large-volume spill offshore, although unlikely to occur based on BOEM modeling, could have minor to moderate adverse impacts on water quality under any of the alternatives. *Cumulative Impacts of the Alternative:* The impacts of Alternatives B, C, D-1, and D-2 when separately combined with impacts from ongoing and planned activities (including offshore wind activities) would be the same as those of the Proposed Action: minor adverse. (BOEM has considered the possibility of a moderate adverse impact resulting from accidental releases offshore from offshore wind development; however, it is unlikely to occur based on BOEM modeling.)
3.22 Wetlands	*No Action Alternative*: Continuation of existing environmental trends and activities under the No Action Alternative would result in moderate adverse impacts on wetlands.	*Proposed Action:* The Proposed Action may result in impacts on wetlands through short-term or permanent disturbance from activities within or adjacent to these resources.	*Alternative:* Because Alternatives B and C involve modifications only to offshore components, and offshore components would not contribute to impacts on wetlands, impacts on wetlands from those alternatives would be the same as those under the Proposed Action: moderate to

Resource	No Action Alternative	Proposed Action	Differences Among Action Alternatives
	Cumulative Impacts of the No Action Alternative: The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in moderate adverse impacts on wetlands, primarily through land disturbance.	Considering the avoidance, minimization, and mitigation measures required under Federal and state statutes (e.g., CWA Section 404), construction of the Proposed Action would have moderate to major adverse impacts on wetlands. *Cumulative Impacts of the Proposed Action:* The Proposed Action would have moderate to major adverse impacts on wetlands from the combination of the Proposed Action and other ongoing and planned activities (including other offshore wind activities).	major adverse. Onshore, Alternatives D-1 and D-2 would limit the interconnection cable route to either Interconnection Cable Route Option 6 (Alternative D-1) or Interconnection Cable Route Option 1 (Alternative D-2) to avoid and minimize impacts on onshore sensitive habitats, including wetlands, surface waters, and ecological cores. These interconnection cable route options are analyzed as part of the Proposed Action and so impacts on wetlands from Alternatives D-1 and D-2 would be the same as for the Proposed Action. *Cumulative Impacts of the Alternative:* The impacts from Alternatives B, C, D-1, and D-2 when separately combined with impacts from ongoing and planned activities (including offshore wind activities) would be the same as those of the Proposed Action: moderate to major adverse.

BOEM = Bureau of Ocean Energy Management, CWA = Clean Water Act, NARW = North Atlantic right whale, NOAA = National Oceanic and Atmospheric Administration, WTG = wind turbine generator.

[1] BOEM assessed the impacts of the No Action Alternative and action alternatives without the environmental baseline to support determinations under the Marine Mammal Protection Act.

[2] BOEM provides the range of impacts for the individual IPFs evaluated by species groups for the assessment of impacts of the No Action Alternative and action alternatives with the baseline. Individual IPFs were not evaluated for the No Action Alternative, and so impact conclusions are presented as a single determination by species group.

[3] Major impacts are identified here rather than a range because individual IPFs were not evaluated for the No Action Alternative. Based on the status and current population of the North Atlantic right whale, the loss of a single North Atlantic right whale would affect the population.

[4] BOEM provides the range of impacts for the individual IPFs evaluated by species groups for the assessment of the impacts of the No Action Alternative and action alternatives with the baseline in combination with ongoing and other foreseeable future activities. The individual rating includes all IPFs combined.

3.3. Environmentally Preferable Alternatives

BOEM is required by CEQ regulations to identify in the ROD the *environmentally preferable alternative(s)* (40 C.F.R. § 1505.2). Upon consideration and weighing of long- and short-term impacts to and best protection of these resources (43 C.F.R. § 46.30), the DOI's responsible official, who is approving this ROD, has determined that the environmentally preferable alternatives are the No Action Alternative and Alternative C (Sand Ridge Impact Minimization Alternative).

Adverse environmental impacts in the Project area would generally be less under the No Action Alternative because construction, O&M, and decommissioning activities and disturbances related to the proposed Project would not occur and, hence, impacts on physical, biological, or cultural resources from the proposed Project would be avoided. Nonetheless, the No Action Alternative would likely result in moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet future power demands. These facilities might be fueled with natural gas, oil, or coal, which would emit more pollutants than wind turbines and would have more adverse impacts on air quality and contribute greenhouse gases that cause climatic change. Adverse impacts on air quality also tend to disproportionally impact environmental justice communities, which often include low-income and minority populations. These air quality impacts might be compounded by other impacts because selection of the No Action Alternative could negatively impact future investment in U.S. offshore wind energy facilities, which in turn could result in the loss of beneficial cumulative impacts, such as increased employment, improvements in air quality, and reductions in greenhouse gas emissions. As noted in Final EIS section 3.11, public and private investors have committed substantial amounts of new funding to offshore wind development, including commitments to develop manufacturing facilities, and advancement of the Project is critical to continue to attract investment in the U.S. offshore wind market.

Alternative C was developed through the scoping process for the EIS in response to comments received requesting an alternative to minimize impacts on offshore benthic habitats. Under Alternative C, the construction, O&M, and eventual decommissioning of a wind energy facility would include a similar offshore layout and range of design parameters as described under Alternative B. However, in addition to avoiding the Fish Haven area and the proposed vessel traffic fairway, Alternative C would avoid and minimize impacts on priority sand ridge habitat and shipwrecks through a combination of micrositing of infrastructure (WTGs, inter-array cables, and OSSs) up to 500 feet, the removal of four WTGs from priority sand ridge habitat, and the relocation of one WTG to a spare position. Under Alternative C, the removal of four WTGs and relocation of one WTG allows for the reconfiguration of inter-array cabling that would otherwise be developed within priority sand ridge habitats, thus reducing potential seafloor disturbance, including the cross-cutting and trenching of sand ridges. As a result, an up-to 2,528 MW wind energy facility consisting of up to 172 WTGs (inclusive of two spare WTG positions) and three OSSs with associated export cables would be developed under Alternative C. As under Alternative B, Alternative C would use 14 MW WTGs generating up to 14.7 MW each using power boost capability in a 0.93- by 0.75-nautical-mile (1.72- by 1.38-kilometer) offset grid pattern. Onshore components would be the same as described under the Proposed Action. The Proposed Action and Alternative C both include Interconnection Route Option 1 which was

analyzed as a sub-alternative under Alternative D. Under Alternative D-1, the offshore components would be the same as described under the Proposed Action, as only Interconnection Route Option 1 is considered under the Proposed Action. The 14.3-mile interconnection cable route would be installed entirely overhead, which would minimize impacts to wetlands, tree cutting, and critical bat and bird habitat in comparison to Alternative D-2 (Interconnection Cable Route Option 6).

Offshore wind has been identified as a key factor for Atlantic states to reach their greenhouse gas emission goals. It is a presently irreplaceable component in state, Federal, and international strategies to reduce and reverse global climate change over the coming decades. In comparison to the No Action Alternative, Alternative C would allow for the generation of electricity from sources that do not adversely affect the air quality in the region. Also, in contrast to the No Action Alternative, selection of Alternative C could encourage investment in U.S. offshore wind energy facilities, which could in turn result in beneficial cumulative impacts such as increased employment, improvements in air quality, and reductions in greenhouse gas emissions.

4. Mitigation, Monitoring, and Reporting

Appendix H of the Final EIS identifies measures to avoid, minimize, and mitigate adverse environmental impacts that could result from the proposed activities as well as the anticipated enforcing agency.[10] BOEM is adopting all the measures identified in Tables H-2 and H-3 of Appendix H of the Final EIS, except for those that are identified in those tables as outside of BOEM's authority to enforce.

The mitigation, monitoring, and reporting measures that BOEM intends to include as conditions of approval are identified in this ROD in Appendix A. Consultation under Section 106 of the National Historic Preservation Act was concluded on October 27, 2023, and stipulations included in the executed Memorandum of Agreement for Section 106 are included in Appendix A to the ROD. Appendix A also clarifies the language of certain measures that were identified in the Final EIS to ensure that they are enforceable, or to reflect updates to measures being considered by NMFS for the final ITR and associated LOA.

[10] Appendix H separately identifies measures proposed by the Lessee as a part of its COP. The Lessee is required, as a condition of BOEM's approval, to conduct activities as proposed in its approved COP, which includes all the applicant-proposed mitigation measures identified in Appendix H.

5. Final Agency Decisions

5.1. The Department of the Interior Decision

After carefully considering the Final EIS alternatives, including comments on the Draft EIS, DOI has decided to approve, with modifications, the COP for Dominion Energy adopting the Preferred Alternative (Alternative B in combination with Alternative D-1). By selecting the Preferred Alternative (hereinafter the "selected alternative"), DOI will allow for the construction, operation, maintenance, and eventual decommissioning of a 2,587 MW wind energy facility consisting of 176 WTGs (inclusive of seven spare WTG positions) and three OSSs in Lease Area OCS-A 0483 and associated export cables, which would occur offshore Virginia within the range of design parameters outlined in the COP, subject to applicable mitigation measures. Dominion Energy would use only 14 MW WTGs, each capable of generating up to 14.7 MW using power boost capability, to avoid impacts due to the smaller WTG size, leading to a reduction in permanent seafloor impacts due to the total area for WTGs and scour protection.[11] In addition, the reduction in number and size of WTGs compared to the Proposed Action would decrease impacts related to noise exposure from pile-driving or jet-plowing operations. Similar to the Proposed Action, Dominion would utilize WTGs in a 0.93- by 0.75-nautical-mile offset grid pattern (east– west by northwest by southeast gridded layout). Under the selected alternative, the Fish Haven area located along the northern boundary of the Lease Area would be an exclusion zone (e.g., eight WTGs and associated infrastructure would not be developed or placed in the Fish Haven area). Additionally, three WTGs and associated inter-array cables would be excluded from the northwest corner of the Lease Area to avoid a proposed vessel traffic fairway. The three OSSs would be placed within the rows of the gridded WTG layout. This configuration would allow micrositing of WTGs (up to 500 feet) to avoid sensitive cultural resources and marine habitats. Onshore, the selected alternative would follow Interconnection Cable Route Option 1 that would be approximately 14.3 miles (23.0 kilometers) long and installed entirely overhead. From the common location north of Harpers Road, Interconnection Cable Route Option 1 would continue to the onshore substation, and the new Harpers Switching Station would be located at Naval Air Station (NAS) Oceana Parcel. This route has been approved by the Virginia State Corporation Commission (SCC).

Selection of Alternative A would have resulted in the construction, O&M, and eventual decommissioning of an up-to 3,000 MW wind energy facility consisting of up to 202 WTGs ranging from 14 MW to 16 MW each and three OSSs in the Lease Area. Associated export cables would occur offshore Virginia and within the range of the design parameters outlined in the COP (Dominion Energy 2023), subject to applicable mitigation measures. WTGs would be placed in all potential 202 positions in the lease area, including in the Fish Haven area. WTG spacing and number and gridded layout of OSSs would be the same under Alternative A as the selected alternative. Alternative A would have 87.9 acres (36.65 hectares) more permanent seafloor alteration compared to the selected alternative and would result in more total impacts on resources of concern than the selected alternative. Alternative A would allow for 413 MW of additional energy production compared to the other action alternatives. However, all other action

[11] The total area of disturbance for the WTG foundations and associated scour protection under the selected alternative would be 152.4 acres (61.7 hectares) compared to 179.3 acres (72.6 hectares) under the Proposed Action.

alternatives meet Dominion Energy's goal to provide at least 2,500 MW of offshore wind energy to support goals of the Virginia Clean Economy Act. Therefore, BOEM has not selected the Proposed Action as the selected alternative.

In addition to avoiding the Fish Haven area and proposed vessel traffic fairway, the selection of Alternative C would also avoid and minimize impacts on sand ridge habitat by a combination of: micrositing WTGs, inter-array cables or OSSs (or both) (up to 500 feet); the removal of four WTGs within priority sand ridge habitat, and the relocation of one WTG. Compared to the selected alternative, Alternative C would result in a 58.8 MW reduction of annual energy production. By way of written communication date June 22, 2022, Dominion Energy identified that Alternative C's layout could result in significant cost and schedule delays due to the changes in engineering design to move or eliminate WTG locations and reroute cabling. BOEM independently reviewed this information and concurred with Dominion Energy's technical feasibility concerns. Alternative C would delay the delivery of renewable energy provided by the Project and could compromise Dominion Energy's commitments to the Virginia SCC[12]. For these reasons, BOEM did not select Alternative C.

Selection of Alternative D-2 would result in a hybrid 14.3-mile-long route comprising approximately 4.5 miles of underground and 9.7 miles of overhead cable that would mostly follow the same route as Interconnection Cable Route Option 1, except for the location of the switching station. The route would continue following Interconnection Cable Route Option 1 as an underground transmission line until a point north of Princess Anne Road where it would transition to an overhead transmission line configuration. A switching station (Chicory Switching Station) would be built north of Princess Anne Road; therefore, no aboveground switching station would be built at Harpers Road. From the Chicory Switching Station, the route would align with Interconnection Cable Route Option 1 for the remaining 9.7 miles to the onshore substation. Hybrid Interconnection Cable Route Option 6 would have similar impacts overall as Interconnection Cable Route Option 1, except for increased impacts to wetlands and ecological cores. Construction of Interconnection Cable Route Option 6 and the associated Chicory Switching Station would require more clearing in wetlands (including forested wetlands) than Interconnection Cable Route Option 1. In addition, Interconnection Cable Route Option 6 would place more permanent fill in wetlands due to the backfilling of surface trenches to install the underground segment of the route. For these reasons, BOEM did not select Alternative D-2.

Under the No Action Alternative, DOI would not approve the CVOW-C Project. In addition, no other permits or authorizations for this proposed Project would be issued. Adverse environmental impacts across resources would generally be less under the No Action Alternative as no construction, operation, or decommissioning activities would occur on the OCS. As a result, impacts on physical, biological, social, or cultural resources from the selected alternative would be avoided. However, the No Action Alternative would still be expected to result in moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet future power demands. These facilities might be fueled with natural gas, oil, or coal, which would emit more pollutants than wind turbines and would have more

[12] The Virginia SCC issued an order on August 5, 2022 for approval and certification of the selected alternative, which included specifying cost recovery for the Project as proposed under Alternative B.

adverse impacts on air quality and contribute greenhouse gases that cause climate change. The No Action Alternative was not selected in this ROD because it would not allow for the development of DOI-managed resources and would not meet the purpose and need.

In summary, DOI considered which of the action alternatives would result in fewer environmental impacts and use conflicts, while meeting the purpose and need for the action. The Final EIS found that a combination of Alternative B and Alternative D-1 would result in fewer impacts than other action alternatives considered alone and is consistent with the purpose and need. Accordingly, DOI has selected this alternative in this ROD.

DOI weighed all concerns in making decisions regarding this Project and has determined that all practicable means within its authority have been adopted to avoid or minimize environmental and socioeconomic harm associated with the selected alternative and the approval of the COP. Appendix A of this ROD identifies the mitigation, monitoring, and reporting requirements that will be adopted as terms and conditions of COP approval. The mitigation and monitoring measures identified in Appendix A are representative of those included in Appendix H of the Final EIS. Concurrent with the NEPA process, BOEM conducted a thorough National Historic Preservation Act Section 106 review of the Project with Federally recognized Tribes, the Virginia State Historic Preservation Office (SHPO), the North Carolina SHPO, the Advisory Council on Historic Preservation, and consulting parties and, through the Section 106 review, identified historic properties and assessed potential effects to historic properties, and identified measures to resolve adverse effects. Draft measures to resolve adverse effects were described and analyzed in the Draft EIS. After the Final EIS was made available to the public, BOEM addressed consulting party comments on the Memorandum of Agreement (MOA) and distributed the MOA for signature by the consulting parties. The Section 106 review concluded with the execution and implementation of the MOA, which was signed by BOEM; the Virginia State Historic Preservation Officer; the North Carolina State Historic Preservation Officer; the Advisory Council on Historic Preservation, the Lessee; the Outer Banks Conservationists; Preservation Virginia; the Sandbridge Beach Civic League; the Virginia Department of Military Affairs – Virginia Army National Guard; the City of Virginia Beach, Virginia; the USCG, and the USACE; on October 27, 2023. The MOA memorializes measures that will resolve the selected alternative's adverse effects to historic properties including avoidance, minimization, and mitigation measures.

As set forth in the Final EIS, all alternatives, including the selected alternative, are anticipated to have major adverse impacts to the following resource areas:

Commercial Fisheries and For-Hire Recreational Fishing: Major adverse impacts are anticipated to occur due to the presence of structures (e.g., through gear loss, navigational hazards, space use conflicts, potential impacts on fisheries surveys, new cable emplacement and pile-driving noise) (see Final EIS section 3.09). Such adverse impacts will be mitigated through a requirement for Dominion Energy to establish and implement a direct compensation program to provide monetary compensation to commercial and for-hire recreational fishermen impacted by the Project and through a requirement for Dominion Energy to maintain a fisheries gear loss claims

procedure throughout the life of the Project. BOEM is including terms and conditions 6.1 and 6.2 (see ROD Appendix A) to address this issue.

Cultural Resources: Mitigation was developed with consulting parties through the Section 106 consultation process to resolve adverse effects on historic properties pursuant to 36 C.F.R. 800.6 and are executed in the MOA. Mitigation is also described in section 3.10.9 of the Final EIS. Mitigation that would reduce major impacts on onshore and offshore cultural resources are Dominion Energy's compliance with stipulations outlined in the MOA, such as compliance with horizontal protective buffers for all 31 identified marine archaeological resources and six ASLFs, implementation of actions that are consistent with the Post Review Discovery Plan for marine archaeology (enforcement of this measure would be under the jurisdiction of the Virginia SHPO if in state waters, and BOEM/BSEE if on the OCS), implementation and compliance with temporary fencing to avoid historic properties in the terrestrial area of potential effect, and implementation of and compliance with archaeology monitoring to avoid resources.

Marine Mammals, North Atlantic Right Whale (NARW): Under all alternatives, including the No Action alternative, when considering ongoing and planned activities, major adverse impacts to NARWs could occur due to the risk of vessel strikes and fishing gear entanglement posed by those activities. The incremental impacts of the Project alone are not expected to include entanglements or vessel strikes. Mitigation measures such as vessels maintaining a safe distance from marine mammals and reduced vessel speeds are designed to avoid interactions with marine mammals. The incremental impacts of all action alternatives to NARWs would be minor due to implementation of several mitigation measures, e.g., clearance and shutdown zones, use of sound attenuation measures, numerous vessel strike avoidance measures, and use of Protected Species Observers (PSO) and Passive Acoustic Monitoring (PAM).

Navigation and Vessel Traffic: Major impacts would arise from the presence of structures, which increase the risk of collision/allision and navigational complexity. Major impacts would occur due primarily to the increased possibility for marine accidents, which could produce significant disruptions for ocean users. Such impacts, as described in section 3.16.8 of the Final EIS, may be reduced by BOEM ensuring Dominion Energy coordinates with USCG prior to export cable installation to develop a navigation safety plan and related safety zones, which would reduce the risk of vessel collisions and subsequent outcomes. Impacts may also be reduced by BOEM ensuring that Dominion Energy develops a cable maintenance and monitoring plan that outlines a process with timeframes for monitoring cables and identifying appropriate remediation so that risks to transiting vessels are minimized.

Other Uses, Scientific Research and Surveys: NMFS Northeast Fisheries Science Center scientific surveys (hereinafter "NMFS surveys"). NMFS and BOEM have developed the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region* (Hare et al. 2022) to address the adverse impacts. BOEM and NMFS are of the view that the solution is a collaborative effort between both agencies and the offshore wind industry to establish project specific monitoring programs that follow specific guidelines, thereby allowing the information to be combined regionally into a programmatic approach (see Final EIS section 3.17). There are 14 NMFS scientific surveys that overlap with wind energy development in the

northeast region. Nine of these surveys overlap with the Project. BOEM is including term and condition 6.3 (see ROD Appendix A) to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project's impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM and NMFS.

Wetlands: Major impacts are expected to occur through temporary and permanent impacts from onshore construction activities in and adjacent to wetlands. As described in Section 3.22.8 of the Final EIS, mitigation such as Dominion Energy's compliance with all mitigation required by USACE for the CWA Section 404 and RHA Section 10 impacts would require that impacts to wetlands are avoided or minimized to the maximum extent possible and that compensatory mitigation is provided for unavoidable impacts on jurisdictional wetlands.

Additional engineering and technical terms and conditions that will be required with COP approval are included in Appendix A of this ROD.[13] Dominion Energy will be required to certify annually that it is in compliance with the terms and conditions of its approved COP (30 C.F.R. § 285.633(b)). Dominion Energy must also comply with all other applicable requirements of 30 C.F.R. Parts 285 and 585, including, but not limited to, the submission of a Facility Design Report and a Fabrication and Installation Report, before beginning construction activities.

Today's decision balances the orderly development of OCS renewable energy with the prevention of interference with other uses of the OCS and the protection of the human, marine, and coastal environments. A decision that balances these goals where they conflict and does not hold one as controlling over all others is consistent with the duties required under subsection 8(p)(4) of OCSLA, which requires the Secretary to ensure that approved activity is carried out in a manner that provides for Congress's enumerated goals.

My approval of this decision constitutes the final decision of DOI. The action taken herein is pursuant to an existing delegation of authority.

LAURA DANIEL-DAVIS

Digitally signed by LAURA DANIEL-DAVIS
Date: 2023.10.30 12:07:11 -04'00'

10/30/23

Laura Daniel-Davis
Principal Deputy Assistant Secretary
Land and Minerals Management

Date

[13] All mitigation measures and terms and conditions adopted by BOEM as part of this ROD will be included in the COP authorization letter to be issued to Dominion Energy.

5.2. National Marine Fisheries Service Decision

This section documents NMFS' planned determination to issue Incidental Take Regulations (ITR) and an incidental take authorization in the form of a Letter of Authorization (LOA) to Dominion Energy pursuant to its authorities under the MMPA. It also references NMFS' decision to adopt the BOEM Final EIS to support NMFS' anticipated decision to issue the ITR and associated LOA. NMFS prepared and signed a separate memorandum independently evaluating the sufficiency and adequacy of the BOEM Final EIS. That memorandum provides NMFS' rationale to adopt the Final EIS to satisfy its independent NEPA obligations related to the ITR and LOA. In that memorandum NMFS concluded: (i) the action analyzed in the Final EIS covers NMFS's proposed decision to issue an LOA to Dominion Energy, and meets all NEPA requirements under 40 C.F.R. § 1506.3 (adopting an EIS); (ii) the analysis includes the appropriate scope and level of environmental impact evaluation for NMFS' proposed action and alternatives; and (iii) NMFS' comments and suggestions related to primary environmental effects of concern from the proposed action (i.e., effects to marine mammals), submitted in its role as a cooperating agency, have been satisfied.

On February 16, 2022, NMFS received an application from Dominion Energy pursuant to MMPA Section 101(a)(5)(A) for an authorization to take small numbers of marine mammals, by harassment, incidental to the construction of an offshore wind energy project on the OCS off of Virginia in OCS-A 0483, for a period of five years. NMFS reviews applications and, if appropriate, issues incidental take authorizations pursuant to the MMPA. Incidental take authorizations may be issued as either: (1) regulations and associated LOAs under Section 101(a)(5)(A) of the MMPA or (2) Incidental Harassment Authorizations under Section 101(a)(5)(D) of the MMPA. In addition, 40 C.F.R. §§ 1500-1508 and NOAA policy and procedures require all proposals for major federal actions to be reviewed with respect to their effects on the human environment. Issuance of an incidental take authorization to Dominion Energy is a major federal action, triggering NMFS' independent NEPA compliance obligation. When serving as a cooperating agency, NMFS may satisfy its independent NEPA obligations by either preparing a separate NEPA analysis for its issuance of an incidental take authorization or, if appropriate, by adopting the NEPA analysis prepared by the lead agency. Once NMFS determined the application was adequate and complete, it had a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities described in the application in accordance with standards and determinations set forth in the MMPA and its implementing regulations. Thus, the purpose of NMFS' action—which was a direct outcome of Dominion Energy's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving, marine site assessment surveys)—was to evaluate Dominion Energy's request under requirements of the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations (50 C.F.R. § 216) administered by NMFS and to determine whether the findings necessary to support the issuance of the authorization could be made, based on the best available information. NMFS needs to render a decision regarding the request for authorization due to NMFS' responsibilities under the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations. In addition to its opportunity to comment on the DEIS, the public was also involved in the MMPA decision-making process through its opportunity to comment on NMFS' notice of receipt, which was published in the *Federal Register* (87 Fed. Reg. 56,634 [September 15, 2022]), and NMFS' proposed rulemaking which was published in the *Federal Register* (88 Fed. Reg. 28,656 [May 4, 2023]). NMFS' final action takes

into account those comments, as well as the corresponding formal consultation process under Section 7 of the ESA for issuance of the final ITR and LOA.

5.2.1. NMFS Decision (40 C.F.R. § 1505.2(a)(1))

Pending completion of all statutory processes, NMFS plans to issue the final ITR and an LOA to Dominion Energy authorizing take of marine mammals incidental to construction activities associated with the proposed Project for five years. NMFS' final decision to issue the requested ITR and LOA will be documented in a separate Decision Memorandum prepared in accordance with internal NMFS' policy and procedures. The LOA will authorize the incidental take of marine mammals while prescribing the amount and means of incidental take, as well as mitigation, monitoring, and reporting requirements, including those mandated by the Biological Opinion that completes the formal Section 7 consultation process under the ESA. A Notice of Issuance of the LOA will be published in the *Federal Register* within 30 days of issuance of the LOA. The *Federal Register* notice will describe how NMFS concluded the requirements set forth in the MMPA and its implementing regulations were met and issuance of the LOA was warranted.

5.2.2. Alternatives NMFS Considered (40 C.F.R. § 1505.2(a)(2))

NMFS is required to consider a reasonable range of alternatives to a proposed action in accordance with NEPA and 40 C.F.R. § 1502.10(a)(5) and § 1502.14. NMFS considered two alternatives, the No Action Alternative in which NMFS would deny Dominion Energy's request for an authorization and an action alternative in which it would issue an LOA to Dominion Energy with mitigation, monitoring, and reporting requirements.

Consistent with BOEM's No Action Alternative, NMFS would not issue the requested authorization to Dominion Energy, in which case, NMFS assumes Dominion Energy would not proceed with their proposed project as described in the application since it would be likely to cause harassment of marine mammals in contravention of the MMPA (unless modification to the project was undertaken that would negate the need for the authorization). Since NMFS is also required by 40 C.F.R. § 1505.2(a)(2) to identify an environmentally preferable alternative, NMFS considers the No Action Alternative to be the environmentally preferable alternative as the incidental take of marine mammals would be avoided since no construction activities resulting in harassment would occur.

The other alternative NMFS considered was its Proposed Action, the issuance of the LOA to Dominion Energy, which would authorize take of marine mammals incidental to five years of construction activities as noted above, subject to specified mitigation, monitoring, and reporting measures. As part of that alternative, and through the public and agency review process, NMFS considered a range of mitigation measures to carry out its duty to identify other means of effecting the least practicable adverse impact on the species or stocks. These measures were initially identified in the proposed rule (88 Fed. Reg. 28,656 [May 4, 2023]), and may be modified in the final rule and LOA in response to public comment, agency review, and ESA Section 7 consultation. The Proposed Action alternative evaluated by NMFS (i.e., the issuance of the LOA to Dominion Energy) will provide the incidental take authorization necessary to undertake the activities identified in the Preferred Alternative evaluated by BOEM in the Final EIS and selected in this ROD.

5.2.3. Primary Factors NMFS Considers Favoring Selection of the Proposed Action (40 C.F.R. § 1505.2(a)(2))

As noted earlier, NMFS intends to issue an LOA to Dominion Energy in response to its request for an LOA, after completing all required statutory and regulatory processes. NMFS' Proposed Action to issue an LOA for BOEM's Preferred Alternative effectively meets NMFS' stated purpose and need for acting. NMFS has an obligation to issue a requested LOA if certain statutory and regulatory determinations are made after providing for proper public review and comment. Denying issuance of the requested LOA, as described under NMFS' No Action Alternative, would be contrary to NMFS' responsibilities, given the results of the analysis conducted under the MMPA demonstrates the authorized take would meet statutory and regulatory requirements, and would thus not support NMFS' ability to meet the purpose and need for acting.

5.2.4 Mitigation, Monitoring and Reporting Considered by NMFS (40 C.F.R. § 1505.2(a)(3))

NMFS has a statutory and regulatory process to prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations must also include requirements pertaining to monitoring and reporting. Mitigation, monitoring, and reporting requirements related to marine mammals were preliminarily identified in the proposed ITR (88 Fed. Reg. 28,656 [May 4, 2023]). These measures may be modified in the final ITR and LOA in consideration of public comments, additional analysis, and based on the outcome of the formal ESA Section 7 consultation. When it issues the LOA to the applicant, NMFS will include the necessary mitigation to effect the least practicable adverse impact on marine mammals, as well as monitoring and reporting requirements to be implemented by Dominion Energy. In summary, the mitigation, monitoring, and reporting measures include the following: vessel strike avoidance measures; seasonal moratorium on foundation pile driving; usage of PSOs and PAM operators; establishment of clearance and shutdown zones; soft-start and ramp-up procedures for impact pile driving and acoustic source use during high-resolution geophysical surveys, respectively; use of sound attenuation measures and PAM during foundation pile driving; requirements to conduct sound field verification (SFV) during foundation pile driving; fishery survey mitigation to avoid interactions and entanglements; and various situational and incremental (i.e., weekly, monthly, annual) reporting requirements. Appendix A includes a listing of mitigation, monitoring, and reporting measures that have been considered by BOEM in formulating its NEPA analysis. Many of these measures align with those to be included in the final ITR and LOA; however, the final LOA may contain additional, more protective measures than those listed in Appendix A.

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Samuel D. Rauch, III
Deputy Assistant Administrator for Regulatory Programs

10/30/23
Date

6. References

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Dominion Energy, Inc. (Dominion Energy). 2023. *Construction and Operations Plan, Coastal Virginia Offshore Wind Commercial Project*. Prepared by Tetra Tech, Inc. July.

Hare, J.A., Blythe, B.J., Ford, K.H., Godfrey-McKee, S., Hooker, B.R., Jensen, B.M., Lipsky, A., Nachman, C., Pfeiffer, L., Rasser, M. and Renshaw, K., 2022. NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region. NOAA Technical Memorandum 292. Woods Hole, MA. 33 pp.

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Appendix A. Anticipated Terms and Conditions of COP Approval

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

Conditions of Construction and Operations Plan Approval
Lease Number OCS-A 0483
October 30, 2023

The Bureau of Ocean Energy Management's (BOEM) approval of Dominion Energy's (Lessee or Coastal Virginia Offshore Wind) conduct of activities under the Construction and Operations Plan (COP) for the Coastal Virginia Offshore Wind (CVOW) Commercial Project and the Coastal Virginia Offshore Wind Commercial Export Cable (Project) is subject to the conditions outlined in this document. The Department of the Interior (DOI) reserves the right to amend these conditions or impose additional conditions authorized by law or regulation on any future approvals of COP revisions.

The Lessee must maintain a full copy of these terms and conditions on every Project-related vessel and is responsible for the implementation of, or the failure to implement, each of these terms and conditions by the Lessee's contractors, consultants, operators, or designees.

Section:

1 GENERAL PROVISIONS

1.1. Adherence to the Approved Construction and Operations Plan, Statutes, Regulations, Permits, and Authorizations (Planning) (Construction) (Operations) (Decommissioning).[1] The Lessee must conduct all activities as proposed in its approved COP[2] for the Project and as stated in these terms and conditions and in in any final plans concurred with by BOEM and/or the Bureau of Safety and Environmental Enforcement (BSEE). Additionally, the Lessee must comply with all applicable requirements in commercial lease OCS-A 0483 (Lease), statutes, regulations, consultations, and permits and authorizations issued by federal, state, and local agencies for the Project. BOEM and/or BSEE, as applicable, may issue a notice of noncompliance, pursuant to 30 C.F.R. § 585.106(b) and 30 C.F.R. § 285.400(b), if it is determined that the Lessee failed to comply with any provision of its approved COP, the Lease, the Outer Continental Shelf Lands Act (OCSLA), or OCSLA's implementing regulations. BOEM and/or BSEE may also take additional actions pursuant to 30 C.F.R. § 585.106 and 30 C.F.R. § 285.400, where appropriate.

1.1.1 As depicted in the COP and modified by the selected Alternative in the Record of Decision (ROD), in support of this Project, the Lessee may construct and install on the Outer Continental Shelf (OCS) up to 176 wind turbine generators (WTGs), up to 3 offshore substations (OSSs), inter-array cables linking the individual WTGs to the OSS, substation interconnector cables linking the OSSs, and up to nine offshore export cables within an export cable corridor of up to 25 nautical miles on the OCS.

1.2. Record of Decision (Planning) (Construction) (Operations) (Decommissioning). All mitigation measures selected in the Record of Decision (ROD) for this Project are incorporated herein by reference and are considered terms and conditions of this COP. To the extent there is any inconsistency between the language used in the ROD and that found in the terms and conditions, the language in the latter will prevail.

1.3. Effectiveness (Construction) (Operations). This COP approval and these associated terms and conditions become effective on the date BOEM notifies the Lessee that its COP has been approved, and remains effective until the termination of the Lease, which, unless renewed, has an operations term of 33 years from the date of COP approval.

1.4. Consistency with Other Agreements and Authorizations (Planning) (Construction) (Operations) (Decommissioning). In the event that these terms and conditions are, or become, inconsistent with the terms and conditions of the Project's Biological Opinion (BiOp) issued by the National Oceanic and Atmospheric Administration (NOAA)

[1] Parenthetical indicators of (Planning) (Construction) (Operations) and/or (Decommissioning) at the start of a condition denote the primary development phase(s) to which the condition is relevant. The identification of the primary development phase(s) does not limit BOEM and BSEE's enforcement of these conditions to the identified phase(s).

[2] Dominion Energy. 2023. Construction and Operations Plan, Coastal Virginia Offshore Wind-Commercial. Volumes I–III.

National Marine Fisheries Service (NMFS) on September 18, 2023;[3] the BiOp issued by the U.S. Fish and Wildlife Service (USFWS) on August 31, 2023;[4] the Incidental Take Authorizations (ITA) issued for the Project under the Marine Mammal Protection Act (MMPA); the Section 106 Memorandum of Agreement (MOA) executed on October 27, 2023, or amendments thereto; the language in the NMFS BiOp, USFWS BiOp, ITAs, Section 106 MOA or amendments thereto, will prevail. Activities authorized by COP approval will be subject to any terms and conditions and reasonable and prudent measures resulting from a BOEM-reinitiated consultation for the Project's NMFS BiOp or USFWS BiOp, and any stipulations resulting from amendments to the Section 106 MOA. If there are inconsistencies between the applicant's proposed measures, BOEM's proposed measures, and the reasonable and prudent measures within the NMFS BiOps referenced herein, the Lessee must propose a resolution to the inconsistency to BSEE for the Bureau's objection or non-objection.

1.5. Variance Requests (Planning) (Construction) (Operations) (Decommissioning). The Lessee may submit a written request to BOEM and/or BSEE, requesting a variance from the requirements of these Terms and Conditions. The request must explain why compliance with a particular requirement is not technically and economically practical or feasible and any alternative actions the Lessee proposes to take. To the extent not otherwise prohibited by law and after consideration of all relevant facts and applicable legal requirements, BOEM and/or BSEE may grant a request for variance if the appropriate Bureau(s) determine that the variance: (1) would not result in a change in the Project impact levels described in the Final Environmental Impact Statement (FEIS) and ROD for the Project, (2) would not alter obligations or commitments resulting from consultations performed by BOEM and BSEE under federal law in connection with this COP approval in a manner that would require BOEM to re-initiate or perform additional consultations (e.g., Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act (MSA)); and (3) would not alter BOEM's determination that the activities associated with the Project would be conducted in accordance with section 8(p)(4) of OCSLA. After making a determination regarding a request for a variance, BOEM and/or BSEE will notify the Lessee in writing whether the appropriate Bureau(s) will allow the proposed variance from the identified requirements set forth in this COP approval. Approvals of variance requests will be made publicly available. This provision applies to the extent it is not inconsistent with more specific provisions in these terms and conditions for variances or departures.

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[3] *See* BiOp Letter from Kim Damon-Randall, Director, Office of Protected Resources, US Dept of Commerce National Oceanic and Atmospheric Administration NMFS GARFO, to Karen Baker, Chief Office of Renewable Energy Programs, BOEM. National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinion (September 18, 2023), [hereinafter NMFS BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

[4] *See* BiOp Letter from Cynthia Schultz, Field Supervisor Virginia Field Office, Fish and Wildlife Serv., to David Bigger, BOEM. (August 31, 2023), [hereinafter BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

1.6. 48 Hour Notification Prior to Construction Activities (Construction) (Operations) (Decommissioning). The Lessee must submit a 48-hour notification to BSEE through TIMSWeb (https://timsweb.bsee.gov/) prior to the start of each of the following construction activities occurring on the OCS: seabed preparation activities such as boulder relocation and pre-lay grapnel runs, export cable installation, inter-array cable installation, WTG and OSS foundation installation, WTG tower and nacelle installation, OSS topside installation, cable and scour protection installation.

1.7. Inspections (Construction) (Operations) (Decommissioning). The Lessee must plan for and have the capacity to receive Federal personnel who arrive for inspections and assessments to be conducted under 30 C.F.R. §§ 285.820-285.825. As provided for in Terms and Conditions Item 10 of the NMFS BiOp, the Lessee must consent to on-site observations and inspections by Federal agency personnel, including NOAA personnel, during activities described in the NMFS BiOp, for the purposes of evaluating the effectiveness and implementation of measures designed to minimize or monitor incidental take.

1.8. Project Website (Planning) (Construction) (Operations) (Decommissioning). The Lessee must develop and maintain a Project website to provide a means for the public to communicate about the Project, including fisheries communication and outreach. The website must provide a method for the public to register comments or ask questions through either a direct link to a comment form or email, or by providing the contact information (phone and/or email address) of a Lessee representative who will, as practicable, respond to these communications.

1.8.2 The Lessee must post construction notices and other publicly relevant information to the Project website on a monthly basis. The Project website must allow users to subscribe (or unsubscribe) to an electronic mailing list for Project update notifications.

1.8.3 The Lessee must post the following information to the Project website within 5 business days of availability.

1.8.3.1 Locations where target burial depths were not achieved and locations of cable protection measures.

1.8.3.2 Project-specific information found in the most current Local Notices to Mariners (LNM).

1.8.3.3 The Fisheries Communications Plan (COP Appendix V-1).

1.8.3.4 The Project Mitigation Plan identified in Section 1.9. The Project Mitigation Plan must be submitted to BOEM (renewable_reporting@boem.gov) and BSEE via TIMSWeb (https://timsweb.bsee.gov/) for a 30-day review prior to being finalized.

1.8.4 Geographic information system (GIS) location data must be downloadable from the Project website and packaged in an ESRI-compatible format, preferably an ESRI shapefile. Files must utilize a NAD83 UTM Zone 18 or a geographic coordinate system in NAD83. A text file with table field descriptions that contain measurement units, where applicable, must be included.

1.9. Project Mitigation Report (Planning) (Construction) (Operations) (Decommissioning). The Lessee must develop a Project Mitigation Report that reflects public engagement and consultation concerning environmental mitigation measures completed to date with the appropriate tribal nations, federal and state agencies, and regional, and non-governmental organizations. The Project Mitigation Report will be a comprehensive compilation of all environmental mitigation measures or commitments required by the terms and conditions of COP approval, as well as other Federal and State authorizations and consultations (e.g., ESA, CZMA, MOA, CWA, Rivers and Harbors Act) required for the construction and operation of the Project. The Project Mitigation Report must (1) describe and provide technical details for each mitigation measure (including the type of Project impact to which it relates and the consultation, authorization, or conditions under which it is required) and (2) identify procedures to evaluate additional or modified measures that respond to impacts detected in Project monitoring and other monitoring and research studies and initiatives, including the Lessee's Fisheries Mitigation and Monitoring Plan. The Lessee must update the Project Mitigation Report periodically, as described in such Report, for status and completion of mitigation measures.

2 TECHNICAL CONDITIONS

2.1. Geologic and Geophysical Data (Planning) (Construction) (Operations) (Decommissioning). The Lessee must retain all data from geological, geophysical, and geotechnical surveys used to assess shallow hazards, geologic conditions, and geotechnical characteristics, as well as archaeological, biological, and benthic assessments, and overall site investigation results (pursuant to 30 C.F.R. § 585.626). Any data and information obtained from site characterization activities must be accessible to BOEM and BSEE upon request, for the duration of the Lease.

2.2. Munitions and Explosives of Concern/Unexploded Ordnance Investigation (Planning). the Lessee must investigate the areas of potential disturbance for the presence of Munitions and Explosives of Concern (MEC)/Unexploded Ordnance (UXO) and evaluate the risk consistent with the As Low as Reasonably Practical (ALARP) risk mitigation principle. The ALARP risk mitigation principle requires (1) a desktop study (DTS); (2) an investigation survey to determine the presence of objects and report findings; (3) an identification survey to determine the nature of the identified objects and report of findings; (4) MEC/UXO mitigation (avoidance or relocation); and (5) a certification that MEC/UXO risks from installation and operation of the facility have been reduced to ALARP levels. The Lessee must implement the mitigation methods identified in the approved COP, the DTS, and the subsequent survey report(s) following the resolution of all comments provided by BOEM and/or BSEE. In the event archaeological discoveries are made during the MEC/UXO Investigation, the Lessee must notify BOEM within 24 hours of discovery (pursuant to 30 C.F.R. § 585.702 and Lease Stipulation 4.2.7.2). As part of the Fabrication and Installation Report (FIR) and prior to commencing installation activities, the Lessee must make available to the approved Certified Verification Agent (CVA), BOEM, and BSEE for review the complete and final versions of information on implementation and installation activities associated with the ALARP mitigation process, including the: (1) DTS; (2) investigation surveys to determine the presence of objects; (3) identification surveys to determine the nature of the identified objects; and (4) MEC/UXO mitigation measure(s), and/or construction re-routing.

2.3. MEC/UXO Identification Survey Report (Planning). The Lessee must submit an Identification Survey Report to BOEM and BSEE for each Bureau's review and concurrence prior to the installation of facilities in the areas of potential disturbance. The report must include the following:

2.3.1 A detailed discussion of methodologies.

2.3.2 A summary and detailed description of the findings and information on all mitigations necessary for MEC/UXO risks to reach ALARP levels, such as detailed information on MEC/UXO relocation activities, micrositing of facilities, changes to installation or operational activities, and cable re-routings.

2.3.3 A separate list of findings that identify conditions different from those anticipated and discussed in the DTS.

2.3.4 A statement attesting that the installation methods and MEC/UXO mitigation strategies discussed in the Fabrication and Installation Report (FIR), DTS, and/or Investigation Survey Report are consistent with the results of the Identification Survey Report, accepted engineering practices, and applicable best management practices. Alternatively, the Lessee may submit a detailed discussion of alternative installation methods and/or MEC/UXO mitigation strategies that the Lessee has determined to be appropriate given the results of the Identification Survey, accepted engineering practices, and applicable best management practices.

2.4. MEC/UXO ALARP Certification (Planning). The Lessee must provide to BOEM, BSEE, and the approved CVA, a certification confirming that MEC/UXO risks related to the installation and operation of the facility have been reduced to ALARP levels. The certification must be made by a qualified third party and made available with the submission of the Facility Design Report (FDR) or FIR, whichever is submitted earlier.

2.5. MEC/UXO Discovery Notification (Construction) (Operations) (Decommissioning). In the event of a confirmed MEC/UXO, the Lessee must coordinate with the U.S. Coast Guard (USCG) to ensure the MEC/UXO discovery is published in the next version of the LNM for the specified area and provide BOEM and BSEE a copy of the LNM once it is available. The Lessee must also provide the following information to BOEM (BOEM_MEC_Reporting@boem.gov), BSEE (env-compliance-arc@bsee.gov), and relevant agency representatives within 24 hours of any such discovery made during activities, such as seabed clearance, construction, and operations:

2.5.1 Narrative describing activities that resulted in the identification of confirmed MEC/UXO;

2.5.2 Activity at the time of discovery (e.g., survey, seabed clearance, cable installation);

2.5.3 Location (latitude [DDD°MM.MMM'], longitude [DDD°MM.MMM]), lease area, and block;

2.5.4 Water depth (meters);

2.5.5 MEC/UXO type, dimensions, and weight;

2.5.6 MEC/UXO vertical position (description of exposure or estimated depth of burial).

2.6. Munitions Response Plan for Confirmed MEC/UXO (Planning) (Construction). The Lessee must implement methods identified in the approved COP and as described in the MEC/UXO Survey Reports Implementation (as referenced in Section 2.3) for MEC/UXO mitigation activities. Under all circumstances of confirmed MEC/UXO, the Lessee must demonstrate to BSEE and BOEM that avoidance through micrositing of planned infrastructure (e.g., wind turbines, offshore substations, inter-array cables, or export cables) of confirmed MEC/UXO is not feasible. For confirmed MEC/UXO on

the OCS where avoidance through micrositing is not feasible, the Lessee must provide a Munitions Response Plan. In the event MEC/UXO relocation may exceed 50m from original location, as identified in Section 3.4.1.2 of the COP, the Lessee may submit a Variance Request (Section 1.5) to relocate MEC/UXO greater distances. The Munitions Response Plan must include the following:

2.6.1 Analysis describing the identification for each confirmed MEC/UXO;

2.6.2 Hazard analysis of the response;

2.6.3 Type and designation of work vessels, remotely operated vehicles, unmanned surface vehicles, or craft planned to be used in proximity to the MEC/UXO;

2.6.4 Contact information of the identified munitions response contractor;

2.6.5 Contractor qualifications and competencies to safely carry out the response work;

2.6.6 Proposed timeline of activities;

2.6.7 Position of confirmed MEC/UXO and, if applicable, planned relocation position (latitude [DDD°MM.MMM'], longitude [DDD°MM.MMM])

2.6.8 Potential impact of weather and sea state on munitions response operations;

2.6.9 Potential for human exposure;

2.6.10 Medical emergency procedures plan;

2.6.11 Protective measures to be implemented to reduce risk and/or monitor effects to protected species and habitats or other ocean users;

2.6.12 Plan for accidental detonation.

2.7 Munitions Response After Action Report (Planning). The Lessee must submit a Munitions Response After Action Report detailing the activity and outcome to BOEM and BSEE. The report must include the following information:

2.7.1 Narrative describing the activities that were undertaken by the Lessee, including the following:

2.7.1.1 As Found Location and, if applicable, As Left Location (latitude [DDD°MM.MMM'], longitude [DDD°MM.MMM]), lease area, and block;

2.7.1.2 Water depth (meters);

2.7.1.3 Weather and sea state at the time of munitions response;

2.7.1.4 Number and detailed characteristics (e.g., type, size, classification) of MEC items subject to response efforts;

2.7.1.5 Duration of the munitions response activities, including start and stop times;

2.7.2 Summary describing how the Lessee followed its Munitions Response Plan and any deviations from the plan;

2.7.3 Description of safety measures used, including but not limited to the presence of a USCG safety zone, notices to mariners, other USCG safety actions in place prior to taking any munitions response actions, and how security call protocols were used;

2.7.4 Results of the munitions response;

2.7.5 Description of any threats and effects to health, safety, or the marine environment;

2.7.6 Description of any effects on protected species and marine mammals and measures implemented to reduce risk and monitor effects;

2.7.7 Details and results of any geophysical surveys conducted after the completion of the munitions response activities;

2.7.8 If applicable, a description of anticipated future munitions response activities.

2.8 Safety Management System (Planning) (Construction) (Operations) (Decommissioning). Pursuant to 30 C.F.R. § 285.810, the Lessee, designated operator, contractor, or subcontractor constructing, operating, or decommissioning renewable energy facilities on the OCS must have a Safety Management System (SMS) that will guide all activities described in the approved COP (hereafter the "Lease Area's Primary SMS"). The Lessee will submit its Lease Area's Primary SMS to BSEE via TIMSweb within 30 days of COP approval. BSEE will review the Lease Area's Primary SMS and compare it to the regulations and requirements below (Sections 2.8.1 through 2.8.4) and verify that it is acceptable.

2.8.1 The Lease Area's Primary SMS must identify and assess risks to health, safety, and the environment associated with the offshore wind facilities and operations and must include an overview of the methods that will be used and maintained to control the identified risks.

2.8.2 Pursuant to 30 C.F.R. § 285.811, the Lease Area's Primary SMS must be functional when the Lessee begins activities described in the approved COP. The Lessee must provide to BSEE a description of any changes to the Lease Area's Primary SMS to address new or increased risk before each phase of the Project commences (i.e., construction, operation, maintenance, decommissioning). In addition, the Lessee must demonstrate, to BSEE's

satisfaction, the functionality of the Lease Area's Primary SMS by providing evidence of such functionality no later than 30 days[5] prior to beginning the relevant activities described in the COP. The Lessee will satisfy its requirement to demonstrate the Lease Area's Primary SMS functionality by means including but not limited to those listed in Section 2.8.4.

2.8.3 The Lessee may employ a similar SMS that is functioning elsewhere as the Lease Area's Primary SMS if the Lessee demonstrates to BSEE the proper functioning of the similar SMS by providing certifications of that SMS from a recognized accreditation organization (e.g., International Organization for Standardization (ISO), International Electric Code (IEC) 45001, American National Standards Institute (ANSI) Z10, American Petroleum Institute (API) Recommended Practices 75 4th or later edition), or by providing reports of third-party or internal audits of the SMS. The Lessee must provide BSEE an explanation of how the Lessee has adapted the similar, audited SMS to become the Lease Area's Primary SMS.

2.8.4 If the Lessee does not have a similar SMS that is functioning elsewhere, demonstration of functionality may include the following:

2.8.4.1 A desktop exercise in which the Lessee evaluates how the Lease Area's Primary SMS functions in response to different scenarios, including an evaluation of the strengths and weaknesses of the Lessee's preparedness to control various risks.

2.8.4.2 A description of the personnel who have been trained on the Lease Area's Primary SMS, an overview of the training content, and a description of controls the Lessee has established to ensure trained personnel's understanding of and adherence to the Lease Area's Primary SMS.

2.8.4.3 A detailed description of how the Lessee intends to monitor whether the implementation of the Lease Area's Primary SMS is achieving the desired goals, and an overview of how the SMS will be adjusted as necessary to control identified risks.

2.8.4.4 A description of how the Lessee intends to manage the interface with contractors, subcontractors, and other critical stakeholders.

2.8.5 The Lessee must conduct periodic Lease Area Primary SMS audits and provide BSEE with a report summarizing the results of the most recent audit at least once every 3 years, and upon BSEE's request. The report must include any corrective actions implemented or being implemented as a result of that audit, and an updated description of the Lease Area's Primary SMS highlighting changes that were made since the last such submission to BSEE.

[5] Unless otherwise specified in the terms and conditions, the term "days" means "calendar days".

Following BSEE's review of the report, the Lessee must engage with and respond to BSEE until any questions or concerns BSEE may have are resolved and BSEE is satisfied that the Lease Area Primary SMS is effective and functional.

2.8.6 In addition to maintaining an acceptable Lease Area's Primary SMS, the Lessee, designated operator, contractor, and subcontractor(s) constructing, operating, or decommissioning renewable energy facilities on the OCS are required to follow the policies and procedures of any other SMS(s) applicable to their contracted activities and to take corrective action whenever there is a failure to follow the relevant SMS(s), or where the relevant SMS(s) failed to ensure safety.

2.9 Emergency Response Procedure (Planning) (Construction) (Operations) (Decommissioning). Prior to the construction of the Project, the Lessee must submit an Emergency Response Procedure to address non-routine events for review and concurrence by BSEE. The Lessee must submit any revisions of the procedure once every 3 years and upon BSEE's request, consistent with Section 2.8.5. The Emergency Response Procedure must address the following:

2.9.1 Standard Operating Procedures. The Lessee must describe the procedures and systems that will be used at Project facilities in the case of emergencies, accidents, or non-routine conditions, regardless of whether man-made or natural. The Lessee must include, as a part of the standard operating procedures for non-routine conditions, descriptions of high-consequence and low-probability events and methods to address those events, including methods for (1) establishing and testing WTG rotor shutdown, braking, and locking; (2) lighting control; (3) notifying the USCG of mariners in distress or potential/actual search and rescue incidents; (4) notifying BSEE and the USCG of any events or incidents that may impact maritime safety or security; and (5) providing the USCG with environmental data, imagery, communications, and other information pertinent to search and rescue or marine pollution response.

2.9.2 Communications. The Lessee must describe the capabilities of the Systems Operation Center (SOC) to communicate with the USCG as outlined in Appendix A Safety Management System of the COP.

2.9.3 Monitoring. The SOC must maintain the capability to monitor (e.g., using cameras) the Lessee's installation and operations in real-time, including at night and in periods of poor visibility.

2.10 Oil Spill Response Plan (Planning). Pursuant to 30 C.F.R. § 585.627(c), the Lessee must submit an Oil Spill Response Plan (OSRP) to the BSEE Oil Spill Preparedness Division (OSPD) at BSEEOSPD_ATL_OSRPs@bsee.gov for review and approval prior to the installation of any component that may handle or store oil on the OCS. The OSRP may be lease-specific, or it may be a regional OSRP covering multiple leases. Facilities and leases covered in a regional OSRP must have the same owner or operator

(including affiliates) and must be located in the Atlantic OCS region. For a regional OSRP, subject to BSEE OSPD approval, the Lessee may group leases into sub-regions for the purposes of determining worst-case discharge (WCD) scenarios, conducting stochastic trajectory analyses, and identifying response resources. The Lessee's OSRP must be consistent with the National Contingency Plan, Regional Contingency Plan, and the appropriate Area Contingency Plan(s), as defined in 30 C.F.R. § 254.6. To continue operating, the Lessee must operate consistent with the OSRP approved by BSEE. The Lessee's OSRP, including any regional OSRP, must contain the following information:

2.10.1 Bookmarks. Appropriately labeled bookmarks that are linked to their corresponding sections of the OSRP.

2.10.2 Table of Contents.

2.10.3 Record of Change. A table identifying the changes made to the current version of the OSRP and, as applicable, a record of changes made to previously submitted versions of the OSRP.

2.10.4 Facility and Oil Information. "Facility", as defined in 30 C.F.R. § 585.113, means an installation that is permanently or temporarily attached to the seabed of the OCS. An OSS and WTG, as examples, each meet this definition of facility. "Oil," as defined in 33 U.S.C. 1321(a), means oils of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Dielectric fluid, as an example, meets this definition of oil. The OSRP must:

2.10.4.1 List the latitude and longitude, water depth, and distance to the nearest shoreline for each facility that may handle and/or store oil.

2.10.4.2 List the oil(s) by product/brand name and corresponding volume(s) on each type of facility covered under the Lessee's OSRP.

2.10.4.3 Include a map depicting the location of each facility that may handle and/or store oil within the boundaries of the covered lease area(s) and their proximity to the nearest shoreline. The map must also feature a compass rose, scale, and legend.

2.10.5 Safety Data Sheets. The OSRP must include a safety data sheet for every type of oil present on any OCS facility in quantities equal to or greater than 100 gallons.

2.10.5.1 Response Organization. The OSRP must identify a trained Qualified Individual (QI), and at least one alternate, with full authority to implement removal actions and ensure immediate notification of appropriate Federal officials and response personnel. The Lessee must designate personnel to serve as trained members of an Incident Management Team (IMT) and identify them by name and Incident Command System (ICS) position in the OSRP. "Qualified Individual"

(QI) means an English-speaking representative of the Lessee who is located in the United States, available on a 24-hour basis, and given full authority to obligate funds, carry out removal actions, and communicate with the appropriate Federal officials and the persons providing personnel and equipment in removal operations.

2.10.5.2 "Incident Management Team" (IMT) means the group of personnel identified within the Lessee's organizational structure who manage the overall response to an incident in accordance with the Lessee's OSRP. The IMT consists of the IC, Command and General Staff, and other personnel assigned to key ICS positions designated in the Lessee's OSRP. With respect to the IMT, the Lessee must identify at least one alternate in the OSRP as the Incident Commander (IC), Planning Section Chief (PSC), Operations Section Chief (OSC), Logistics Section Chief (LSC), and Finance Section Chief (FSC). If a contract has been established with a third-party IMT, the Lessee must provide evidence of such a contract in the OSRP.

2.10.6 Notification Procedures. The OSRP must describe the procedures for spill notification. Notification procedures must include the 24-hour contact information for:

2.10.6.1 The QI and an alternate, including phone numbers and email addresses;

2.10.6.2 IMT members, including phone numbers and email addresses;

2.10.6.3 Federal, state, and local regulatory agencies that must be notified when a spill occurs, including, but not limited to, the National Response Center;

2.10.6.4 The Oil Spill Removal Organizations (OSRO) and Spill Response Operating Teams (SROT) that are available to respond;

2.10.6.5 Other response organizations and subject matter experts that the Lessee will rely on for the Lessee's response.

2.10.7 Spill Mitigation Procedures. The OSRP must describe the different discharge scenarios that could occur from the Lessee's facilities and the mitigation procedures by which the offshore facility operator and any listed/contracted OSROs would follow when responding to such discharges. The mitigation procedures must address responding to both smaller spills (with slow, low-volume leakage) and larger spills, to include the largest WCD scenario covered under the Lessee's OSRP. To achieve compliance with this section, the OSRP must include the following:

2.10.7.1 Procedures for the early detection of a spill (i.e., monitoring procedures for detecting dielectric fluid and other oil-based substances handled or stored on the facility when spilled to the ocean).

2.10.7.2 General procedures for ensuring that the source of a discharge is controlled as soon as possible after a spill occurs.

2.10.7.3 Procedures to remove oil and oiled debris from the water surface and along shorelines.

2.10.7.4 Procedures to store, transfer, and dispose of recovered oil and oil-contaminated materials and to ensure that all disposal is in accordance with Federal, State, and local requirements.

2.10.8 Resources at Risk. The OSRP must include a concise list of the sensitive resources that could be impacted by a spill. In lieu of listing sensitive resources, the Lessee may identify the areas that could be impacted by a spill from the Lessee's facility and provide hyperlinks to corresponding Environmentally Sensitive Index Maps and Geographic Response Strategies/Plans for those areas from the appropriate Area Contingency Plan(s).

2.10.9 OSRO(s) and SROT(s). The "Oil Spill Removal Organization" (OSRO) is an entity contracted by the Lessee to provide spill response equipment and/or manpower in the event of an oil spill. The "Spill Response Operating Team" (SROT) is the trained persons who deploy and operate oil spill response equipment in the event of a spill, threat of a spill, or an exercise. The OSRP must include a list (with contact information) of the OSRO(s) and SROT(s) who are under contract and/or membership agreement to respond to the WCD of oil from the Lessee's offshore facilities. Evidence of such contracts and/or membership agreements must be provided in the OSRP.

2.10.10 Oil Spill Response Equipment. The OSRP must include a list, or a hyperlink to a list, of the oil spill response equipment that is available to the Lessee through a contract and/or membership agreement with the OSRO(s). The OSRP must include a map that shows the oil spill response equipment storage depot(s) and planned/potential staging area(s) for the oil spill response equipment that would be deployed by the facility operators or the OSRO(s) listed in the plan in the event of a discharge.

2.10.10.1 The Lessee must ensure that the oil spill response equipment is maintained in proper operating condition.

2.10.10.2 The Lessee must ensure that all oil spill response equipment maintenance, modification, and repair records are kept for a minimum of 3 years.

2.10.10.3 The Lessee must provide oil spill response equipment maintenance, modification, and repair records to BSEE OSPD upon request.

2.10.10.4 The Lessee or the OSRO must provide BSEE OSPD with physical access to the oil spill equipment storage depots and perform functional testing of the equipment upon request.

2.10.10.5 BSEE OSPD may require maintenance, modifications, or repairs to oil spill response equipment or require the Lessee to remove response equipment from being listed in the OSRP if it does not operate as intended.

2.10.11 Training. The OSRP must include a description of the training necessary to ensure that the QI, IMT, OSRO(s), and SROT(s) are sufficiently trained to perform their respective duties. The Lessee must ensure that the IMT, OSRO(s), and SROT(s) receive annual training. The Lessee's OSRP must provide the most recent dates of applicable training(s) completed by the QI, IMT, OSRO(s), and SROT(s). The Lessee must maintain and retain training records for three years and must provide the training records to BSEE upon request.

2.10.12 Worst-Case Discharge (WCD) Scenario. The OSRP must describe the WCD scenario for the facility containing the highest cumulative volume of oil(s). For a regional OSRP covering multiple sub-regions, a WCD scenario must be described for each sub-region.

2.10.12.1 If multiple candidate WCD facilities contain the same cumulative volume of oil(s), the WCD facility is the one closest to shore.

2.10.12.2 The WCD facility must be identified on the facility map consistent with the "Facility and Oil Information" Section 2.11.4.

2.10.12.3 The OSRP must identify the subset of oil spill response equipment from the inventory listed in the OSRP that will be used to contain and recover the WCD volume. The OSRP must include timeframes for response resources to deploy to the WCD facility. Timeframes must include times for equipment procurement, loadout, travel, and deployment.

2.10.13 Stochastic Trajectory Analysis. The OSRP must include a stochastic spill trajectory analysis for the WCD facility. For a regional OSRP containing multiple WCD scenarios, a stochastic trajectory analysis must be included for each WCD scenario. The stochastic trajectory analysis must:

2.10.13.1 Be based on the WCD volume.

2.10.13.2 Be conducted for the longest period that the discharged oil would reasonably be expected to persist on the water's surface, or 14 days, whichever is shorter.

2.10.13.3 Identify the probabilities for oiling on the water's surface and on shorelines and the minimum travel times for the transport of the oil

over the duration of the model simulation. Oiling probabilities and minimum travel times must be calculated for exposure threshold concentrations reaching 10 grams per square meter. The stochastic analysis must incorporate a minimum of 100 different trajectory simulations using random start dates selected over a multi-year period.

2.10.14 Response Plan Exercise. The OSRP must include a triennial exercise plan for review and concurrence by BSEE to ensure that the Lessee is able to respond quickly and effectively whenever oil is discharged from the Lessee's facilities. Compliance with the National Preparedness for Response Exercise Program guidelines will satisfy the exercise requirements of this section. If the Lessee chooses to follow an alternative exercise program, the OSRP must provide a description of that program. For a regional OSRP covering multiple sub-regions, the IMT exercise scenarios must be rotated between each sub-region within the triennial exercise period.

2.10.14.1 The Lessee must conduct an annual scenario-based notification exercise, an annual scenario-based IMT tabletop exercise, and, during the triennial exercise period, at least one functional IMT exercise.

2.10.14.2 The Lessee must conduct an annual oil spill response equipment deployment exercise.

2.10.14.3 The Lessee must notify BSEE OSPD at least 30 days in advance of any exercise it intends to conduct for compliance with this condition.

2.10.14.4 BSEE will advise the Lessee about the options it has to satisfy these requirements and may require changes in the type, frequency, or location of the required exercises, exercise objectives, equipment to be deployed and operated, or deployment procedures or strategies.

2.10.14.5 BSEE may evaluate the results of the exercises and advise the Lessee of any needed changes in response equipment, procedures, tactics, or strategies.

2.10.14.6 BSEE may periodically initiate unannounced exercises to test the Lessee's spill preparedness and response capabilities.

2.10.14.7 The Lessee must maintain and retain exercise records for at least three years and must provide the exercise records to BSEE upon request.

2.10.15 OSRP Review and Update. The Lessee must review and update the OSRP at least once every three years and more frequently as needed, starting from the date the OSRP was initially approved. The Lessee must send a written notification to BSEE OSPD upon completion of this review and submit any

updates for concurrence. BSEE OSPD may require the Lessee to make changes to the OSRP at any time if it is determined to be outdated or to contain significant inadequacies as discovered through a review of the Lessee's OSRP, information obtained during exercises or actual spill responses, or other relevant information obtained by BSEE OSPD.OSRP Maintenance. The Lessee must submit a revised OSRP to BSEE OSPD within 15 days if any of the following conditions occur:

2.10.15.1 The Lessee experiences a change that would significantly reduce their oil spill response capabilities.

2.10.15.2 The calculated WCD volume has significantly increased.

2.10.15.3 The Lessee removes a contracted IMT, OSRO, or SROT from the Lessee's plan.

2.10.15.4 There has been a significant change to the applicable area contingency plan(s).

2.11 Cable Routings (Planning). The Lessee must submit the final Cable Burial Risk Assessment (CBRA) package and engineered cable routings for all cable routes on the OCS to BSEE for review and concurrence no later than the submittal of the relevant FDR. The final CBRA package must include a summary of final information on (1) natural and man-made hazards; (2) sediment mobility, including high and low seabed levels, from both mobile and stable seabed, expected over the Project lifetime; (3) feasibility and effort level information required to meet burial targets; (4) profile drawings of the cable routings illustrating cable burial target depths, and (5) minimum burial depths from stable seabed to address threats to the cable including, but not limited to, anchoring risk, military activity, third party cable crossings, and fishing gear interaction. Detailed supporting data and analysis may be incorporated by reference or attachments, including relevant geospatial data. The Lessee must resolve any BSEE comments on the CBRA to BSEE's satisfaction before BSEE completes its review of the associated FDR under 30 C.F.R. § 285.700.

2.12 Cable Burial (Planning) (Construction) (Operations). The export, interconnector, and inter-array cables are expected to be installed using jetting, vertical injection, control flow excavation, trenching, and plowing as described in Section 3.4.1.2 and 3.4.1.4 of the approved COP. For the approved COP, BOEM has determined the proper burial depth to be a minimum of 4.9 feet (1.5 meters) below the seabed along Federal sections of the export, interconnector, and inter-array cables. This depth is consistent with the approved COP and the cable burial performance assessment provided in Appendix W: Preliminary Cable Burial Risk Assessment. Unless otherwise authorized by BSEE, the Lessee must comply with cable burial conditions described in the COP by demonstrating proper burial depth of the installed submarine cables along at least 90 percent of the total export cable length on the OCS and at least 90 percent of the inter-array cable routing, excluding cable crossings and approaches to foundations. The

Lessee must demonstrate proper burial depth by providing cable monitoring reports (Section 2.15) and final, as-built information (Section 2.22).

2.13 Cable Protection Measures (Planning) (Construction) (Operations). The export, interconnector, and inter-array cables must be installed using jetting, vertical injection, control flow excavation, trenching, or plowing as described in Section 3.4.1.2 and 3.4.1.4 of the approved COP. In areas where the final cable burial depth is less than 1.5 meters below seabed, excluding within the vicinity of WTG/OSS foundations where cables are enclosed within a cable protection system, the Lessee must install secondary protection such as concrete mattresses, rock bags, or rock placement and must adhere to the scour and cable protection measures in Section 5.7.4.

2.13.1 The use of cable protection measures must not exceed 10 percent of the total export cable length on the OCS or 10 percent of the interconnector and inter-array cable routing, excluding cable crossings and approaches to foundations. The Lessee must employ cable protection measures when proper burial depth, as defined in Section 2.13, is not achieved. The Lessee must include design information and drawings as part of the relevant cable FDR and must include installation information as a part of the relevant FIR, or, prior to installing cable protection, must submit and obtain concurrence from BSEE on a standalone design and installation report containing design information, drawings, and installation information respectively. The Lessee must also provide BSEE with detailed drawings/information of the actual burial depths and locations where protective measures were used, no later than when the final, as-built cable drawings are submitted. The Lessee must post on the project website (Section 1.8 Project Website) notice of locations where target burial depths were not achieved and where cable protection measures were used, including an accessible graphic/geo-referenced repository.

2.13.2 If the Lessee cannot comply with the requirements in Section 2.14.1, the Lessee must request a variance under Section 1.5. As a component of its request, the Lessee must provide BSEE information explaining the proposed alternatives (including a justification of the equivalent level of protection, and CVA verification of the proposed alternative) and must resolve any BSEE comments.

2.14 Crossing Agreements (Planning). The Lessee must provide final cable crossing agreements for each active, in-service submarine cable or other types of in-use infrastructure, such as pipelines, to BOEM at least 60 days before seabed preparation activities, including boulder clearance. The Lessee must make the agreements and crossing designs available to the CVA for review unless otherwise determined by BOEM.

2.14.1 If the Lessee concludes that it will be unable to reach a cable crossing agreement, the Lessee must inform BOEM as soon as possible, and no later than 60 days before seabed preparation activities, including boulder clearance. A cable crossing agreement will not be required if BOEM has determined—at its sole discretion and based on its review of the record of relevant communications

from the Lessee to owners or operators of active, in-service submarine cables or other types of in-use infrastructure—that the Lessee made reasonable efforts to enter an agreement and was unable to do so. Information to support a claim of reasonable efforts may include call logs, emails, letters, or other methods of communication.

2.15 Post-Installation Cable Monitoring (Construction) (Operations). The Lessee must conduct an inspection of each inter-array, interconnector, and export cable to determine cable location, burial depths, the state of the cable, and site conditions within 6 months, 1 year, and 2 years of commissioning, and every 3 years thereafter (e.g., years 5, 8, 11, 14, 17, 20, 23, 26, 29, and 32 after commissioning). These inspections must also be conducted within 180 days of a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.20). The Lessee must provide BSEE and BOEM with a cable monitoring report within 90 days following each inspection. Inspections of the inter-array and export cables must include high-resolution geophysical (HRG) methods, involving, for example, multibeam bathymetric survey equipment; and must identify seabed features, natural and man-made hazards, and site conditions along Federal sections of the cable routing.

2.15.1 If BSEE determines that conditions along the cable corridor warrant adjusting the frequency of inspections (e.g., due to changes in cable burial or seabed conditions that may impact cable stability or other users of the seabed), then BSEE may require the Lessee to submit a revised inspection schedule for review and concurrence.

2.15.2 If BSEE determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, BSEE will notify the Lessee that the Lessee must submit the following via TIMSWeb within 90 days of being notified: a seabed stability analysis, a remedial action plan, and a schedule for completing remedial actions. All remedial actions must be consistent with the approved COP. BSEE will review the plan and schedule and provide any comments within 60 days of receiving the plan. The Lessee must resolve all comments to BSEE's satisfaction.

2.15.3 If the Lessee determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, the Lessee must submit the following to BSEE via TIMSWeb within 90 days of making the determination: the data used to make the determination, a seabed stability analysis, a plan for remedial actions, and a schedule for the proposed work. All remedial actions must be consistent with those described in the approved COP. BSEE will review the plan and schedule and provide comments within 60 days, if applicable. The Lessee must resolve all comments to BSEE's satisfaction.

2.16 WTG and OSS Foundation Depths (Planning). In a letter dated March 23, 2022, BOEM granted a departure from 30 C.F.R. § 585.626(a)(4) and (6), permitting the Lessee to provide the final geotechnical investigation at the proposed foundation locations in the FDR. The FDR must include geotechnical investigations at all approved foundation

locations along with associated geotechnical design parameters and recommendations consistent with 30 C.F.R. § 585.626(a)(4) and (6). The geotechnical investigations at each OSS must include, at a minimum, one deep boring located within the footprint of each OSS.

2.17 Structural Integrity Monitoring (Construction) (Operations). The Lessee must conduct annual above-water inspections to ensure structural integrity is maintained. The Lessee must inspect the condition of the cathodic protection system(s) and inspect for indications of obvious overloading, deteriorating coating systems, excessive corrosion, and bent, missing, and/or damaged members of the structure in the splash zone and above the water line. The Lessee must provide a summary of the findings in the Annual Self-Inspection Report pursuant to 30 C.F.R. § 285.824(b). See Section 2.20 for post-storm structural integrity monitoring.

2.18 Foundation Scour Protection Monitoring (Construction) (Operations) (Decommissioning). The Lessee must minimize the footprint of scour protection measures at the WTG foundations; and must inspect scour protection performance and document any occurrence of invasive lionfish (*Pterois volitans* and *P. miles*). The Lessee must submit an Inspection Plan to BSEE at least 60 days prior to initiating inspection activities described in the Inspection Plan. BSEE will review the Inspection Plan and provide comments, if any, on the plan within 60 days of its submittal. The Lessee must resolve all comments on the Inspection Plan to BSEE's satisfaction and receive concurrence prior to initiating the inspection program. If BSEE does not send comments within 60 days, the Lessee may presume concurrence.

2.18.1 The Lessee must carry out an initial foundation scour inspection within 6 months of completing the installation of each foundation location; thereafter at intervals not greater than 5 years; and within 180 days after a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.20).

2.18.2 The Lessee must provide BSEE with a foundation scour monitoring report within 90 days of completing each foundation scour inspection. If multiple foundation locations are inspected within a single survey effort, the foundation scour monitoring reports for those locations may be combined into a single foundation scour monitoring report provided within 90 days of completing the last foundation scour inspection. The schedule of reporting must be included in the Inspection Plan for BSEE review and concurrence.

2.18.3 The Lessee must submit a plan for additional monitoring and/or mitigation to BSEE for review and concurrence if scour protection losses develop within 10 percent of the maximum loss allowance, edge scour develops within 10 percent of the maximum allowance, or spud depressions from installation affect scour protection stability.

2.19 Post-Storm Event Monitoring Plan (Construction) (Operations) (Decommissioning). The Lessee must provide a plan for post-storm event monitoring of the facility infrastructure, foundation scour protection, and cables to BSEE for review at least 60

days prior to commencing installation activities. The Lessee must address BSEE's comment(s) to BSEE's satisfaction and receive concurrence prior to commencing installation activities. Separate plans may be submitted for the cables (including cable protection), the WTGs, and the OSSs. The plan must describe how the Lessee will measure and monitor environmental conditions and duration of storm events; specify the environmental condition thresholds (and their associated technical justification) above which post-storm event monitoring or mitigation is necessary; describe potential monitoring, mitigation, and damage identification methods; and state when the Lessee must notify BSEE of post-storm event-related activities. At a minimum, post-storm event inspections must be conducted following a storm where conditions exceed one-half the design return period. For example, a WTG platform designed for 50-year environmental conditions must be inspected following a storm event with 25-year environmental conditions. BSEE reserves the right to require post-storm mitigations to address conditions that could result in safety risks and/or impacts to the environment.

2.20 High-Frequency Radar Interference Analysis and Mitigation (Planning) (Construction) (Operations). The Project has the potential to interfere with oceanographic high-frequency (HF) radar systems in the U.S. Integrated Ocean Observing System (IOOS®), which is managed by the IOOS Office within the NOAA pursuant to the Integrated Coastal and Ocean Observation System Act of 2009 (Pub. L. No. 111-11), as amended by the Coordinated Ocean Observation and Research Act of 2020 (Pub. L. No. 116-271, Title I), codified at 33 U.S.C. §§ 3601–3610 (referred to herein as "IOOS HF-radar"). IOOS HF-radar measures the sea state, including ocean surface current velocity and waves in near real-time. These data have many vital uses, including tracking and predicting the movement of spills of hazardous materials or other pollutants, monitoring water quality, and predicting sea state for safe marine navigation. The USCG also integrates IOOS HF-radar data into its Search and Rescue systems. The Project is within the measurement range of seven oceanographic high-frequency (HF) radar systems listed in the table below:

Table 2.21 Identified IOOS HF Radar Systems

Radar Name	Radar Operator
Assateague, MD SeaSonde (ASSA)	Old Dominion University
Cedar Island, VA SeaSonde (CEDR)	Old Dominion University
First Landing State Park, VA SeaSonde (FLND)	Old Dominion University
Jennette's Pier, NC SeaSonde (JENN)	East Carolina University
Little Island Park, VA SeaSonde (LISL)	Old Dominion University
Ocean View Beach, VA SeaSonde (VIEW)	Old Dominion University
Sunset Beach Resort, VA SeaSonde (SUNS)	Old Dominion University

2.20.1 Mitigation Requirement. Due to the potential interference with IOOS HF-radar and the risk to public health, safety, and the environment, the Lessee must mitigate unacceptable interference with IOOS HF-radar from the Project. Interference must be mitigated before rotor blades are installed within the Project and interference mitigation must continue throughout operations and decommissioning until the point of decommissioning where all rotor blades are removed. Interference is considered unacceptable if, as determined by BOEM in consultation with NOAA's IOOS Office, IOOS HF-radar performance falls or may fall outside any of the specific radar systems' operational parameters or fails or may fail to meet IOOS's mission objectives.

2.20.2 Mitigation Review. The Lessee must submit to BOEM documentation demonstrating how it will mitigate unacceptable interference with IOOS HF-radar systems. The Lessee must submit this documentation to BOEM (renewable_reporting@boem.gov) at least 120 days prior to the installation of the first rotor blades. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations. If, after consultation with NOAA IOOS Office, BOEM deems the mitigation unacceptable, the Lessee must resolve all comments on the documentation to BOEM's satisfaction.

2.20.3 Mitigation Agreement. The Lessee is encouraged to enter into an agreement with the NOAA IOOS Office to implement mitigation measures, and any such Mitigation Agreement may satisfy the requirement to mitigate unacceptable interference with IOOS HF-radar. The point of contact for the development of a Mitigation Agreement with the NOAA IOOS Office is the Surface Currents Program Manager, whose contact information is available at https://ioos.noaa.gov/about/meet-the-ioos-program-office/ and upon request from BOEM. If the parties reach a mitigation agreement, the Lessee must submit it to BOEM at renewable_reporting@boem.gov. A Lessee may satisfy its obligations under Section 2.20.2 by providing BOEM with an executed Mitigation Agreement between the Lessee and NOAA IOOS. If there is any discrepancy between Section 2.20.2 and the terms of a Mitigation Agreement, the terms of the Mitigation Agreement will prevail.

2.20.4 Mitigation Data Requirements. Mitigation required under Section 2.20.2 must address the following:

2.20.4.1 Before rotor blades are installed within the Project, and continuing throughout the life of the Project until the point of decommissioning when all rotor blades are removed, the Lessee must make publicly available via NOAA IOOS near real-time, accurate numerical telemetry of surface current velocity, wave height, wave period, wave direction, and other oceanographic data measured at Project locations selected by the Lessee in coordination with the NOAA IOOS Office.

2.20.4.2 If requested by the NOAA IOOS Office, the Lessee must share with IOOS accurate numerical time-series data of blade rotation rates, nacelle bearing angles, and other information about the operational state of each WTG in the Lease Area to aid interference mitigation.

2.20.5 Additional Notification and Mitigation.

2.20.5.1 If at any time the NOAA IOOS Office or an HF-radar operator informs the Lessee that the Project will cause unacceptable interference to an HF-radar system, the Lessee must notify BOEM of the determination and propose new or modified mitigation pursuant to Section 2.21.5.2 as soon as possible and no later than 30 days from the date on which the determination was communicated.

2.20.5.2 If a mitigation measure other than that identified in Section 2.20.2 is proposed, then the Lessee must submit information on the proposed mitigation measure to BOEM for its review and concurrence. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations. The Lessee must resolve all comments on the documentation to BOEM's satisfaction, in consultation with the NOAA IOOS office, prior to implementation of the plan.

2.21 Critical Safety Systems and Equipment (Planning) (Construction). The Lessee must provide to BSEE a qualified third-party verification of (1) the identification, (2) proper installation, and (3) commissioning of all critical safety equipment and systems. The documentation provided to BSEE must demonstrate that the qualified third party verified that the critical safety systems were identified using appropriate methodologies as defined by the operator's risk management standards, were installed and commissioned in conformity with the Original Equipment Manufacturer's (OEM's) standards and the Project's functional requirements, and are functioning properly, as required by the surveillance reporting requirements in Section 2.21.5.

2.21.1 Qualified Third Party. A qualified third party must be either a technical classification society, a licensed professional engineering firm, or a registered professional engineer capable of providing the necessary certifications, verifications, and reports. The qualified third party must not have been involved in the design of the Project.

2.21.2 Critical Safety Systems and Equipment. Critical safety systems and equipment are designed to prevent or ameliorate fires, spillages, or other major accidents that could result in harm to health, safety, or the environment. Critical safety systems and equipment include but are not limited to equipment, devices, engineering controls, or system components that are designed to prevent, detect, or mitigate impacts from major accidents that could results in harm to health,

safety or the environment including systems that facilitate the escape and survival of personnel.

2.21.3 Identification of Critical Safety Systems and Equipment Risk Assessment. The Lessee must conduct a risk assessment(s) to identify hazards and the critical safety systems and equipment used within its facilities, including the WTG, tower, and each OSS, to prevent or mitigate hazards. The Lessee must submit the risk assessment(s) to BSEE and the qualified third party for review no later than submission of the FDR. The Lessee must arrange with the qualified third party—and provide the necessary information—for a qualified third party to make a recommendation to BSEE on the acceptability of the risk assessment(s), and any associated conclusions regarding identified hazards and implemented or changed critical safety systems and equipment. The Lessee must resolve BSEE's comments to BSEE's satisfaction before BSEE completes its review of the associated FDR under 30 C.F.R. § 285.700.

2.21.4 Installation and Commissioning Surveillance Requirements. The Lessee must ensure the proper installation and commissioning of the critical safety systems and equipment. The Lessee must arrange for a qualified third party to evaluate whether the installation and commissioning of the critical safety systems and equipment are in conformance with the OEM requirements and the Project's functional requirements. BSEE and the Lessee may agree to perform additional tests during commissioning surveillance activities. The third-party evaluation must include (1) an examination of the commissioning records of the critical safety systems and equipment for every WTG and OSS, (2) witnessing the commissioning of the critical safety systems and equipment of 5 percent of the WTGs, including at least one WTG in the first array string, and each OSS. The Lessee must arrange for a qualified third party, at a minimum, to verify the following:

2.21.4.1 The installation procedures and/or commissioning instructions supplied by the manufacturer and identified in the Project's functional requirements are adequate.

2.21.4.2 During commissioning, the Lessee is following the instructions supplied by the manufacturer and identified in the Project's functional requirements.

2.21.4.3 The systems and equipment function as designed.

2.21.4.4 The completion of the final commissioning records.

2.21.5 Surveillance Reporting. The Lessee must submit surveillance records (for example, the final results and acceptance of the commissioning test by the qualified third party) or a Conformity Statement and supporting documentation (prepared consistent with *International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Renewable Energy*

Applications [IECRE OD-502)]) for the critical safety systems identified in Section 2.21.2. Surveillance records for each OSS must be submitted within two weeks of verification by the qualified third party. After the commissioning of the critical safety systems and equipment has been completed for the first WTG, the Lessee must, on a bi-weekly basis, submit the surveillance records or Conformity Statement and supporting summary documentation for all WTGs which have been verified by a qualified third party within the previous two weeks. If BSEE has not responded to the surveillance records or Conformity Statement and supporting documentation submitted by the qualified third party within 5 business days, then the Lessee may presume concurrence and continue operating. If the surveillance records or Conformity Statement and supporting documentation are not submitted within two weeks of qualified third-party verification of the commissioning of the safety systems or if BSEE objects to the submission, the facility to which the surveillance records or Conformity Statement pertains must stop operating.

2.22 Engineering Drawings (Construction) (Operations) (Decommissioning). The Lessee must compile, retain, and make available to BSEE the drawings and documents specified in Table 2.22.

Table 2.22 Engineering Drawings			
Drawing Type	**Time Frame to Submit "Issued for Construction" Drawings**	**Time Frame to Make Available Post-Fabrication Drawings**	**Deadline to Submit Final, As-Built Drawings**
Complete set of structural drawing(s), including major structural components and evacuation routes [6]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit no later than March 31st of each calendar year, for all structures installed the prior year and submitted annually until completion of installation.
Front, side, and plan view drawings [7]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	N/A
Location plat for all Project facilities[8]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional land surveyor.	N/A	Submit no later than March 31st of each calendar year, for all facilities installed the prior year and updated annually until completion of installation. Drawings must be reviewed and stamped by a registered professional land surveyor.
Complete set of cable drawing(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Prior to completion of the Final FIR review as contemplated in 30 C.F.R. § 285.700(b)[9]	Submit quarterly for all facilities installed in the previous quarter.
Proposed Anchoring Plat as required by Section 5.6.2 and 7.2	120 days before anchoring activities. If there are fewer than 120 days between anchoring activities and this COP approval, no later than 60 days prior to commencing anchoring activities.	N/A	N/A
As-placed Anchor Plats for all anchoring activities	N/A	N/A	Submit 90 days after completion of an activity or construction of a major facility component.

[6] As required by 30 C.F.R. § 285.701(a)(4). This is applicable to the WTGs and OSSs.

[7] As required by 30 C.F.R. § 285.701(a)(3). This is applicable to the WTGs and OSSs.

[8] As required by 30 C.F.R. § 285(a)(2). This is applicable for all installed assets on the OCS including scour protection, cables, WTGs, and OSSs.

[9] As-installed location must be submitted with the final FIR.

Table 2.22 Engineering Drawings			
Drawing Type	**Time Frame to Submit "Issued for Construction" Drawings**	**Time Frame to Make Available Post-Fabrication Drawings**	**Deadline to Submit Final, As-Built Drawings**
Piping and instrumentation diagram(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all facilities installed in the previous quarter.
Safety diagram(s)[10]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all facilities installed in the previous quarter.
Electrical drawings, i.e. - Electrical one-line drawing(s) and Protective Relay Coordination Study/Diagram	With FDR- submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all facilities installed in the previous quarter.
Cause and Effect Chart	With FDR submittal.	N/A	N/A
Schematics of fire and gas-detection system(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all facilities installed in the previous quarter.
Area classification diagrams	With FDR submittal.	N/A	Submit quarterly for all facilities installed in the previous quarter.

2.22.1 Engineering drawings and the associated engineering report(s) must be reviewed and stamped by a licensed professional engineer, or a professional land surveyor, as outlined in Table 2.22. For modified systems, only the modifications are required to be stamped by a licensed professional engineer(s) or a professional land surveyor. The professional engineer or land surveyor must be licensed in a state or territory of the United States and have sufficient expertise and experience to perform the duties.

2.22.2 The Lessee must certify, in a letter accompanying the as-built drawings, that the as-built drawings have been reviewed for compliance with the applicable FDR/FIR, do not make material changes from the stamped issued for construction (IFC) drawings, and accurately represent the as-installed facility. The drawings must be clearly marked "as-built."

2.22.3 The Lessee must ensure that the engineer of record submits a stamped report showing that the as-built design documents have been reviewed, do not make material changes from the IFC drawings, and accurately represent the as-installed facility. The Lessee must also ensure that the engineer of record

[10] Safety diagrams should depict the location of critical safety systems and equipment designed to prevent or ameliorate major accidents that could result in harm to health, safety, or the environment. This should include, but not be limited to, escape routes, station bill, fire/gas detectors, firefighting equipment, etc.

documents any differences between the IFC drawings and the as-built drawings in the stamped report and submits the report with the as-built drawings.

2.22.4 As-Placed Anchor Plats. The Lessee must provide as-placed anchor plats to BOEM and BSEE within 90 days of completion of an activity (including during operations and decommissioning) or construction of a major facility component (e.g., buoys, export cables, WTGs or OSSs, inter-array cables, etc.) or decommissioning to demonstrate that seafloor-disturbing activities complied with avoidance requirements for seafloor features and hazards, archaeological resources, and/or anomalies. As-placed plats must be certified by a professional land surveyor showing the "as-placed" location of all anchors and any associated anchor chains and/or wire ropes and relevant locations of interest or avoidance on the seafloor for all seabed disturbing activities. The plats must be at a scale of 1 inch = 1,000 feet (300 meters) with Differential Global Positioning System (DGPS) accuracy. The Lessee must submit the plats to BSEE.

2.23 Construction Status (Construction). On a monthly basis, the Lessee must provide BSEE, BOEM, and the USCG with a construction status update and any changes to the construction schedule or process described in the plan required by Section 3.2.1 (Installation Schedule).

2.24 Maintenance Schedule (Operations). On a quarterly basis, the Lessee must provide BSEE with its maintenance schedule for any planned WTG or OSS maintenance.

2.25 Pre-lay Grapnel Run Plan (Planning). The Lessee must submit a Pre-lay Grapnel Run Plan for BSEE review and concurrence. The plan must be submitted at least 60 days prior to pre-lay grapnel run activities. BSEE will review the plan and provide comments, if applicable, within 60 days of submittal. The Lessee must resolve BSEE's comments to BSEE's satisfaction. If BSEE does not provide comments on the plan within 60 days of its submittal, then the Lessee may presume BSEE's concurrence with the plan. The plan must be consistent and meet the conditions of the SMS in Section 2.8.

2.25.1 The plan must include the following:

2.25.1.1 Figures of the location of pre-lay grapnel run activities. A description of pre-lay grapnel run methods, including expected grapnel penetration depth, vessel specifications, metocean limits on operation, etc.

2.25.1.2 A description of debris removal and disposal methods and applicable environmental regulations.

2.25.1.3 A description of safety distances or zones to limit pre-lay grapnel activities near third-party assets. Descriptions should be consistent with Cable Crossing Agreements (Section 2.14)

2.25.1.4 The environmental footprint of disturbance activities and measures taken to avoid further adverse impacts to archaeological resources, seafloor hazards, complex habitat, and fishing operations.

2.25.1.5 A summary of any consultation and outreach with resource agencies and the fishing industry in the development of the plan (e.g., notifications to mariners).

2.25.2 The Lessee must submit a letter to BSEE outlining any deviations from the Pre-lay Grapnel Run Plan within 90 days following the completion of pre-lay grapnel run activities.

2.26 Boulder Identification and Relocation Plan (Planning)(Construction). The Lessee must submit a Boulder Identification and Relocation Plan to BSEE and BOEM for review and concurrence. The plan must detail how the Lessee will relocate boulders as close as practicable to areas immediately adjacent to existing and similar habitat, and to reduce facility installation and operational risks. The plan must be submitted to BOEM and BSEE for a 60-day review prior to boulder relocation activities. The Lessee must resolve all comments on the Boulder Identification and Relocation Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If BOEM or BSEE do not provide comments on the plan within 60 days of its submittal, then the Lessee may presume concurrence with the plan. The plan must include sufficient scope to mitigate boulders for facility installation and operational risks. The plan must be consistent with and meet the conditions of the SMS in Section 2.8. The plan must include the following for boulders that are proposed to be relocated:

2.26.1 A summary and detailed description of surface and subsurface boulders greater than 0.5 meters in diameter and locations along the cable routes and WTG areas where such boulders have been found;

2.26.1.1 A detailed summary of methodologies used in boulder identification, including geological and geophysical survey results;

2.26.1.2 Figures of the location of boulder relocation activities specified by activity type (e.g., pick or plow, removal, or placement);

2.26.1.3 A description of boulder removal and/or relocation methods for each type of boulder relocation activity, and technical feasibility constraints, including, but not limited to, the capacity of the crane used in grab systems, vessel specifications, and metocean limits on operations;

2.26.1.4 The environmental footprint of disturbance activities and measures taken to avoid further adverse impacts to archaeological resources, complex habitat and fishing operations;

2.26.1.5 A comprehensive list and shapefile of locations of boulders that would be relocated (latitude, longitude), boulder dimensions

(meters), buffer radius (meters), areas of active (within last 5 years) bottom trawl fishing (latitude, longitude), areas where boulders greater than 2 meters in diameter are anticipated to occur (latitude, longitude), and identification of approximate areas to which boulders would be relocated (latitude, longitude);

2.26.1.6 The measures taken to minimize the quantity of seafloor obstructions from relocated boulders in areas of active bottom trawl fishing, as technically and/or economically feasible;

2.26.1.7 A description of safety distances or zones to limit boulder relocation near third-party assets;

2.26.1.8 A summary of any consultation and outreach with resource agencies and the fishing industry in the development of the plan (e.g., notifications to mariners);

2.26.1.9 A statement of consistency with the Micrositing Plan (Section 5.7.3).

2.26.2 The Lessee must provide USCG, NOAA, and the local harbormaster with a comprehensive list and shapefile of positions and areas to which boulders greater than 2 meters in diameter would be relocated (latitude, longitude) at least 60 days prior to boulder relocation activities.

2.27 Boulder Relocation (Construction). The Lessee must implement methods identified in the approved COP and described in the Boulder Identification and Relocation Plan for boulder relocation activities. The Lessee must consider the spatial extent of boulder relocation in the micrositing of WTGs and OSS foundations and inter-array and export cables for this Project and must relocate boulders as close as practicable in areas immediately adjacent to existing similar habitat. The relocation of boulders must be consistent with the Project easement.

2.28 Boulder Relocation Report (Construction). The Lessee must provide a Boulder Relocation Report to BSEE and BOEM and make the Boulder Relocation Report available to the approved CVA. The report must include a post-relocation summary of the boulder relocation activities and information to certify boulder risks related to the installation and operation of the facility have been properly mitigated. The report must also identify boulders that could not be relocated with documentation of technical feasibility concerns, including information on how, if at all, the final boulder placement differs from the Boulder Relocation Plan and why such changes were necessary. The report must be submitted within 60 days of completion of the bolder relocation activities. The Lessee must also provide BOEM and BSEE a comprehensive list and shapefile of boulder locations to which boulders were relocated (latitude, longitude), boulder dimensions (meters), any safety distances or zones to limit boulder relocation near third-party assets (meters), and areas of active (within last five years) bottom trawl fishing (i.e., as a raster file for use in ArcGIS).

3 NAVIGATIONAL AND AVIATION SAFETY CONDITIONS

3.1 Design Conditions (Planning) (Construction) (Operations).

3.1.1 Marking. The Lessee must mark each WTG and OSS with Private Aids to Navigation (PATON). No sooner than 180 days and no fewer than 60 days before foundation installation, the Lessee must file an application (form CG-2554, or CG-4143), with the Commander of the Fifth USCG District to establish PATON as provided in 33 C.F.R. part 66. USCG approval of the application must be obtained before the Lessee begins installation of the facilities. The lighting, marking, and signaling plan, and the design specifications for maritime navigation lighting must be included in the PATON application. The Lessee must:

3.1.1.1 Provide a lighting, marking, and signaling plan for review by BOEM, BSEE, and the USCG at least 120 days before installation. The Lessee must obtain BOEM's and BSEE's concurrence with the plan before installation may commence. The plan must conform to applicable federal law and regulations, and guidelines, e.g., International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation G1162, The Marking of Man-Made Offshore Structures; USCG's LNM (D05 LNM: 31/23) or the most recent version on Ocean-Structure PATON Marking Guidance; and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (April 28, 2021).

3.1.1.2 Mark each individual WTG and OSS with clearly visible, unique, alpha-numeric identification characters as agreed to by BOEM, BSEE, and the USCG. The Lessee must additionally display this label on each WTG nacelle, visible from above. If the Lessee's OSS includes helicopter landing platforms, the Lessee must also display this label on the platforms, visible from above.

3.1.1.3 For each WTG, the Lessee must install red obstruction lighting that is consistent with the Federal Aviation Administration (FAA) (Advisory Circular 70/7460-lM).

3.1.1.4 Provide signage that is visible to mariners in a 360-degree arc around the structures to inform vessels of the vertical blade-tip clearance as determined at Highest Astronomical Tide (HAT).

3.1.1.5 Submit documentation to BSEE via TIMSWeb no later than January 31 of each calendar year for all facilities installed within the preceding calendar year, of the Lessee's compliance with Sections 3.1.1.1 through 3.1.1.4.

3.1.1.6 Immediately report discrepancies in the status of all PATONs to the local USCG Sector Command Center (a timeline of when discrepancies can be resolved must be sent to USCG within 14 days of identifying the discrepancy).

3.1.2 Blade/Nacelle Control. The Lessee must equip all WTG rotors (blade assemblies) with control mechanisms constantly operable from the Lessee's control center.

3.1.2.1 Control mechanisms must enable the Lessee to initiate the shutdown of any WTG upon emergency order from the Department of Defense (DoD) or the USCG. The Lessee must initiate braking and shutdown of each requested WTG immediately after the shutdown order. The Lessee may resume operations only upon notification from the entity (DoD or USCG) that initiated the shutdown.

3.1.2.2 The Lessee must include a shutdown procedure in its Emergency Response Procedure and test the shutdown capability (functioning) of at least one WTG within the field at least annually. The Lessee must submit the results of testing to BSEE with the Project's annual inspection results.

3.1.2.3 The Lessee must work with the USCG to establish the proper blade configuration during WTG shutdown for USCG air assets conducting search and rescue operations.

3.1.2.4 The Lessee must notify USCG and BSEE in advance of trainings and exercises to test and refine notification and shutdown procedures, allow USCG and BSEE to participate in these trainings and exercises, and provide search and rescue training opportunities for USCG Command Centers, vessels, and aircraft.

3.1.3 Structure Micrositing. The Lessee must neither adjust approved structure locations in a way that narrows any linear rows and columns oriented both east-west or northwest-southeast to fewer than 0.75 nautical miles by 0.93 nautical miles nor to a layout that eliminates two distinct lines of orientation in a grid pattern. The Lessee must submit the final as-built structure locations as part of the as-built documentation outlined in Section 2.22.

3.2 Installation Conditions (Planning) (Construction).

3.2.1 Installation Schedule. As early as possible, but not fewer than 60 days prior to commencing offshore construction activities, the Lessee must provide the USCG with a plan that describes the schedule and process for seabed preparation, export, substation interconnector and inter-array cable installation, and installing the WTGs and OSSs, including all planned mitigations to be implemented to minimize any adverse impacts to navigation while installation is

ongoing. Appropriate Notice to Mariners submissions must accompany the plan and its revisions.

3.2.2 Design Modifications. Any changes or modifications in the design of the Lease Area that may impact navigation safety (including, but not limited to, a change in the number, size, or location of WTGs, or a change in construction materials or construction method), requires written approval by BSEE.

3.2.3 Cable Burial. A detailed cable burial plan, containing the proposed locations and burial depths, must be submitted to the USCG and BSEE for BSEE review no later than the relevant FIR submittal. In accordance with Section 2.22, the Lessee must submit to BSEE, BOEM, and the USCG a copy of the final as-built cable burial report containing a positioning list that depicts the precise location and burial depths of the entire cable system (export, interconnector, and array lines).

3.2.4 Nautical Charts/Navigation Aids. The Lessee must submit the as-built coordinates for all OSSs and WTGs to USCG and NOAA consistent with Section 2.22, to facilitate government-produced and commercially available nautical charts.

3.3 Reporting Conditions (Planning) (Construction) (Operations) (Decommissioning).

3.3.1 Complaints. On a monthly basis, the Lessee must (1) provide BSEE with a description of any complaints received (written or oral) by boaters, fishermen, commercial vessel operators, or other mariners regarding impacts to navigation safety allegedly caused by construction or operations vessels, crew transfer vessels, barges, or other equipment; and (2) describe remedial action(s) taken in response to complaints received, if any. BSEE reserves the right to require additional remedial action consistent with 30 C.F.R. part 285. The monthly report must be submitted via TIMSWeb.

3.3.2 Correspondence. On a monthly basis, the Lessee must provide BSEE, BOEM, and the USCG with copies of any correspondence received from other Federal, state, or local agencies regarding navigation safety issues. Monthly reports must be submitted to BSEE via TIMSWeb and to BOEM via renewable_reporting@boem.gov.

3.4 Meeting Attendance (Planning) (Construction) (Operations) (Decommissioning). As requested by BSEE, BOEM, and the USCG, the Lessee must attend meetings (i.e., Harbor Safety Committee, Area Committee) to provide briefings on the status of construction and operations, and on any problems or issues encountered with respect to navigation safety.

4 NATIONAL SECURITY CONDITIONS

4.1 Hold and Save Harmless – United States Government (Planning) (Construction) (Operations) (Decommissioning). Whether compensation for such damage or injury might otherwise be due under a theory of strict or absolute liability or any other theory, the Lessee assumes all risks of damage or injury to any person or property that occurs in, on, or above the OCS in connection with any activities being performed by the Lessee in, on, or above the OCS, if the injury or damage to any person or property occurs by reason of the activities of any agency of the United States Government, its contractors or subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter "the appropriate command headquarters") listed below:

United States Fleet Forces (USFF) N46
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551
(757) 836-6206

The Lessee assumes this risk, whether or not such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the appropriate command headquarters, whether the same is caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

4.2 Oceana Virginia Air Route Surveillance Radar (ARSR-4) and Naval Air Station (NAS) Oceana Airport Surveillance Radar System (ASR-11) (Planning) (Construction) (Operations) (Decommissioning). To mitigate impacts on the North American Aerospace Defense Command's (NORAD's) operation of the Oceana, VA, Air Route Surveillance Radar (ARSR-4) and NAS Oceana Airport Surveillance Radar (ASR-11), the Lessee must complete the following:

4.2.1 Mitigation Agreement. The Lessee must enter into a mitigation agreement with the DoD/NORAD for purposes of implementing Sections 4.2.2 and 4.2.3 below. If there is any discrepancy between Sections 4.2.2 and 4.2.3 and the terms of the mitigation agreement, the terms of the mitigation agreement will prevail. Within 15 days of entering into the mitigation agreement, the Lessee must provide BOEM and BSEE with a copy of the executed mitigation agreement. Within 45 days of completing the requirements in Sections 4.2.2 and 4.2.3, the Lessee must provide BOEM with evidence of compliance with those requirements. The NORAD point of contact for the development of the agreement is John Rowe: John.Rowe.14@us.af.mil.

4.2.2 NORAD Notification. At least 30, but no more than 60, days prior to the completion of commissioning of the last WTG (i.e., that date by which every WTG in the Project is installed with potential for blade rotation), the Lessee must notify NORAD for Radar Adverse Impact Management (RAM) scheduling.

4.2.3 Funding for RAM Execution. At least 30, but no more than 60, days prior to the completion of commissioning of the last WTG (i.e., that date by which every WTG in the Project is installed with potential for blade rotation), the Lessee must contribute funds in the amount of $160,000 to NORAD toward the execution of the RAM. If the time gap between the commissioning of the first and last WTG is 3 years or greater, the Lessee must contribute additional funds in the amount of $80,000 to NORAD toward the execution of the RAM when 50% of the WTGs are commissioned, and an additional $80,000 to NORAD toward the execution of additional RAM when the last WTG is commissioned. This allows NORAD to manage radar adverse impacts over an extended period of construction.

4.3 Department of the Navy Operations (Planning) (Construction) (Operations) (Decommissioning). To mitigate potential impacts on the Department of the Navy's (DON) operations, the Lessee must enter into a mitigation agreement(s) with the DoD/DON for purposes of implementing Sections 4.3.1. through 4.3.6. If there is any discrepancy between Sections 4.3.1. through 4.3.6 and the terms of the mitigation agreement, the terms of the mitigation agreement will prevail. Within 15 days of entering into the mitigation agreement, the Lessee must provide BOEM and BSEE with a copy of the executed mitigation agreement. Within 45 days of completing the requirements in Section 4.3.1. through 4.3.6, the Lessee must provide BOEM with evidence of compliance with those requirements. The DON point-of-contact for coordination is Matthew Senska: matthew.senska@navy.mil; 571-970-8400.

4.3.1 Communications Protocols for Construction. Prior to commencing construction on the OCS, the Lessee must establish a communications plan in coordination with the U.S. Fleet Forces Command (USFFC) and the Naval Air Warfare Center Aviation Division (NAWCAD) concerning construction activities with the potential to impact military activities.

4.3.2 Communication Protocols for Operations & Maintenance. Prior to the completion of the commissioning of the last WTG, the Lessee must establish a communications plan in coordination with USFFC and NAWCAD concerning operations and maintenance activities with the potential to impact military activities.

4.3.3 NAS Patuxent River Advanced Dynamic Aircraft Measurement System. The Lessee must mitigate impacts on the NAS Patuxent River Advanced Dynamic Aircraft Measurement System operations. DON will conduct modeling to determine Project impacts and to define the mitigation measures required in the mitigation agreement.

4.3.4 Distributed Fiber-Optic Sensing Technology. (Planning) (Construction) (Operation). The Lessee must coordinate with the DoD and the DON on any proposal to use distributed fiber-optic sensing technology as part of the Project or associated transmission cables.

4.3.5 Risk Assessment of Foreign Investment and Material Vendors. The Lessee will provide the DoD and the DON with the opportunity to assess risk related to foreign investment and foreign material vendors to avoid or minimize the potential to conflict with, and minimize the potential effects of conflicts with, national security operations.

4.3.6 Coordination with NAS Oceana. Throughout the installation, construction, operations, and decommissioning of the Project, the Lessee must coordinate access with NAS Oceana for entry to the real estate through which the onshore export cable route lies.

4.4 Electromagnetic Emissions (Planning) (Construction) (Operations). Before entering any designated defense operating area, warning area, or water test area for the purpose of carrying out any survey activities under the approved COP, the Lessee must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters. The Lessee must provide BOEM and BSEE with a copy of the agreement within 15 days of entering into the agreement.

4.5 Deconfliction of Joint Base Langley-Eustis Aviation and Unmanned Aircraft System Operations (Planning) (Construction) (Operations) (Decommissioning). To mitigate the potential impacts on the Department of the Army (Army) aviation operations, the Lessee must coordinate with the Army 90 to 180 days prior to usage of unmanned aircraft systems (UAS) in support of both on-shore and off-shore maintenance operations. The Army point-of-contact for coordination relating to UAS is Joseph Gill: joseph.t.gill4.civ@army.mil; 703-806-2266.

5 PROTECTED SPECIES[11] AND HABITAT CONDITIONS

5.1 General Environmental Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.1.1 Aircraft Detection Lighting System.

The Lessee must use an FAA-approved vendor for the Aircraft Detection Lighting System (ADLS), which will activate the FAA hazard lighting only when an aircraft is in the vicinity of the wind facility, to reduce visual impacts at night. The Lessee must confirm the use of, and submit to BOEM (via renewable_reporting@boem.gov) and BSEE (via TIMSWeb), information about, the FAA-approved vendor for ADLSs on WTGs and the OSS at the time the relevant FIR is submitted.

5.1.2 Marine Debris[12] Awareness and Elimination.

5.1.2.1 The Lessee must submit required documents related to marine debris awareness training, reporting, and recovery (e.g., annual training compliance, incident reporting, 24-hour notices, recovery plans, recovery notifications, monthly reporting, annual survey and reporting, and decommissioning and site clearance) described in Section 5.1.2.2 through Section 5.1.2.10 to BSEE via TIMSWeb with a notification email sent to marinedebris@bsee.gov.

5.1.2.2 Marine Debris Awareness Training and Certification. The Lessee must ensure that all vessel operators, employees, and contractors engaged in offshore activities pursuant to the approved COP complete marine debris awareness training initially (i.e., prior to engaging in offshore activities pursuant to the approved COP) and annually. Operators must implement a marine debris awareness training and certification process that ensures that their employees and contractors are adequately trained. The training and certification process must include the following elements: (1) training through viewing of either a marine debris video or training slide pack posted on the BSEE website or by contacting BSEE; (2) an explanation from management personnel that emphasizes their commitment to the requirements; and (3) documented certification that all personnel listed above have completed their initial and annual training. The Lessee must make this certification available to BSEE for inspection upon request.

5.1.2.3 Training Compliance Report. By January 31 of each year, the Lessee must submit to BSEE an annual report that describes its marine debris

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[11] As used herein, the term "protected species" means species of fish, wildlife, or plant that have been determined to be endangered or threatened under Section 4 of the Endangered Species Act (ESA). ESA-listed species are provided in 50 C.F.R. § 17.11-12. The term also includes marine mammals protected under the MMPA.

[12] Throughout this document, "marine debris" is defined as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper, or any other man-made item or material that is lost or discarded in the marine environment.

awareness training process and certifies that the training process has been followed for the preceding calendar year.

5.1.2.4 Marking. Any materials, equipment, tools, containers, and other items that are used in OCS activities and that are of a shape or configuration likely to snag or damage fishing devices or be lost ordiscarded overboard, must be clearly marked with the vessel or facility identification number and must be properly secured to prevent loss overboard. All markings must clearly identify the owner and must be able to resist the effects of the environmental conditions to which they may be exposed.

5.1.2.5 Recovery. Discarding debris in the marine environment is prohibited. Debris accidentally released by the Lessee into the marine environment while performing any activities associated with the Project must be recovered within 24 hours when the marine debris is likely to (1) cause undue harm or damage to natural resources (e.g., entanglement or ingestion by protected species); or (2) interfere with OCS uses (e.g., snagging or damaging fishing equipment, or presenting a hazard to navigation). If the marine debris was lost within the boundaries of an archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact BSEE for concurrence before conducting any recovery efforts. The Lessee must take steps to prevent similar releases of marine debris and must submit a description of these preventative actions to BSEE within 30 days from the date on which the release of marine debris occurred.

5.1.2.6 Notification. The Lessee must notify BSEE within 24 hours of any releases of marine debris and indicate whether the released marine debris was immediately recovered. If the marine debris was not recovered, the Lessee must provide its rationale for not recovering the marine debris (e.g., marine debris is located within the boundaries of a sensitive area, recovery was not possible because conditions were unsafe, or recovery was not practicable and warranted because the released marine debris is not likely to result in items (1) or (2) listed in Section 5.1.2.5).

5.1.2.7 Remedial Recovery. After reviewing the notification and rationale for any decision by the Lessee to forgo recovery as described in Section 5.1.2.5, BSEE may order the Lessee to recover the marine debris if BSEE finds that the reasons provided by the Lessee in the notification are insufficient and the marine debris would cause undue harm or damage to natural resources or interfere with OCS uses.

5.1.2.7.1 Recovery Plan. If BSEE requires the Lessee to recover the marine debris, the Lessee must submit a Recovery Plan to BSEE within 10 days after receiving BSEE's

order. Unless BSEE objects within 48 hours after the Recovery Plan has been accepted or is in review status by BSEE in TIMSWeb, the Lessee may proceed with the activities described in the Recovery Plan. Recovery activities must be completed 30 days from the date on which marine debris was released, unless BSEE grants the Lessee an extension.

5.1.2.7.2 Recovery Completion Notification. Within 30 days after the marine debris is recovered, the Lessee must provide notification to BSEE that recovery was completed and, if applicable, describe any substantial variance from the activities described in the Recovery Plan that was required during the recovery efforts.

5.1.2.8 Monthly Reporting. The Lessee must submit to BSEE a monthly report, no later than the fifth day of the month, of all marine debris lost or discarded during the preceding month, including, if applicable, information related to 48 Hour Reporting and Recovery Plan information that occurred and include the referenced TIMSWeb Submittal ID (SID). The Lessee is not required to submit a report for those months in which no debris was lost or discarded. The monthly report must include the following:

5.1.2.8.1 Project identification and contact information for the Lessee and for any operators or contractors involved;

5.1.2.8.2 The date and time of the incident;

5.1.2.8.3 The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);

5.1.2.8.4 A detailed description of the dropped object, including dimensions (approximate length, width, height, and weight), composition (e.g., plastic, aluminum, steel, wood, or paper), and buoyancy (floats or sinks);

5.1.2.8.5 Pictures, data imagery, data streams, and/or a schematic or illustration of the object, if available;

5.1.2.8.6 An indication of whether the lost or discarded object could be detected as a magnetic anomaly of greater than 50 nanoteslas, a seafloor target of greater than 1.6 feet (0.5 meters), or a sub-bottom anomaly of greater than 1.6 feet (0.5 meters) when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profiler;

5.1.2.8.7 An explanation of how the object was lost;

5.1.2.8.8 A description of immediate recovery efforts and results, including photos.

5.1.2.9 Annual Surveying and Reporting. Periodic Underwater Surveys, Reporting of Monofilament and Other Fishing Gear Around WTG Foundations. The Lessee must monitor indirect impacts associated with charter and recreational fishing gear lost from expected increases in fishing around WTG foundations by annually surveying at least 10 of the WTGs located closest to shore in the Lease Area. Survey design and effort (i.e., the number of WTGs and frequency of reporting) may be modified only upon concurrence by BOEM and BSEE. The Lessee may conduct surveys by remotely operated vehicles, divers, or other means to determine the frequency and locations of marine debris. The Lessee must report the results of the surveys to BOEM (at renewable_reporting@boem.gov) and BSEE in an annual report, submitted by January 31, for the preceding calendar year. Annual reports must be submitted in both Microsoft Word and Adobe PDF format. Photographic and videographic materials (TIFF or Motion JPEG 2000) must be provided in TIMSWeb with the submittal of the annual report. Photographic and videographic files can also be submitted to marinedebris@bsee.gov if the files cannot be uploaded in TIMSWeb.

5.1.2.9.1 Annual reports must include a summary of the survey reports that includes survey date(s); contact information of the operator; location and pile identification number; photographic and/or video documentation of the survey and debris encountered; any animals sighted; and the disposition of any located debris (i.e., removed or left in place). Annual reports must also include claim data attributable to the Project from the Lessee's corporate gear loss compensation policy and procedures. Required data and reports may be archived, analyzed, published, and disseminated by BOEM and/or BSEE.

5.1.2.10 Site Clearance and Decommissioning. The Lessee must include information on unrecovered marine debris in the description of the site clearance activities provided in the decommissioning application required under 30 C.F.R. §§ 585.906 and 285.906.

5.2 Avian and Bat Protection Conditions.

5.2.1 The Lessee must submit all required documents related to avian and bat protection conditions in Sections 5.2.2 through Section 5.2.8 to BOEM at renewable_reporting@boem.gov; to BSEE via TIMSWeb and notification email at protectedspecies@bsee.gov; and to USFWS at (emily_argo@fws.gov). The

Lessee must confirm the relevant point of contact before submitting the required documents and must also confirm that the agencies have received the documents.

5.2.2 Bird-Deterrent Devices and Plan. To minimize attracting birds to operating WTGs, the Lessee must install bird perching-deterrent device(s) on each WTG and OSS. The Lessee must submit a plan to deter perching on offshore infrastructure by listed bird species for BOEM and BSEE approval. BOEM, BSEE, and USFWS will review the Bird Perching Deterrent Plan and provide any comments on the plan to the Lessee within 60 days of its submittal. The Bird Perching Deterrent Plan must be approved by BOEM and BSEE before the Lessee may begin installation of WTGs or OSSs. The Bird Perching Deterrent Plan must include the type(s) and locations of bird perching-deterrent devices and a monitoring plan for the life of the Project, allow for modifications and updates as new information and technology becomes available, and track the efficacy of the deterrents. The plan must be based on the best available science regarding the effectiveness of perching-deterrent devices in minimizing collision risk. The location of bird perching-deterrent devices must be proposed by the Lessee based on best management practices applicable to the appropriate operation and safe installation of the devices. The Lessee must submit the Bird Perching Deterrent Plan with the FDR. The Lessee must also provide the location and type of bird-deterrent devices as part of the as-built submittals to BSEE.

5.2.3 Navigation Lighting Upward Illumination Minimization. Conditional on USCG approval, the top of each USCG-required marine navigation light must be shielded to minimize upward illumination to minimize the potential of attracting migratory birds. The Lessee must provide BOEM, BSEE, and USFWS with a copy of the application to USCG to establish PATON (Section 3.1.1).

5.2.4 Avian and Bat Monitoring Program. The Lessee must develop and implement an Avian and Bat Post-Construction Monitoring Plan (Plan), in coordination with USFWS. Prior to or concurrent with offshore construction activities, including seabed preparation activities, the Lessee must submit an Avian and Bat Post-Construction Monitoring Plan for BOEM and BSEE review. BOEM, BSEE, and USFWS will review the Avian and Bat Post-Construction Monitoring Plan and provide any comments on the plan to the Lessee within 60 days of its submittal. The Lessee must resolve all comments on the Avian and Bat Post-Construction Monitoring Plan to BOEM and BSEE's satisfaction before implementing the plan and before commissioning the first WTG.

5.2.4.1 Monitoring. The Lessee must conduct monitoring, as outlined in the Avian and Bat Post-Construction Monitoring Plan, which will include the use of radio tags to monitor the movement of ESA-listed birds in the vicinity of the Project. The plan will include an initial monitoring phase involving the deployment of Motus Wildlife Tracking System (Motus) radio tags on piping plovers and red knots in conjunction with the

installation and operation of Motus receiving stations in the Lease Area following offshore Motus recommendations. The initial phase may also include the deployment of satellite-based tracking technologies (e.g., GPS or Argos tags) (see USFWS BiOp Monitoring 1.A., p. 11-12 for further details).

5.2.4.2 Annual Monitoring Reports. The Lessee must submit to BOEM, USFWS, and BSEE a comprehensive report after each full year of monitoring (pre- and post-construction) within 12 months of completion of the survey season. The report must include all data, analyses, and summaries regarding ESA-listed and non-ESA-listed birds and bats.

5.2.4.3 Post-Construction Quarterly Progress Reports. During the first twelve months that the Project is fully operational and commissioned (all installed WTGs producing power), the Lessee must submit quarterly progress reports concerning the implementation of the Avian and Bat Post-Construction Monitoring Plan to BOEM, BSEE, and USFWS by the 15th day of the first month following the end of each quarter. The Lessee must include a summary of all work performed, an explanation of overall progress, and any technical problems encountered in the progress reports.

5.2.4.4 Monitoring Plan Revisions. Within 30 days of submitting the annual monitoring report, the Lessee must meet with BOEM, BSEE, and USFWS to discuss the monitoring results, the potential need for revisions to the Avian and Bat Post-Construction Monitoring Plan, including technical refinements or additional monitoring, and the potential need for any additional efforts to reduce impacts. If, following that meeting, BOEM, BSEE, and USFWS jointly determine that revisions to the Avian and Bat Post-Construction Monitoring Plan are necessary, the Lessee must modify the Avian and Bat Post-Construction Monitoring Plan. If the reported monitoring results deviate substantially from the impact analysis included in the FEIS,[13] the Lessee must transmit to BOEM, BSEE, and USFWS recommendations for new mitigation measures and/or monitoring methods. In consultation with USFWS, BOEM and BSEE may adjust the frequency, duration, and methods for various monitoring efforts in future revisions of the Avian and Bat Post-Construction Monitoring Plan based on current technology (including its cost), the evolving weight of evidence regarding the likely levels of collision mortality for each listed bird species.

5.2.4.5 Operational Reporting. Upon commissioning of the first WTG, the Lessee must submit to BOEM and BSEE an annual report, due by January 31, summarizing monthly operational data from the preceding year calculated from 10-minute supervisory control and data acquisition

[13] https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-final-environmental-impact-statement-feis-commercial

(SCADA) data for all WTGs together in tabular format, including the proportion of time the WTGs were spinning each month, the average rotor speed (monthly revolutions per minute) of spinning WTGs plus 1 standard deviation, and the average pitch angle of blades (degrees relative to rotor plane) plus 1 standard deviation. Any data considered by the Lessee to be privileged or confidential must be clearly marked as confidential business information and will be handled by BOEM and BSEE in a manner consistent with 30 C.F.R. § 585.114.

5.2.5 Raw Data. The Lessee must store the raw data from all avian and bat surveys and monitoring activities using accepted archiving practices. Such data must be accessible to BOEM, BSEE, and USFWS upon request for the duration of the Lease. The Lessee must work with BOEM to ensure the data are publicly available. All avian tracking data (i.e., from radio and satellite transmitters) must be stored, managed, and made available to BOEM and USFWS following the protocols and procedures.

5.2.6 Annual Bird/Bat Mortality Reporting. The Lessee must submit an annual report to BOEM, BSEE, and USFWS covering each calendar year, due by January 31, documenting any dead or injured birds or bats found on vessels and structures during construction, operations, and decommissioning in the preceding year. The report must contain the following information: the name of the species, date found, location, a photo to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory.[14] The Lessee must also submit to BOEM, BSEE, and USFWS an annual report covering each calendar year, due by January 31, documenting the implementation of any collision measures during the preceding year.

5.2.7 Immediate Reporting. Any occurrence of dead or injured ESA-listed birds or bats must be reported to BOEM, BSEE, and USFWS[15] as soon as practicable (taking into account crew and vessel safety), ideally within 24 hours and no more than 3 days after the sighting. If practicable, the Lessee must carefully collect the dead specimen and preserve the material in the best possible state, contingent on the acquisition of the necessary wildlife permits and compliance with the Lessee's health and safety standards (see Monitoring Requirements in USFWS BiOp).

5.2.8 Collision Minimization. Within 5 years of the commissioning of the first WTG and every 5 years thereafter for the operational life of the Project, the Lessee must provide BOEM with a review of best available scientific and commercial data on technologies and methods that have been implemented or are being studied to reduce or minimize bird collisions at WTGs. The review must be

[14] https://www.usgs.gov/centers/eesc/science/bird-banding-laboratory

[15] Report must be submitted to USFWS's Virginia Law Enforcement Office at 804-771-2883 consistent with the USFWS BiOp. The Lessee must confirm the relevant point of contact before submitting the report and must also confirm that the agencies have received the report.

worldwide and include both offshore and onshore WTGs. This review will inform BOEM's Collision Minimization Report, consistent with Monitoring and Reporting Requirement 2 of the USFWS BiOp. Within 60 days of BOEM's issuance of the final Collision Minimization Report, the Lessee must participate in a meeting to discuss the report with BOEM, BSEE, and USFWS.

5.3 Compensatory Mitigation for Piping Plover, Red Knot, and Roseate Tern. At least 180 days prior to the commissioning of the first WTG, the Lessee must distribute a Compensatory Mitigation Plan to BOEM, BSEE, USACE, and the USFWS for review and comment. BOEM, BSEE, and USFWS will review the Compensatory Mitigation Plan and provide any comments on the plan to the Lessee within 60 days of its submittal. The Lessee must resolve all comments on the Compensatory Mitigation Plan to BOEM's and BSEE's satisfaction before implementing the plan and before commissioning of the first WTG. The Compensatory Mitigation Plan must provide compensatory mitigation actions to offset take of Piping Plover, Red Knot, and Roseate Tern by the fifth year of WTG operation. The Compensatory Mitigation Plan must include a) a detailed description of the mitigation actions; b) the specific location for each mitigation action; c) a timeline for completion of the mitigation actions; d) itemized costs for implementing the mitigation actions; e) details of the mitigation mechanisms (e.g., mitigation agreement, applicant-proposed mitigation); and f) monitoring to ensure the effectiveness of the mitigation actions in offsetting take.

5.3.1 The Lessee must provide annual training to all individuals directly or indirectly responsible for implementing and/or overseeing the Lessee's activities described in the Biological Assessment (BA). The training must review the protection measures outlined in the BA and how the conservation measures are to be implemented, species habitat characteristics, and applicable locations for Northern long-eared bat and tri-colored bat.

5.3.2 The Lessee must notify USFWS of the projected and actual start dates, progress, and completion of the Project. The Lessee must verify that it did not exceed the removal of 117.04 acres of trees contemplated in the BiOp and must confirm that it followed all conservation measures described in the BiOp. The Lessee must provide a report containing this information by December 31 of each year to BOEM, BSEE, and USFWS until the year in which construction is complete.

5.4 Benthic Habitat Monitoring Plan (Planning) (Construction) (Operations).

5.4.1 The Lessee must develop and submit to BOEM and BSEE a Benthic Habitat Monitoring Plan (BHMP) within 120 days of COP approval for a 60-day review. The Lessee must resolve all comments on the BHMP to BOEM's and BSEE's satisfaction prior to implementation of the revised BHMP. Specifically, the BHMP should describe how the recovery of complex habitat (gravely sand) identified between KP 8 and KP 22 in the OECC will be monitored. The Lessee must share data consistent with its data sharing plan and upon BOEM's or BSEE's request.

5.5 Fisheries Mitigation and Monitoring Plan (Planning) (Construction) (Operations).

5.5.1 The Lessee must conduct fisheries monitoring consistent with the Fisheries Mitigation and Monitoring Plan (FMMP) to assess fisheries status in the Project area pre-, during, and post-construction. The Lessee must resolve all comments on the FMMP to BOEM's and BSEE's satisfaction prior to implementation of the revised FMMP. The Lessee must submit an annual report to BOEM and BSEE within 90 days of the completion of each year of sampling. The Lessee must share data consistent with its data sharing plan and upon BOEM's or BSEE's request.

5.6 Protected Species Monitoring Plan Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.6.1 The Lessee must submit all required documents related to protected species conditions in Section 5.6.2 through Section 5.6.7 (e.g., passive acoustic monitoring (PAM), pile driving monitoring plans, Sound Field Verification (SFV), and vessel strike) to BOEM at renewable_reporting@boem.gov; BSEE via TIMSWeb with a notification email sent to BSEE at protectedspecies@bsee.gov; and NMFS GARFO at nmfs.gar.incidental-take@noaa.gov.

5.6.2 Pile Driving PAM Plan. The Lessee must submit a Pile Driving PAM Plan to BOEM, BSEE, and NMFS GARFO at least 180 days before pile driving is planned. BOEM, BSEE, and NMFS GARFO will review the plan and will provide comments within 45 days of receipt of the plan. The Lessee must resolve all comments on the plan to BOEM's and BSEE's satisfaction before starting any pile driving. NMFS GARFO may comment to BOEM, BSEE, and the Lessee about whether the plan is consistent with the requirements outlined in the BiOp and its Incidental Take Statement (ITS). If BOEM determines that the plan is inconsistent with those requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity; at that time, BOEM, BSEE, and NMFS will discuss a timeline for review and approval of the modified plan. BOEM will notify the Lessee of this timeline.

5.6.2.1 The plan must include a description of all proposed PAM equipment and hardware, the calibration data, bandwidth capability and sensitivity of hydrophones, and information addressing how the proposed passive acoustic monitoring will follow standardized measurement, processing methods, reporting metrics, and metadata standards for offshore wind (Van Parijs et al., 2021). The Plan must describe and include all procedures, documentation, and protocols, including information (i.e., testing, reports, equipment specifications) to support that it will be able to detect vocalizing whales within the clearance and shutdown zones, including deployment locations, procedures, detection review methodology, and protocols; detection ranges with and without

foundation installation activities and data supporting those ranges; communication time between call and detection, and data transmission rates between PAM Operator and PSOs on the pile driving vessel; where PAM Operators will be stationed relative to hydrophones and PSOs on pile driving vessel calling for delay/shutdowns; and a full description of all proposed software, call detectors, and filters. The plan must describe all proposed PAM equipment, procedures, and protocols, including information to support that it will be able to detect vocalizing North Atlantic right whales (NARW) within the clearance and shutdown zones, and an evaluation of consistency with the NMFS BiOp. The plan must also incorporate the following requirements: If a NARW is detected via real-time PAM, data must be submitted by the Lessee to NMFS at nmfs.nec.pacmdata@noaa.gov using the NMFS Passive Acoustic Reporting System Metadata and Detection data spreadsheets (https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates) as soon as feasible, but no longer than 24 hours after the detection. The Lessee must submit the completed data templates to NMFS at nmfs.nec.pacmdata@noaa.gov. The Lessee must also submit the full acoustic species Detection data, Metadata, and GPS data records, from real-time data, within 90 days via the ISO standard metadata forms available on the NMFS Passive Acoustic Reporting System website (https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates). The Lessee must submit the completed data templates to NMFS at nmfs.pacmdata@noaa.gov. The Lessee must also send the full acoustic recordings from real-time systems to NOAA's National Centers for Environmental Information (NCEI) for archiving within 90 days after pile-driving has ended and instruments have been pulled from the water.

5.6.3 Long-term Passive Acoustic Monitoring. The Lessee must conduct long-term monitoring of ambient noise and baleen whale and commercially important fish vocalizations in the Lease Area before, during, and following construction. The Lessee must conduct continuous[16] recording at least 1 year before construction, during construction, and, as set forth more fully below, for at least 3 but no more than 10 full calendar years of operation[17] to monitor for potential noise impacts. The Lessee must meet with BOEM and BSEE at least 60 days prior to the conclusion of the third full calendar year of operation monitoring (and at least 60 days prior to the conclusion of each subsequent year until monitoring is concluded) to discuss: 1) monitoring conducted to-date, 2) the need for continued monitoring, and 3) if monitoring is continued, whether adjustments to the monitoring are warranted. Following this meeting, BOEM will determine continued monitoring requirements, if any, and inform the Lessee of any

[16] Continuous recording in this measure recognizes that PAM devices can be damaged or lost from weather and other ocean uses, mechanical failures, and general maintenance. The Lessee must make every effort to maintain the PAM system as near continuous as possible. If temporal gaps in recording are expected, the lessee must ensure that additional recorders can be deployed to fill gaps.

[17] For the purposes of this condition, operation initiates with the commissioning of the first WTG.

changes to monitoring requirements. The monitoring devices(s) must be configured to ensure that the specific locations of vocalizing NARW anywhere within the Lease Area can be identified, assuming of a 10 km detection range for their calls. The Lessee may satisfy this condition through either of the options set forth more fully below.

5.6.3.1 Option 1 - Lessee Conducts Long-term Passive Acoustic Monitoring. If the Lessee chooses to comply with Section 5.6.3 using this option, it must conduct PAM, including data processing and archiving, following the Regional Wildlife Science Collaborative (RWSC) best practices[18] to ensure data comparability and transparency. PAM instrumentation must be deployed to allow for the identification of any NARW that vocalizes anywhere within the lease area.

5.6.3.1.1 The sampling rate (minimum 10 kHz) of the recorders must prioritize baleen whale detections but must also have a minimum capability to record noise from vessels, pile-driving, and WTG operation in the lease area. The system must be configured for continuous recording over the entire year. If temporal gaps in recording are expected, the Lessee must ensure that additional recorders can be deployed to fill gaps. The Lessee must use trawl-resistant moorings to ensure that instruments are not lost and must replace any lost instruments as soon as possible. The Lessee must also notify BOEM if instrument loss occurs.

5.6.3.1.2 The Lessee must follow the best practices applicable to monitoring outlined in the RWSC best practices document[19] unless otherwise required through conditions of COP approval. The best practices include engaging with the RWSC, calibrating the instruments, running QA/QC on the raw data, following the templates for reporting species vocalizations, and preparing the data for archiving at the National Centers for Ecological Information (NCEI). Section III of the RWSC best practices document specifies steps for Section 106 compliance, the Lessee must instead follow the conditions outlined in Section 7.9 and the Section 106 Memorandum of Agreement.

5.6.3.1.3 With respect to data processing, the Lessee must document the occurrence of whale vocalizations (calls of North Atlantic right, humpback, sei, fin, and minke

[18] https://rwsc.org/wp-content/uploads/2022/12/RWSC-PAM-Data-Management-Storage-Best-Practices.pdf.
[19] https://rwsc.org/wp-content/uploads/2022/12/RWSC-PAM-Data-Management-Storage-Best-Practices.pdf.

whales, as well as odontocete clicks, as available based on sample rate) using automatic or manual detection methods. The Lessee must submit a log of these detections as well as the detection methodology to BOEM (at renewable_reporting@boem.gov), BSEE (at protectedspecies@bsee.gov), and NMFS (at nmfs.nec.pacmdata@noaa.gov) within 120 days following each recorder retrieval. All raw data must be sent to the NCEI Passive Acoustic Data archive on an annual basis and the Lessee must contact NCEI for guidance for packaging the data and pay the fee.

5.6.3.1.4 Long-term Passive Acoustic Monitoring Plan. The Lessee must prepare and implement a Long-term PAM Plan under this option. No later than 120 days prior to instrument deployment and before any construction begins, the Lessee must submit to BOEM and BSEE (renewable_reporting@boem.gov and OSWsubmittals@bsee.gov) the Long-term PAM Plan that describes all proposed equipment (including number and configuration of instruments), deployment locations, mooring design, detection review methodology, and other procedures and protocols related to the required use of PAM. As the Lessee prepares the Long-term PAM Plan, it must coordinate with the RWSC. BOEM and BSEE will review the Long-term PAM Plan and provide comments, if any, on the plan within 45 days of its submittal. BOEM and/or BSEE may require the Lessee to submit a modified Long-term PAM Plan based on feedback from the Bureaus. The Lessee must address all outstanding comments to BOEM's and BSEE's satisfaction and must receive written concurrence from BOEM and/or BSEE. If BOEM or BSEE do not provide comments on the Long-term PAM Plan within 45 days of its submittal, the Lessee may conclusively presume BOEM's and BSEE's concurrence with the Long-term PAM Plan.

5.6.3.2 Option 2 – Financial and Other Contributions to BOEM's Environmental Studies Program.[20] As an alternative to conducting long-term PAM in the Lease Area, the Lessee may opt to make a financial contribution to BOEM's Environmental Studies Partnership for an Offshore Wind Energy Regional Observation Network (POWERON)

[20] The Lessee may elect Option 2 initially or during any subsequent calendar year of monitoring, subject to agreement with BOEM and BSEE.

initiative on an annual basis and cooperate with the POWERON team to allow the team's access to the Lease Area for deployment, regular servicing, and retrieval of instruments. The Lessee's financial contribution must provide for all activities necessary to conduct PAM within and adjacent to the Lease Area, such as vessel and staff time for regular servicing of instruments, QA/QC on data, data processing to obtain vocalizations of sound-producing species and ambient noise metrics, as well as long-term archiving of data at NCEI. At the Lessee's request, the BOEM will provide an estimate of the necessary amount of the financial contribution. BOEM will also invite the Lessee to contribute to discussions about the scientific approach of the POWERON initiative via the RWSC. The Lessee may request temporary withholding of the public release (i.e., the placement into the NCEI public data archive) of raw acoustic data collected within the Lease Area for up to 180 days after collection of that data. During this temporary hold, BOEM may elect to provide the Lessee with a copy of the raw PAM data collected under this option after the DON has cleared the data for national security concerns.

5.6.4 Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving. The Lessee must submit a Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving to BOEM, BSEE, and NMFS OPR and GARFO at least 180 days before foundation impact or vibratory pile driving is planned. BOEM, BSEE, and NMFS OPR and GARFO will review the plan and provide comments within 45 days of receipt of the plan. NMFS's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the final rule/LOA, BiOp and ITS. If the plan is inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity. At that time, BOEM, BSEE, and NMFS will discuss a timeline for review and approval of the modified plan and BOEM will notify the Lessee of this timeline. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM and BSEE concurrence in coordination with NMFS on this plan before starting any pile driving. The plan must include a description of all monitoring equipment and PSO protocols (including the number and location of PSOs) for all pile driving. The plan must detail all plans and procedures for sound attenuation, as well as for monitoring ESA-listed whales and sea turtles, during all impact and vibratory pile driving. The plan must describe how the Lessee will determine the number of whales exposed to noise above the Level B harassment threshold during pile driving with the vibratory hammer to install cofferdams. The plan must also describe how the Lessee would determine the number of sea turtles exposed to noise above the 175 dB harassment threshold.

5.6.5 Pile Driving Reduced Visibility Monitoring Plan (RVMP). The Lessee must submit the Reduced Visibility Monitoring Plan to BOEM, BSEE, NMFS OPR, and NMFS GARFO at least 180 days before pile driving is planned to begin. BOEM, BSEE, and NMFS will review the Reduced Visibility Monitoring Plan

and provide comments within 45 days of receipt of the plan. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM and BSEE concurrence with this plan prior to the start of pile driving. The RVMP must describe how the Lessee will monitor pile driving activities during reduced visibility conditions (e.g. rain, fog) and at night (i.e., between 1.5 hours prior to civil sunset and 1 hour after civil sunrise), including proof of the efficacy of monitoring devices (e.g., mounted thermal/infrared (IR) camera systems, hand-held or wearable night vision devices (NVD), spotlights) in detecting ESA-listed marine mammals and sea turtles over the full extent of the required clearance and shutdown zones, including a demonstration that the full extent of the minimum visibility zones (2,000 m for WTG and OSS foundations, 1,000 m for goal posts) can be effectively and reliably monitored. The Lessee must use only those devices and methods that have been demonstrated as being capable of detecting marine mammals and sea turtles to the maximum extent of the clearance and shutdown zones.

5.6.6 Sound Field Verification (SFV) Plan. The Lessee must submit the SFV Plan to BOEM, BSEE, NMFS OPR, and NMFS GARFO at least 180 days before foundation impact or vibratory pile driving is planned to begin. BOEM, BSEE, and NMFS will review the plan and will provide comments within 45 days of receipt of the plan. NMFS's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the final rule/LOA and BiOp. If BOEM and/or BSEE determine the plan to be inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity; at that time, BOEM, BSEE and NMFS will discuss a timeline for review and approval of the modified plan. BOEM will notify the Lessee of this timeline. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM and BSEE concurrence with this plan prior to the start of pile driving. The plan must describe how the Lessee will ensure that the first three monopile installation sites and installation scenarios (i.e., hammer energy, number of strikes) are representative of the rest of the monopile installations. If the monitored pile locations are different from those used for exposure modeling, the Lessee must provide justification for why such locations are representative of the modeling. In the case that these sites are not determined to be representative of all other monopile installation sites, the Lessee must include information on how additional sites will be selected for SFV. The plan must also include the piling schedule and sequence of events, communication and reporting protocols, and methodology for collecting, analyzing, and preparing SFV data for submission to NMFS, including instrument deployment, locations of all hydrophones (including direction and distance from the pile) hydrophone sensitivity, recorder/measurement layout, and analysis methods, and a template of the interim report to be submitted. The plan must describe how the effectiveness of the sound attenuation methodology would be evaluated based on the results. The Plan must address how CVOW will implement NMFS LOA and BiOp Terms and Condition 2a, which includes, but is not limited to, identifying additional noise attenuation measures (e.g., add

noise attenuation device, adjust hammer operations, adjust NMS) that will be applied to reduce sound levels if measured distances are greater than those modeled.

5.6.7 Vessel Strike Avoidance Plan. The Lessee must submit the Vessel Strike Avoidance Plan for protected species to BOEM, BSEE, NMFS OPR, and NMFS GARFO at least 180 days prior to the commencement of vessel use, with the exception of vessels deployed for the fisheries surveys. BOEM, BSEE, and NMFS will review the plan and provide comments within 45 days of receipt of the plan. NMFS's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the final rule/LOA and the BiOp (including Appendix A of the BiOp). If the plan is inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity. At that time, BOEM, BSEE and NMFS will discuss a timeline for review and approval of the modified plan, and BOEM will notify the Lessee of this timeline. The plan must provide details on all relevant mitigation and monitoring measures for protected species, minimum separation distances, vessel transit protocols from all planned ports, vessel speeds, vessel strike avoidance protocols, vessel-based observer protocols on transiting vessels, communication and reporting plans, and alternative monitoring and equipment that will be used to maintain effective visual monitoring of vessel strike avoidance zones in varying weather conditions, darkness, sea states, and in consideration of the use of artificial lighting. If the Lessee plans to implement the Alternative Plan for vessel strike avoidance in transit lane(s) the plan must describe how PAM, in combination with visual observations, will be conducted to ensure the transit corridor is clear of NARWs. Consistent with the requirements of the MMPA ITA and the BiOp, unless and until the Plan is approved by NMFS OPR and NMFS GARFO, all vessels transiting between the operations and maintenance facility and the Lease Area, year-round, must comply with the 10-knot speed restriction.

5.7 Pre-Seabed Disturbance Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.7.1 The Lessee must submit all required documents related to pre-seabed disturbance conditions in Section 5.7.2 through Section 5.7.4 (e.g., anchoring plans, as-placed anchor plats, micrositing plan, scour and cable protection, and post seabed disturbance) to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb, and NMFS GARFO at nmfs.gar.incidental-take@noaa.gov.

5.7.2 Anchoring Plans/Plats. The Lessee must prepare and implement an Anchoring Plan/Plat for all areas where anchoring, jack-up barges or buoy placement occurs during construction, operations/maintenance, and decommissioning within 1,640 feet (500 meters) of habitats, resources, and submerged

infrastructure that are sensitive, including complex habitat;[21] steep slopes with gradients greater than or equal to 10 degrees; boulders greater than or equal to 0.5 meters in diameter; ancient submerged landform features (ASLFs); known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). The Lessee must provide to all construction and support vessels the locations where anchoring, jack-up barge spud can or buoy placement must be avoided to the extent technically and/or economically feasible, including complex habitat; steep slopes with gradients greater than or equal to 10 degrees; boulders greater than or equal to 0.5 meters in diameter; ASLFs; known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). If anchoring is necessary at these locations, then all vessels deploying anchors must extend the anchor lines to the extent practicable to minimize the number of times the anchors must be raised and lowered to reduce the amount of habitat disturbance unless the anchor chain sweep area includes complex habitat that may be impacted by the chain sweep. On all vessels deploying anchors, the Lessee must use mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed, unless the Lessee demonstrates, and BOEM and BSEE accept, that (1) the use of mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed is not technically feasible; or (2) a different alternative is as safe and provides the same or greater environmental protection. In any instances where the Lessee believes there is technical infeasibility for using mid-line anchor buoys, the Lessee must provide a technical analysis to support reasoning for infeasibility, as appropriate, for review and concurrence by BOEM and BSEE.

5.7.2.1 The Lessee must provide the Anchoring Plan for construction related activities (pre-seabed clearance, export cable, inter-array cable) to BOEM and BSEE to coordinate with NMFS GARFO for a 60-day review at least 120 days before anchoring activities and construction begins for export and inter-array cables. The Lessee must resolve all comments on the Anchoring Plan to BOEM's and BSEE's satisfaction before conducting any OCS seabed-disturbing activities that require anchoring. If there are fewer than 120 days between anchoring activities and this COP approval, the Lessee must submit the plan as soon as practicable and no later than 60 days prior to commencing activities.

5.7.2.2 For operations and decommissioning, the Lessee must provide proposed anchoring plats to BOEM and BSEE for review before anchoring activities occur. For decommissioning, the anchoring plat(s) can be provided with the application for decommissioning as required under 30 C.F.R. § 285.906(d). The proposed anchoring plats must include

[21] Complex habitat for this Project is defined by Project-specific benthic habitat delineations with modifiers to identify habitat that is less resilient to disturbance (hardbottom substrate, hardbottom substrate with epifauna or macroalgae, and vegetated habitats).

avoidances identified in Section 5.7.2 above and as-placed anchor plats must be submitted per Section 2.22.4.

5.7.3 Micrositing Plan. The Lessee must prepare and implement a Micrositing Plan that describes how WTG locations, OSS locations, inter-array, and export cable routes will be microsited to avoid or minimize impacts to steep slopes with gradients greater than or equal to 10 degrees, complex habitat, boulders greater than or equal to 0.5 meters in diameter and confirmed MEC/UXO. Detailed supporting data and analysis must be submitted as part of the FDR or FIR, including relevant geophysical and geospatial data; the submission may be incorporated by reference or attachments. The Lessee must not microsite structure locations in a way that narrows any WTG corridors to less than the distance required by Section 3.1.3. The Micrositing Plan must include a figure for each microsited WTG, OSS, or cable segment, including benthic habitat delineations showing complex habitat and locations of boulders greater than or equal to 0.5 meters. For WTGs, OSSs, and cables that cannot be microsited to avoid impacts to steep slopes with gradients greater than or equal to 10 degrees, complex habitat, or boulders greater than or equal to 0.5 meters in diameter, impact minimization measures must be provided, as technically and/or economically feasible. In any instances where micrositing is not possible due to technical and/or economic infeasibility, the Lessee must provide analysis for review and concurrence by BOEM and BSEE. The Micrositing Plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO for a 60-day review, 120 days prior to site preparation activities for cables, WTGs, and OSSs. The Micrositing Plan must be consistent with the MEC/UXO ALARP Certifications (Section 2.4), Cable Routings (Section 2.11), and Boulder Identification and Relocation (Section 2.27). The Lessee must resolve all comments on the Micrositing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan.

5.7.4 Scour and Cable Protection Plan. The Lessee must prepare and implement a Scour and Cable Protection Plan (Plan) that includes descriptions and specifications for all scour and cable protection materials used in complex habitat and benthic features.[22] Cable protection is currently expected where the OEC crosses existing telecommunications cables. The Lessee must avoid the use of plastics/recycled polyesters/net material (i.e., fronded mattresses), as technically and/or economically feasible or practicable. The Lessee must ensure that all materials used for scour and cable protection measures consist of natural or engineered stone that does not inhibit epibenthic growth and provides three-dimensional complexity in height and in interstitial spaces, as technically and/or economically feasible or practicable. Cable protection measures should have tapered or sloped edges to reduce hangs for mobile fishing gear. The Lessee must submit the Plan to BOEM and BSEE to coordinate with NMFS GARFO for a 60-day review at least 120 days before placement of scour and cable

[22] The Lessee must use Seabed Morphology and Habitat-CMECS interpretation maps depicting areas of complex habitats and benthic features to inform this plan.

protection. Any instances where the Lessee believes there is technical and/or economic infeasibility must be supported by a technical and/or economic feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE. The Lessee must resolve all comments on the Plan to BOEM's and BSEE's satisfaction before placement of the scour and cable protection materials.

5.8 Post-Seabed Disturbance Conditions

5.8.1 Berm Survey and Report. Where plows, jets, grapnel runs, or other similar methods are used, post-construction surveys capable of detecting bathymetry changes of 0.5 meter or less should be completed to determine the height and width of any created berms. The Lessee must capture bathymetry changes greater than 1 meter (3 feet) along the cable routes. If there are bathymetric changes in berm height greater than 1 meter (3 feet) above grade, the Lessee must develop and implement a Berm Remediation Plan to restore created berms to match adjacent natural bathymetric contours (isobaths), as technically and/or economically feasible. Any instances where the Lessee believes there is technical and/or economic infeasibility must be supported by a technical and/or economic feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE. The Lessee must submit the Berm Remediation Plan to BOEM and BSEE to coordinate with NMFS for a 60-day review within 90 days of completion of the post-construction survey. BOEM and BSEE will also review the plan to determine if the scope of activities (e.g., methods, disturbance area, vessel trips, emissions) is within the already completed National Environmental Policy Act analysis and ESA and EFH consultations and, if not, will complete additional environmental review and consultations. The Lessee must resolve all comments on the Berm Remediation Plan to BOEM's and BSEE's satisfaction prior to initiating restoration activities.

5.9 Endangered and Threatened Species Conditions for Fishery Monitoring (Planning) (Construction) (Operations)

5.9.1 General Conditions for All Fisheries Monitoring Surveys

5.9.2 The Lessee must submit all required documents related to endangered and threatened species conditions for fishery monitoring in Section 5.9.3 through Section 5.9.8 (e.g., marine debris, visual and Protected Species Observers (PSOs), take, and annual reporting) to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov or marinedebris@bsee.gov (if related to marine debris/lost gear), and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.9.3 The Lessee must ensure that any lost survey gear is reported and recovered according to the Marine Debris Elimination and Reporting conditions. All lost gear must also be reported to NMFS GARFO and BSEE within 24 hours of the

documented time when gear is discovered to be missing or lost. This report must include information on any markings on the gear and any efforts undertaken or planned to recover the gear.

5.9.3.1 Marine mammal monitoring must occur prior to, during, and after haul-back of gear used for fisheries monitoring surveys. If a marine mammal is determined to be at risk of interaction with the deployed gear, all gear must be immediately removed.

5.9.3.2 If marine mammals are sighted in the area within 15 minutes before deploying gear and are at risk of interaction with the research gear, then the sampling station must be either moved or canceled, or the activity must be suspended, until there are no marine mammal sightings within 1 nautical mile (1,852 meters) of sampling location for 15 minutes.

5.9.3.3 The Lessee must ensure all vessels deploying fixed gear (e.g., pots/traps) have adequate disentanglement equipment (i.e., knife and boathook) onboard. Any disentanglement must occur consistent with the Northeast Atlantic Coast Sea Turtle Disentanglement Network Guidelines and the procedures described in "Careful Release Protocols for Sea Turtle Release with Minimal Injury."

5.9.4 The Lessee must ensure that any sea turtles or Atlantic sturgeon caught and/or retrieved in any fisheries survey gear are identified to species or species group and reported to BOEM, BSEE, and NMFS GARFO. Each ESA-listed species caught and/or retrieved must then be properly documented using appropriate equipment and the NMFS data collection form.[23] Biological data, samples, and tagging must occur as outlined below:

5.9.4.1 The Lessee must follow the Sturgeon and Sea Turtle Take Standard Operating Procedures.[24]

5.9.4.2 The Lessee must equip survey vessels with a passive integrated transponder (PIT) tag reader onboard capable of reading 134.2 kHz and 125 kHz encrypted tags (e.g., Biomark GPR Plus Handheld PIT Tag Reader), and this reader must be used to scan any captured sea turtles and sturgeon for tags. Any recorded tags must be recorded on the take reporting form and reported to BOEM, BSEE, and NMFS GARFO.

5.9.4.3 The Lessee must take genetic samples from all captured Atlantic sturgeon (alive or dead) to allow for identification of the distinct population segment (DPS) of origin of captured individuals and the

[23] https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null

[24] https://media.fisheries.noaa.gov/dam-migration/sturgeon_&_sea_turtle_take_sops_external.pdf

tracking of the amount of incidental take. This sample collection must be done consistent with the Procedures for Obtaining Sturgeon Fin Clips.[25]

5.9.4.4 The Lessee must send fin clips to a BOEM approved laboratory capable of performing genetic analysis and assignment to DPS of origin. The Lessee must submit the results of genetic analysis, including assigned DPS of origin, to BOEM, BSEE, and NMFS GARFO within six months of the sample collection.

5.9.4.5 The Lessee must hold and submit subsamples of all fin clips and accompanying metadata form to the Atlantic Coast Sturgeon Tissue Research Repository on a quarterly basis using the Sturgeon Genetic Sample Submission Form.[26]

5.9.5 The Lessee must ensure all captured sea turtles and Atlantic sturgeon are documented with required measurements, photographs, body condition, and descriptions of any marks or injuries. This information must be entered as part of the record for each capture. The Lessee must complete an NMFS Take Report Form[27] for each individual sturgeon and sea turtle and submitted to BOEM, BSEE, and NMFS GARFO.

5.9.6 The Lessee must ensure any live, uninjured animals are returned to the water as quickly as possible after completing the required handling and documentation. Live and responsive sea turtles or Atlantic sturgeon caught and retrieved in gear used in any fisheries survey should be released according to established protocols and whenever at-sea conditions are safe for those releasing the animal(s). Any unresponsive sea turtles or Atlantic sturgeon caught and retrieved in gear used in fisheries surveys must be handled and resuscitated whenever at-sea conditions are safe for those handling and resuscitating the animal(s). Specifically:

5.9.6.1 To the extent allowed by sea conditions, the Lessee must give priority to the handling and resuscitation of any sea turtles or sturgeon that are captured in the gear being used. Handling times for these species should be minimized (i.e., kept to 15 minutes or fewer) to limit the amount of stress placed on the animals.

5.9.6.2 All survey vessels must be equipped with copies of the sea turtle handling and resuscitation requirements found at 50 C.F.R. § 223.206(d)(1) prior to the commencement of any on-water activity.[28] These handling and resuscitation procedures (the latter, when necessary)

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[25] https://media.fisheries.noaa.gov/dam-migration/sturgeon_genetics_sampling_revised_june_2019.pdf

[26] https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic

[27] https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null

[28] https://media.fisheries.noaa.gov/dam-migration/sea_turtle_handling_and_resuscitation_measures.pdf

must be executed any time a sea turtle is incidentally captured and brought onboard a survey vessel.

5.9.6.3 For sea turtles that appear injured, sick, distressed, or dead (including stranded or entangled individuals), survey staff must immediately contact the Greater Atlantic Region Marine Animal Hotline at 866-755-6622 for further instructions and guidance on handling, retention, and/or disposal of the animal. If unable to contact the hotline (e.g., due to distance from shore or lack of ability to communicate via phone), the USCG should be contacted via VHF marine radio on Channel 16. If required, hard-shelled sea turtles (i.e., non-leatherbacks) may be held on board for up to 24 hours, if conditions during holding are authorized by the NMFS Greater Atlantic Regional Fisheries Office - Protected Resources Division and safe handling practices are followed. If the hotline or an available veterinarian cannot be contacted and the injured animal cannot be taken to a rehabilitation center, activities that could further stress the animal must be stopped. When sea-to-shore contact with the hotline or an available veterinarian is not possible, the animal must be allowed to recover and be responsive before safely releasing it to the sea.

5.9.6.4 The Lessee must make attempts to resuscitate any Atlantic sturgeon that are unresponsive or comatose by providing a running source of water over the gills as described in the Sturgeon Resuscitation Guidelines.[29]

5.9.6.5 NMFS may authorize that dead sea turtles or Atlantic sturgeon be retained on board the survey vessel, provided that appropriate cold storage facilities are available on the survey vessel. Sea turtle and sturgeon carcasses should be held in cold storage (frozen is preferred, although refrigerated is permitted if a freezer is not available) until retention or disposal procedures are authorized by the NMFS Greater Atlantic Regional Fisheries Office, Protected Resources Division for transfer to an appropriately permitted partner or facility on shore.

5.9.7 The Lessee must provide notification via email to BOEM, BSEE, and NMFS GARFO within 24 hours of any interaction with a sea turtle or sturgeon and include the NMFS take reporting form.[30] The report must include at a minimum, the following: (1) survey name and applicable information (e.g., vessel name, station number); (2) Global Positioning System (GPS) coordinates describing the location of the interaction (in decimal degrees); (3) gear type involved (e.g., bottom trawl, gillnet, longline); (4) soak time, gear configuration and any other pertinent gear information; (5) time and date of the interaction; (6) identification of the animal to the species level (if possible); and (7) a photograph or video of the animal (multiple photographs are suggested,

[29] https://media.fisheries.noaa.gov/dam-migration-miss/Resuscitation-Cards-120513.pdf

[30] https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null

including at least one photograph of the head scutes). If reporting within 24 hours is not possible (e.g., due to distance from shore or lack of ability to communicate via phone, fax, or email), the Lessee must submit reports as soon as possible and must submit late reports with an explanation for the delay.

5.9.8 The Lessee must submit an annual report within 90 days of the completion of each survey season to BOEM, BSEE, and NMFS GARFO. The report must include all information on any observations of and interactions with ESA-listed species and contain information on all survey activities that took place during the season, including location of gear set, duration of soak, and total effort. The report on survey activities must be comprehensive of all activities, regardless of whether ESA-listed species were observed.

5.10 Protected Species Training and Coordination (Construction) (Operations) (Decommissioning). Before beginning any in-water activities involving vessel use, pile driving, and HRG surveys, and when new personnel join the work, the Lessee must conduct briefings for construction supervisors and crews, PSO and PAM teams, vessel operators, and all staff prior to the start of all pile driving and HRG survey activity, in order to explain responsibilities, communication procedures, and protected species mitigation, monitoring, and reporting requirements.

5.10.1 The Lessee must submit all required documents and reports related to protected species training and coordination conditions in Sections 5.10.2 and 5.10.4 to: BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, NMFS Office of Protected Resources at PR.ITP.MonitoringReports@noaa.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.10.2 Vessel Crew and Protected Species Observer (PSO) Training Requirements. The Lessee must provide Project-specific training to all vessel crew members, PSOs, and Trained Lookouts on the identification of sea turtles and marine mammals, vessel strike avoidance and reporting protocols, how and when to communicate with the vessel operator, the authority of the PSOs, and the associated regulations for avoiding vessel collisions with protected species prior to the start of in-water construction or detonation activities. The Lessee must make available aboard all Project vessels reference materials for identifying sea turtles and marine mammals, and copies of the Marine Mammal and Sea Turtle Monitoring Plans and Vessel Strike Avoidance Plan. Confirmation of the training and understanding of the requirements must be documented on a training course log sheet, and the Lessee must provide the log sheets to BOEM and BSEE upon request. The Lessee must communicate to all crew members its expectation that the crew report sightings of sea turtles and marine mammals to the designated vessel contacts. The Lessee must communicate the process for reporting sea turtles and marine mammals (including live, entangled, and dead individuals) to the designated vessel contact and all crew members. The Lessee must post the reporting instructions, including communication channels, in highly visible locations aboard all Project vessels.

5.10.3 PSO Requirements. The Lessee must use independent, dedicated, qualified PSOs provided by a third party. The PSO's sole Project-related duty must be to observe, collect and report data, and communicate with and instruct relevant vessel crew regarding the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards). PSOs or any PAM operators serving as PSOs must have completed a commercial PSO training program for the Atlantic with an overall examination score of 80 percent or greater.[31] The Lessee must provide training certificates for individual PSOs to BOEM or BSEE upon request. PSOs and PAM operators must be approved by NMFS before the start of a survey. The Lessee must submit PSO and PAM resumes for NMFS's review and approval at least 60 days prior to the commencement of in-water construction activities requiring PSOs/PAM operators. Application requirements to become a NMFS-approved PSO for construction activities can be found on the NOAA website[32] or for geological and geophysical surveys by sending an inquiry to nmfs.psoreview@noaa.gov.

5.10.4 PSOs and PAM operators must be on watch for no more than a maximum of 4 consecutive hours, followed by a break of at least 2 hours between watches, for no more than a total of 12 hours within a 24-hour period.

5.11 Vessel Strike Avoidance Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.11.1 The Lessee must submit all required documents related to vessel strike avoidance conditions in Section 5.11.2 through Section 5.11.5 to: BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, NMFS Office of Protected Resources at PR.ITP.MonitoringReports@noaa.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.11.2 PSO Requirements. The Lessee must ensure that vessel operators and crew members maintain a vigilant watch for marine mammals and sea turtles, and reduce vessel speed, alter the vessel's course, or stop the vessel as necessary to avoid striking marine mammals or sea turtles.

5.11.2.1 All vessels must have a visual observer on board who is responsible for monitoring the vessel strike avoidance zone for marine mammals and sea turtles. Visual observers may be PSOs or crew members, but crew members responsible for these duties must be provided sufficient training by the Lessee to distinguish marine mammals and sea turtles from other phenomena and must be able to identify a marine mammal as a NARW, other whale (defined in this context as sperm whales or baleen whales other than NARWs), or other marine mammal, as well as identify sea turtles. Crew members serving as

[31] https://repository.library.noaa.gov/view/noaa/15851

[32] www.fisheries.noaa.gov/new-england-mid-atlantic/careers-and-opportunities/protected-species-observers

visual observers must not have other duties while observing for marine mammals.

5.11.3 Vessel Communication of Threatened and Endangered Species Sightings. The Lessee must ensure that whenever multiple Project vessels are operating, any detections of ESA-listed species (marine mammals and sea turtles) are communicated in near real time to these personnel on the other Project vessels: PSO, vessel operators, or both.

5.11.3.1 Year-round, all vessel operators must monitor the Project's Situational Awareness System, WhaleAlert, USCG VHF Channel 16, and the Right Whale Sighting Advisory System (RWSAS) for the presence of NARWs once every 4-hour shift during Project-related activities. The PSO and PAM operator monitoring teams for all activities must also monitor these systems no less frequently than every 12 hours. If a vessel operator is alerted to a NARW detection within the Project area, the operator must immediately convey this information to the PSO and PAM teams.

5.11.3.2 Any observations of any large whale by any of the Lessee's staff or contractor, including vessel crew, must be communicated immediately to PSOs and all vessel operators to increase situational awareness.

5.11.4 Vessel Speed Requirements. All vessels must comply with existing and applicable NMFS vessel speed regulations for NARWs and the vessel speed restrictions in the NMFS BiOp and the MMPA ITA. Within 30 days after issuance of the MMPA ITA, the Lessee must submit a summary of all vessel speed requirements applicable to Project activities for review and approval by BOEM and BSEE. BOEM and BSEE will review the summary, and provide comments, if any, to the Lessee within 60 days of their submittal to BOEM and BSEE. The Lessee must resolve all comments to BOEM's and BSEE's satisfaction.

5.11.5 Vessel Strike Avoidance of Sea Turtles.

5.11.5.1 On all vessels operating north of the Virginia/North Carolina border between June 1 and November 30, the Lessee must post a trained lookout on all vessel transits during all phases of the Project to observe for sea turtles. The trained lookout must communicate any sightings, in real time, to the vessel operator so that the requirements below can be implemented.

5.11.5.2 On all vessels operating south of the Virginia/North Carolina border, the Lessee must post a trained lookout on all vessel transits during all phases of the Project to observe for sea turtles. The trained

lookout must communicate any sightings, in real time, to the vessel operator so that the requirements below can be implemented.

5.11.5.3 If a vessel is carrying a PSO or trained lookout for the purposes of maintaining watch for NARWs, an additional lookout is not required and this PSO or trained lookout must also maintain watch for sea turtles.

5.11.5.4 The trained lookout must monitor https://seaturtlesightings.org/ prior to each trip and report any observations of sea turtles in the vicinity of the planned trip to all vessel operators and lookouts on duty that day.

5.11.5.5 The trained lookout must maintain a vigilant watch and monitor a Vessel Strike Avoidance Zone (500 meters) at all times to maintain minimum separation distances from ESA-listed species. Alternative monitoring technology (e.g., night vision, thermal cameras, etc.) must be available to ensure effective watch at night and in any other low visibility conditions. If the trained lookout is a vessel crew member, monitoring must be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel operator, and reporting requirements.

5.11.5.6 If a sea turtle is sighted within 100 meters or less of the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless operationally unsafe) and then proceed away from the turtle at a speed of 4 knots or less until there is a separation distance of at least 100 meters, at which time the vessel may resume normal operations. If a sea turtle is sighted within 50 meters of the forward path of the operating vessel, the vessel operator must shift to neutral when operationally safe to do so and then proceed away from the turtle at a speed of 4 knots when the sea turtle is no longer in the forward path of the vessel. The vessel may resume normal operations once the sea turtle is no longer in the forward path of the vessel.

5.11.5.7 Vessel operators must avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats. If operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.

5.11.5.8 All vessel crew members must be briefed in the identification of sea turtles and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all Project vessels for identification of sea turtles. The requirement and process for reporting of sea turtles (including live, entangled, and dead

individuals) must be clearly communicated and posted in highly visible locations aboard all Project vessels, so that there is a clear requirement for reporting to the designated vessel contact (such as the lookout or the vessel operator, as well as a communication channel and process for crew members to do so.

5.11.5.9 If the Lessee is unable to comply with Sections 5.11.5.1 through 5.11.5.8 due to operational safety, the Lessee must be report any such incident to BSEE and NMFS GARFO within 24 hours.

5.11.5.10 Vessel transits to and from the Wind Farm Area that require PSOs must maintain a speed commensurate with weather conditions and effectively detecting sea turtles prior to reaching the 100 meters separation distance mentioned above, at which point the vessel must reduce speed and avoid sea turtles.

5.12 WTG and OSS Foundation Installation Conditions (Construction) (Operations). Monopiles must be no larger than 9.5 meters in diameter Pin piles must be no larger than 2.8 meters in diameter. For all monopiles and pin piles, the Lessee must use the minimum amount of hammer energy necessary to effectively and safely install and maintain the integrity of the piles. Nominal hammer energies must not exceed 4,000 kilojoules for monopile installations and 3,000 kilojoules for pin pile installation.

5.12.1 The Lessee must submit all required documents related to WTG and OSS foundation installation conditions in Section 5.12.2 through Section 5.12.10 to: BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, NMFS Office of Protected Resources at PR.ITP.MonitoringReports@noaa.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.12.2 Seasonal and Daily Restrictions. Foundation vibratory and pile driving activities must not occur November 1 through April 30. No more than 2 monopile foundations or 2 pin piles for jacket foundations may be installed per day. The Lessee must not conduct pile driving operations at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevent visual monitoring of the full extent of the clearance and shutdown zones. The lead PSO must determine when sufficient light exists to allow effective visual monitoring in all cardinal directions. If light is insufficient, the lead PSO must call for a delay until the visual clearance zone is visible in all directions or must implement the Reduced Visibility Pile Driving Monitoring Plan. Under the terms of the NMFS BiOp, the Lessee is not allowed to conduct night-time (i.e., 1.5 hours before civil sunset to 1 hour after civil sunrise) pile driving.

5.12.3 Noise Mitigation Systems (NMS). The Lessee must deploy dual noise abatement systems that are capable of achieving, at a minimum, 10 decibels (dB) of sound attenuation from modeled data, during all foundation impact and

vibratory pile driving of monopiles and pin piles and must comply with the following requirements related to noise abatement:

5.12.3.1 A single bubble curtain must not be used unless paired with another noise attenuation device;

5.12.3.2 A double big bubble curtain may be used without being paired with another noise attenuation device;

5.12.3.3 The bubble curtain(s) must distribute air bubbles using an air flow rate of at least 0.5 m3/(min*m). The bubble curtain(s) must surround 100 percent of the piling perimeter throughout the full depth of the water column. In the event of a single compressor malfunction, the offshore personnel operating the bubble curtain(s) must make appropriate adjustments to the air supply and operating pressure such that the maximum possible sound attenuation performance of the bubble curtain(s) is achieved;

5.12.3.4 The Lessee must ensure the lowest bubble ring must be in contact with the seafloor for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seafloor contact;

5.12.3.5 The Lessee must inspect and carry out, as needed, appropriate maintenance (e.g., ensure bubble curtain hose maintenance, check bubble curtain air pressure supply, add additional sound attenuation, manually clearing holes, etc.) on the Noise Attenuation System (NAS) prior to every pile driving event and prepare and submit a NAS inspection/performance report. For piles for which full SFV is carried out, this report must be submitted as soon as it is available, but no later than when the interim SFV report is submitted for the respective pile. Performance reports for all subsequent piles must be submitted with the weekly pile driving reports. All reports must be submitted to BOEM, BSEE, and NMFS at nmfs.gar.incidental-take@noaa.gov

5.12.3.6 Performance reports for each bubble curtain deployed must include water depth, current speed and direction, wind speed and direction, bubble curtain deployment/retrieval date and time, bubble curtain hose length, bubble curtain radius (distance from pile), diameter of holes and hole spacing, air supply hose length, compressor type (including rated Cubic Feet per Minute (CFM) and model number), number of operational compressors, performance data from each compressor (including Revolutions Per Minute (RPM), pressure, start times, and stop times), free air delivery (m^3/min), total hose air volume (m^3/(min m)), schematic of GPS waypoints during hose laying, maintenance procedures performed (pressure tests,

inspections, flushing, re-drilling, and any other hose or system maintenance) before and after installation and timing of those tests, and the length of time the bubble curtain was on the seafloor prior to foundation installation. Additionally, the report must include any important observations regarding performance (before, during, and after pile installation), such as any observed weak areas of low pressure. The report may also include any relevant video and/or photographs of the bubble curtain(s) operating during all pile driving.

5.12.4 Use of PSOs and PAM Operators. The Lessee must use PSOs and PAM operators before, during, and after all foundation installation activities. At minimum, four visual PSOs must be actively observing for marine mammals and sea turtles before, during, and after pile driving. At least two visual PSOs must be stationed on the pile driving vessel and at least two visual PSOs must be stationed on a secondary, PSO-dedicated vessel. The dedicated PSO vessel must be positioned approximately 3 km from the pile being driven and circle the pile at a speed of less than 10 kts. Concurrently, at least one PAM operator must actively monitor for marine mammals before, during, and after pile driving. PSOs fulfilling the role of both the PAM operator and PSO may be utilized interchangeably, if all relevant experience and educational requirements are met; however, PAM operators/PSOs must only serve in one capacity per watch period. During all monopile installation and in the two days prior to and daily throughout the construction, the Lead PSO must continue to consult the NOAA Fisheries North Atlantic right whale reporting systems for the presence of North Atlantic right whales.

5.12.5 Clearance and Shutdown Zones. The Lessee must use visual PSOs and PAM operators to monitor the area around each foundation pile before, during, and after pile driving. The clearance and shutdown zones are defined below.

Table 5.12.5 Pile Driving Clearance and Shutdown Zones		
Species	**Clearance Zone (Meters)**	**Shutdown Zone (Meters)**
Impact Pile Driving of Foundations		
NARW – visual detection	Minimum visibility zone plus any additional distance observable by the visual PSOs	Minimum visibility zone plus any additional distance observable by the visual PSOs
NARW – PAM	Any distance	Any distance
Fin, Sei, and Sperm Whale – WTG	5,100 [1]	1,750
Sea Turtles	1,000	500
Vibratory Pile Driving of Foundations		
NARW- visual detection	Any distance	Any distance
Fin, Sei, and Sperm Whale	1,000	1,000
Sea Turtles	1,000	100

Notes: [1] Distance for a one pile per day scenario. The two pile per day scenario is 6,500 m. All other categories have the same values for either one or two piles per day.

5.12.6 Sound Field Verification for WTGs. The Lessee must conduct SFV according to the SFV Plan on at least the first three monopiles installed. If any of the SFV measurements from any of the piles indicate that the distance to any isopleth of concern is larger than those modeled assuming 10 dB attenuation, before the next pile is installed, the Lessee must:

5.12.6.1 Identify additional measures that are expected to reduce sound levels to the modeled distances (e.g., add noise attenuation device, adjust hammer operations, adjust noise mitigation systems (NMS)); provide an explanation to BOEM, BSEE, NMFS GARFO and NMFS Office of Protected Resources (OPR) supporting that determination. BOEM and BSEE will coordinate with NMFS GARFO and NMFS OPR. Following BOEM and BSEE's concurrence with the determination, the Lessee must deploy those additional measures on any subsequent piles that are installed (e.g., if threshold distances are

exceeded on pile 1 then additional measures must be deployed before installing pile 2).

5.12.6.2 If any of the SFV measurements indicate that the distances to level A thresholds for ESA-listed whales or PTS peak or cumulative thresholds for sea turtles are larger than the modeled distances (assuming 10 dB attenuation), the clearance and shutdown zones for subsequent piles must be increased so that they are at least the size of the distances to those thresholds as indicated by SFV (e.g., if threshold distances are exceeded on pile 1 then the clearance and shutdown zones for pile 2 must be expanded). For every 1,500 m that a marine mammal clearance or shutdown zone is expanded, additional PSOs must be deployed from additional platforms to ensure adequate and complete monitoring of the expanded shutdown and/or clearance zone; the Lessee must submit a proposed monitoring plan describing the location of all PSOs for concurrence by NMFS. In the event that the clearance or shutdown zone for sea turtles needs to be expanded, the Lessee must submit a proposed monitoring plan for the expanded zones to BOEM and BSEE for concurrence in coordination with NMFS GARFO.

5.12.6.3 If after implementation of the measures outlined above, results from any subsequent SFV measurements remain larger than those modeled assuming 10 dB attenuation, the Lessee must identify additional measures such as noise attenuation device(s) and/or modifications to the pile driving operations (e.g., reduced hammer energy) that are expected to reduce noise and reduce the distance to thresholds of concern to no greater than the modeled distances (assuming 10 dB attenuation). The Lessee must provide an explanation to BOEM and BSEE in coordination with NMFS GARFO and NMFS OPR supporting that determination and, following concurrence from BOEM and BSEE, deploy those additional noise attenuation measures and/or modifications to pile driving operations on any subsequent piles that are installed (e.g., if threshold distances are still exceeded on pile 2 the additional measures must be deployed for pile 3). If clearance and shutdown zones must be expanded, they must be consistent with the requirements of the section above.

5.12.6.4 If, following installation of the pile with additional noise mitigation measures required by Section 5.12.3, SFV results indicate that any isopleths of concern are still larger than those modeled assuming 10 dB attenuation, the Lessee, before any additional piles can be installed, must: identify and propose for review and concurrence additional, modified, and/or alternative noise attenuation measures or operational changes that present a reasonable likelihood of reducing sound levels to the modeled distances (assuming 10 dB attenuation),

and provide an explanation to NMFS OPR and GARFO, BOEM, BSEE, and USACE supporting that determination and requesting concurrence to proceed. Following concurrence from BOEM and BSEE in coordination with NMFS OPR and GARFO, the Lessee must implement those measures and any expanded clearance and shutdown zone sizes (and any required additional PSOs) consistent with the requirements of Section 5.12.7.2. Additionally, the Lessee must continue SFV for two additional piles with the additional noise mitigation measures and submit the interim reports as required above (for a total of at least three piles with consistent additional noise attenuation measures).

5.12.6.4.1 If no additional measures are identified for implementation, or if the SFV required by Section 5.6.6 indicates that the distance to any isopleths of concerns for any ESA listed species are still larger than those modeled assuming 10 dB attenuation, BOEM will discuss with other co-action agencies the results of SFV monitoring, the severity of exceedance of distances to identified isopleths of concern, the species affected, modeling assumptions, and whether additional action is required.

5.12.6.5 Following installation of the pile with additional noise attenuation measures required by Section 5.12.6.3, if SFV results indicate that all isopleths of concern are within distances to isopleths of concern modeled assuming 10 dB attenuation, the Lessee must conduct SFV on two additional piles (for a total of at least three piles with consistent additional noise attenuation measures). If the SFV results from each pile are within the distances to isopleths of concern modeled assuming 10 dB attenuation, then the Lessee must continue to implement the additional sound attenuation measures. The Lessee may request concurrence from BOEM and/or BSEE in coordination with NMFS OPR and GARFO to revert to the original clearance and shutdown zones or continue with the expanded clearance and shutdown zones with additional PSOs.

5.12.6.6 Abbreviated SFV Monitoring. The Lessee must conduct Abbreviated SFV monitoring for all foundation installations for which the thorough SFV monitoring outlined above is not carried out. To accomplish this, the Lessee must place a single acoustic recorder at an appropriate distance from the pile to record sounds during pile driving. The Lessee must submit results of measured sound levels in the weekly PSO pile driving reports. The Lessee must include in the report any indications that distances to the identified Level A and Level B harassment thresholds for whales or distances to injury or behavioral disturbance distances for sea turtles were exceeded. If results indicate that harassment threshold distances or injury or

behavioral disturbance distances were exceeded, the Lessee must address the cause of the exceedance, including an explanation of factors that contributed to the exceedance and corrective actions that were taken, to avoid exceedance on subsequent piles.

5.12.7 Sound Field Verification for OSSs. The Lessee must implement Sound Field Verification (SFV) on all piles associated with the installation of all three OSS foundations, for all four pin piles, and for vibratory pile driving. If any of the SFV measurements from the first OSS foundation installation indicate that the distance to any isopleth of concern is larger than those modeled assuming 10 dB attenuation, the Lessee must, before the second OSS foundation is installed.

5.12.7.1 Identify measures that are expected to reduce sound levels to the modeled distances (e.g., adding a noise attenuation device, adjusting hammer operations, adjusting noise mitigation system (NMS)); provide an explanation to BOEM, BSEE, NMFS GARFO and NMFS OPR supporting that determination; and, following concurrence from BOEM in consultation with NMFS GARFO, deploy those additional measures for the second OSS foundation.

5.12.7.2 If any of the SFV measurements indicate that the distances to level A thresholds for ESA-listed whales or PTS peak or cumulative thresholds for sea turtles are larger than the modeled distances (assuming 10 dB attenuation), the clearance and shutdown zones for the second OSS foundation must be increased so that they are at least the size of the distances to those thresholds as indicated by SFV. For every 1,500 m that a marine mammal clearance or shutdown zone is expanded, additional PSOs must be deployed from additional platforms to ensure adequate and complete monitoring of the expanded shutdown and/or clearance zone; the Lessee must submit a proposed monitoring plan describing the location of all PSOs for concurrence by BOEM and BSEE in coordination with NMFS GARFO and NMFS OPR. If the clearance or shutdown zone for sea turtles needs to be expanded, the Lessee must submit a proposed monitoring plan for the expanded zones for concurrence by BOEM and BSEE in coordination with NMFS GARFO.

5.12.7.3 If, after implementation of Section 5.12.7.1, any subsequent SFV measurements for OSS foundation 2 are still larger than those modeled assuming 10 dB attenuation, the Lessee must identify and propose for review and concurrence an additional noise attenuation device or devices (e.g., additional bubble curtain) and/or modifications to pile driving operations (e.g., reduced hammer energy) to reduce noise and reduce the distance to thresholds of concern to no greater than the modeled distances (assuming 10 dB attenuation). Additionally, the Lessee must provide an explanation to BOEM, BSEE, NMFS GARFO, and NMFS OPR supporting that

determination and deploy those additional noise attenuation measures on any subsequent piles that are installed following concurrence from BOEM and/or BSEE in coordination with NMFS GARFO and NMFS OPR (e.g., if threshold distances are still exceeded on OSS 2 the additional measures must be deployed for OSS 3). Clearance and shutdown zones must be expanded consistent with the requirements of Section 5.12.7.2.

5.12.7.4 If, following installation of the OSS with additional noise attenuation measures required by Section 5.12.7.3, SFV results indicate that any isopleths of concern are still larger than those modeled assuming 10 dB attenuation, the Lessee must, before the third OSS can be installed, identify and propose for review and concurrence an additional noise attenuation device or devices and/or modifications to the pile driving operations that are expected to reduce noise and reduce the distance to thresholds of concern to no greater than the modeled distances (assuming 10 dB attenuation). Following concurrence from BOEM and/or BSEE in consultation with NMFS GARFO, the Lessee must implement those measures, along with the expanded clearance and shutdown zones and additional PSOs (see Section 5.12.7.3) for the third OSS.

5.12.7.5 If the Lessee is unable to identify additional measures for implementation in Section 5.12.7.3, or if the SFV required above indicates that the distance to any isopleths of concerns for any ESA listed species are still larger than those modeled assuming 10 dB attenuation BOEM will discuss with other co-action agencies the results of SFV monitoring, the severity of exceedance of distances to identified isopleths of concern, the species affected, modeling assumptions, and whether additional action is required. Following installation of the second OSS with additional noise attenuation measures required by Section 5.12.7.3, if SFV results indicate that all isopleths of concern are within distances to isopleths of concern modeled assuming 10 dB attenuation, the Lessee must continue to implement the additional sound attenuation measures for OSS 3 and, upon BOEM and BSEE's concurrence in consultation with NMFS GARFO, the Lessee can revert to the original clearance and shutdown zones or continue with the expanded clearance and shutdown zones with additional PSOs.

5.12.8 Clearance or Shutdown Zone Adjustment After SFV. The Lessee must conduct SFV consistent with the SFV Plan. BOEM and BSEE, in cooperation with NMFS OPR and NMFS GARFO, may approve the Lessee's request for reductions in the shutdown zones for sei, fin or sperm whales based upon SFV of a minimum of 3 piles; however, the shutdown zone for sei whales, fin whales, and sperm whales must not be reduced to fewer than 1,000 meters, or

500 meters for sea turtles. This stipulation does not apply to the clearance or shutdown zones for NARWs.

5.12.9 Pile Driving Clearance Zones for Marine Mammals and Sea Turtles. The Lessee must establish and implement clearance and shutdown zones (all distances to the perimeter are the radii from the center of the pile being driven) as described above for all WTG and OSS foundation installation. The Lessee must use visual PSOs and PAM operators to monitor the area around each foundation pile before, during, and after pile driving. PSOs must visually monitor clearance zones for marine mammals and sea turtles for a minimum of 60 minutes prior to commencing pile driving. Acoustic PSOs (at least one PAM operator) must review data from at least 24 hours prior to pile driving and actively monitor hydrophones for 60 minutes prior to pile driving. Prior to initiating soft-start procedures, the entire minimum visibility zone must be visible (i.e., not obscured by dark, rain, fog, etc.) and all clearance zones must be visually confirmed to be free of marine mammals and sea turtles for 30 minutes immediately prior to starting a soft-start of pile driving. Clearance zones extending beyond this minimum visibility zone may be cleared using both visual and acoustic methods. If a marine mammal or sea turtles is observed entering or within the relevant clearance zone prior to the initiation of pile driving activities, pile driving must be delayed and must not begin until either the marine mammal(s) or sea turtle(s) has voluntarily left the specific clearance zones and have been visually or acoustically confirmed beyond that clearance zone, or, when specific time periods have elapsed with no further sightings or acoustic detections have occurred (i.e., 15 minutes for small odontocetes and 30 minutes for all other marine mammal species and sea turtles). The clearance zone may only be declared clear if no confirmed NARW acoustic detections (in addition to visual) have occurred during the 60-minute monitoring period. Any large whale sighting by a PSO or detected by a PAM operator that cannot be identified as a non-NARW must be treated as if it were a NARW.

5.12.9.1 During periods of low visibility (e.g., darkness, rain, fog, etc.), PSOs must use alternative technology (i.e., IR/thermal camera) to achieve the required minimum visibility zone and monitor the clearance and shutdown zones.

5.12.10 Pile Driving Shutdown for Marine Mammals and Sea Turtles. If a marine mammal or sea turtle is observed entering or within the respective shutdown zone, as defined above, during pile driving, the PSO must call for a temporary cessation of pile driving. The Lessee must immediately cease pile driving upon orders of the PSO unless shutdown is not practicable due to imminent risk of injury or loss of life to an individual, risk of damage to a vessel that creates risk of injury or loss of life for individuals, risk of pile refusal, or pile instability that may lead to a risk of injury or the loss of life (as determined by the lead engineer). In this situation, reduced hammer energy must be implemented instead (for pile driving), as determined to be practicable. The Lessee must file a report with BSEE, NMFS OPR, and NMFS GARFO if any ESA-listed species

is observed within the identified shutdown zone during active pile driving as described in Section 5.14.4.

5.12.10.1 Pile Driving Restart Procedures for Marine Mammal or Sea Turtle Detections. Pile driving must not restart until either the marine mammal(s) or sea turtle(s) has voluntarily left the specific clearance zones and has been visually or acoustically confirmed beyond that clearance zone, or, when the appropriate time-- 5 minutes for small odontocetes and pinnipeds and 30 minutes for all other marine mammal species and sea turtles-- has elapsed with no further sightings or acoustic detections have occurred. In cases where these criteria are not met, the Lessee may only restart pile driving if necessary to maintain pile stability at which time the lowest hammer energy must be used to maintain stability. If pile driving has been shut down due to the presence of a NARW, the lessee may not restart pile driving until the NARW is no longer observed or 30 minutes have elapsed since the last detection. The Lessee must use soft start protocols upon re-starting pile driving.

5.12.10.2 Soft Start for Pile Driving. The Lessee must use a soft start protocol for pile driving of monopiles by performing 4-6 strikes per minute at 10 to 20 percent of the maximum hammer energy, for a minimum of 20 minutes. Soft start must be used at the beginning of pile driving for each day's monopile pin pile installation, and at any time following a cessation of pile driving of 30 minutes or longer. If a marine mammal or sea turtle is detected within or about to enter the applicable clearance zones, prior to the beginning of soft-start procedures, pile driving must be delayed until the animal has been visually observed exiting the clearance zone or until a specific time period has elapsed with no further sightings (i.e., 15 minutes for small odontocetes and pinnipeds and 30 minutes for all other marine mammal species and sea turtles).

5.13 High Resolution Geophysical (HRG) Survey Conditions for Marine Mammals and Sea Turtles (Planning) (Construction) (Operations) (Decommissioning).

5.13.1 The Lessee must submit all required documents related to HRG survey conditions in Section 5.13.2 through Section 5.13.8 to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, to NMFS OPR at PR.ITP.monitoringreports@noaa.gov, and to NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.13.2 Use of PSOs. The Lessee must employ qualified NMFS-approved PSOs during HRG surveys related to the Project using sound sources operating at frequencies below 180 kHz. PSOs must begin visually monitoring 30 minutes prior to the initiation of the specified acoustic source (i.e., ramp-up, if applicable) through

30 minutes after the use of the specified acoustic source has ceased. Any observations of marine mammals must be communicated to PSOs on all nearby survey vessels during concurrent HRG surveys. PSOs must establish and monitor the clearance and shutdown zones described below. These zones must be based on the radial distance from the acoustic source and not from the vessel.

Table 5.13.2 HRG Survey Clearance and Shutdown Zones		
Species	**Clearance Zone (Meters)**	**Shutdown Zone (Meters)**
NARW – visual detections	500	500
Fin, sei, and sperm whale	500	500
Sea Turtles	500	100

5.13.3 HRG Clearance Procedures. The Lessee must implement a 30-minute clearance period of the clearance zones immediately prior to the commencing of the survey or when there is more than a 30-minute break in survey activities and PSOs are not actively monitoring. The clearance zones must be monitored by PSOs, using the appropriate visual technology. If a marine mammal or sea turtle is observed within a clearance zone during the clearance period, ramp-up must not begin until the animal(s) has been observed voluntarily exiting its respective clearance zone or until the time periods described in Section 5.12.10 have elapsed). In any case when the clearance process has begun in conditions with good visibility, including via the use of night vision equipment (IR/thermal camera), and the Lead PSO has determined that the clearance zones are clear of marine mammals and sea turtles, survey operations may commence (i.e., no delay is required) despite periods of inclement weather and/or loss of daylight.

5.13.3.1 During periods of low visibility (e.g., darkness, rain, fog, etc.), PSOs must use alternative technology (i.e., IR/thermal camera) to achieve the required minimum visibility zone and monitor the clearance and shutdown zones.

5.13.4 HRG Shutdown Procedures. Once the survey has commenced, the Lessee must shut down boomers, sparkers, and CHIRPs if a marine mammal or sea turtle enters a respective shutdown zone. In cases when the shutdown zones become obscured for brief periods due to inclement weather, survey operations may continue (i.e., no shutdown is required) so long as no marine mammals or sea turtles have been detected. The use of boomers, and sparkers, and CHIRPS must not commence or resume until the animal(s) has been confirmed to have left the shutdown zone or until a full 15 minutes (for small odontocetes and seals) or 30 minutes (for all other marine mammals and sea turtles) have elapsed with no further sighting. Any large whale sighted by a PSO within 1,000 meters of the

boomers, sparkers, and CHIRPs that cannot be identified as a non-NARW must be treated as if it were a NARW.

Shutdown zones are defined as: a 500-meter zone for the NARW and all other ESA-listed marine mammal species. The shutdown requirement is waived for small delphinids of the following genera: *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Tursiops*. Specifically, if a delphinid from the specified genera is visually detected approaching the vessel (i.e., to bow-ride) or towed equipment, shutdown will not be required. Furthermore, if there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), the PSOs must use their best professional judgment in making the decision to call for a shutdown. Additionally, shutdown is required if a delphinid that belongs to a genus other than those specified is detected in the shutdown zone. If surveys are necessary during periods of low visibility (e.g., darkness, rain, fog, etc.), an Alternative Monitoring Plan must be submitted to BOEM and BSEE detailing the monitoring methodology that will be used during nighttime and low-visibility survey operations. The plan must be submitted at least 60 days before low visibility survey operations are planned to begin for a 30-day review. Comments must be resolved to BOEM and BSEE's satisfaction.

5.13.5 HRG Restart Procedures. If a boomer, sparker, or CHIRP is shut down for reasons other than mitigation (e.g., mechanical difficulty) for fewer than 30 minutes, it may be activated again without ramp-up only if: (1) PSOs have maintained constant observation and (2) no additional detections of any marine mammal or sea turtles occurred within the respective shutdown zones. If a boomer, sparker, or CHIRP was shut down for a period longer than 30 minutes, then all clearance and ramp-up procedures must be initiated.

5.13.6 Ramp-Up Procedures. At the start or restart of the use of boomers, sparkers, and/or CHIRPs, a ramp-up procedure (i.e., gradual increase in source level output) must be followed unless the equipment operates on a binary on/off switch. Operators must ramp up sources to half power for 5 minutes and then proceed to full power. Prior to a ramp-up procedure starting, the operator must notify a PSO of the planned start of the ramp-up. This notification time must not be fewer than 60 minutes prior to the planned ramp-up activities as all relevant PSOs must use the appropriate 30-minute period to monitor prior to the initiation of ramp-up. Prior to ramp-up beginning, visual clearance zones must be fully visible (e.g., not obscured by darkness, rain, fog, etc.) and the operator must receive confirmation from the PSO that the clearance zone is clear of any marine mammals and sea turtles. All ramp-ups must be scheduled to minimize the overall time spent with the source being activated. The ramp-up procedure must be used at the beginning of construction survey activities or after more than a 30-minute break in survey activities using the specified HRG equipment to provide additional protection to marine mammals and sea turtles in or near

the survey area by allowing them to vacate the area prior to operation of survey equipment at full power.

5.13.6.1 The Lessee must not initiate ramp-up until the clearance process has been completed (see Clearance and Shutdown Zones sections above). Ramp-up activities must be delayed if a marine mammal(s) or sea turtle(s) enters its respective shutdown zone. Ramp-up must only be reinitiated if the animal(s) has been observed exiting its respective shutdown zone or until additional time has elapsed with no further sighting (i.e., 15 minutes for small odontocetes and pinnipeds, and 30 minutes for all other marine mammal species and sea turtles).

5.13.7 The Lessee must deactivate acoustic sources during periods where no data are being collected, except as determined to be necessary for testing. Any unnecessary use of the acoustic source(s) must be avoided.

5.13.8 During daylight hours when survey equipment is not operating, the Lessee must ensure that visual PSOs conduct, as rotation schedules allow, observations for comparison of sighting rates and behavior with and without use of the specified acoustic sources. Off-effort PSO monitoring must be reflected in the monthly PSO monitoring reports.

5.14 Reporting (Planning) (Construction) (Operations) (Decommissioning).

5.14.1 The Lessee must submit all required documents related to ESA and non-ESA listed marine species reporting conditions in Section 5.14.2 through Section 5.14.6 to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, to NMFS OPR at PR.ITP.MonitoringReports@noaa.gov, and to NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.

5.14.2 Pre-Construction Reporting. Within 10 business days of BSEE issuing a no objection to the complete Facility Design Report (FDR)/Fabrication and Installation Report (FIR)[33] (but at least 30 days prior to the initiation of pile driving) or the soonest time the relevant information is available, the Lessee must provide BOEM, BSEE, and NMFS GARFO with the following information: number and size of foundations to be installed to support WTG and OSSs, installation method for each of the seven planned cofferdams, the proposed construction schedule (i.e., months when pile driving is planned), and information that has become available on the ports identified for foundation fabrication and load out, WTG pre-assembly and load out, and cable staging. BOEM will review the information and based on coordination with NMFS GARFO, BOEM will notify the Lessee within 30 days of NMFS GARFO's

[33] "Complete" is defined as the submission of all final FIR or FDR asset packages.

receipt of the information identified here whether ESA Section 7 consultation with NMFS needs to be reinitiated.

5.14.3 Situational Reporting.

5.14.3.1 Reporting of All NARW Sightings. If a NARW is observed at any time by PSOs or personnel on any Project vessels, during any Project-related activity, including during vessel transit, the Lessee must immediately report sighting information to BOEM, BSEE, NMFS (866-755-6622), the USCG via channel 16 and through the WhaleAlert app (http://www.whalealert.org/). The Lessee must include in its report the time, location, and number of animals sighted, animal behavior, animal closest point of approach, Project activities at time of detection, vessel speed, any mitigation measures implemented, and the reporter's contact information.

5.14.3.1.1 If a North Atlantic right whale is detected at any time by PSOs/PAM Operators via PAM, the Lessee must ensure the detection is reported as soon as possible and no longer than 24 hours after the detection to NMFS via the 24-hour North Atlantic right whale Detection Template (https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reportingsystem-templates). Calling the hotline is not necessary when reporting PAM detections via the template.

5.14.3.1.2 A summary report must be sent within 24 hours to NMFS GARFO (nmfs.gar.incidentaltake@noaa.gov) and NMFS OPR (PR.ITP.MonitoringReports@noaa.gov) with the above information and with confirmation that the sighting/detection was reported to the respective hotline, and describing: the vessel/platform from which the sighting/detection was made, the activity the vessel/platform was engaged in at time of sighting/detection, the Project construction and/or survey activity that was ongoing at time of sighting/detection (e.g., pile driving, cable installation, HRG survey), the distance from vessel/platform to animal at time of initial sighting/detection, the closest point of approach of whale to vessel/platform, vessel speed, and any mitigation actions taken in response to the sighting.

5.14.3.2 Reporting of ESA Listed Species within Shutdown Zone During Active Pile Driving. In the event that any ESA listed species is observed within the identified shutdown zone during active pile driving, the Lessee must file a report with BOEM, BSEE, and NMFS GARFO within 48 hours of the incident and include the following:

duration of pile driving prior to the detection of the animal, location of PSOs and any factors that impaired visibility or detection ability, time of detection of the animal, time the PSO called for shutdown, time the pile driving was stopped, and any measures implemented (e.g., reduced hammer energy) prior to shut down. The Lessee must include in its report the time that the animal was last detected and any PSO reports on the behavior of the animal. If shutdown was determined not to be feasible, the Lessee report must include an explanation for that determination and the measures that were implemented (e.g., reduced hammer energy).

5.14.3.3 Detected or Impacted Protected Species Reporting. The Lessee must report within 48 hours all observations or collections of a stranded, entangled, injured, or dead ESA-listed species (e.g., marine mammal, sea turtle, listed fish) to BSEE (via TIMSWeb and notification email to protectedspecies@bsee.gov) and NMFS. The Lessee must ensure its reports reference the Project and include the Take Report Form available on NMFS webpage (https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null). The report must include:

- Contact information (name, phone number, etc.), time, date, and location (coordinates) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition Biological Opinion and Conference for Coastal Virginia Offshore Wind (CVOW) OPR-2023-02218 240 if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered. Staff responding to the hotline call will provide any instructions for handling or disposing of any injured or dead animals, which may include coordination of transport to shore, particularly for injured sea turtles.

5.14.3.3.1 The Lessee must ensure reports of Atlantic sturgeon take include a statement as to whether a fin clip sample for genetic sampling was taken. Fin clip samples are required in all cases with the only exception being when additional handling of the sturgeon may result in an imminent risk of injury to the fish or the PSO. Incidents falling within the exception are expected. Instructions for fin clips and associated metadata are available at

https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic under the "Sturgeon Genetics Sampling" heading.

5.14.3.3.2 The Lessee must report any suspected or confirmed vessel strike of any ESA-listed species (marine mammal, sea turtle, listed fish) by any Project vessel in any location, including observation of any injured sea turtle/sturgeon or sea turtle/sturgeon parts to BOEM, BSEE, NMFS GARFO, and NMFS New England/Mid-Atlantic Regional Stranding Hotline (866-755-6622) as soon as feasible. Separately, the Lessee must report the incident, if in the Greater Atlantic region (ME to VA) to GARFO (nmfs.gar.incidentaltake@noaa.gov) or if in the Southeast region (NC-FL) to NMFS SERO (secmammalreports@noaa.gov) as soon as feasible. The Lessee must include in the report the following information:

- Time, date, and location of the incident;
- Species identification (if known) or description of the animal(s) involved (i.e., identifiable features including animal color, presence of dorsal fin, body shape and size);
- Vessel strike reporter information (name, affiliation, email for person completing the report);
- Vessel strike witness (if different than reporter) information (name, affiliation, phone number, platform for person witnessing the event);
- Vessel name and/or MMSI number;
- Vessel size and motor configuration (inboard, outboard, jet propulsion);
- Vessel's speed leading up to and during the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Part of vessel that struck whale (if known);
- Vessel damage notes;
- Status of all sound sources in use;
- If animal was seen before strike event;
- Behavior of animal before strike event;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (e.g., wind speed and

direction, Beaufort scale sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated (or actual, if known) size and length of animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Other animal details if known (e.g., length, sex, age class);
- Behavior or estimated fate of the animal post-strike (e.g., dead, injured but alive, injured and moving, external visible wounds (linear wounds, propeller wounds, non-cutting blunt-force trauma wounds), blood or tissue observed in the water, status unknown, disappeared);
- To the extent practicable, photographs or video footage of the animal(s); and
- Any additional notes the witness may have from the interaction.

5.14.3.4 Detected or Impacted Dead Non-ESA-Listed Fish. The Lessee must report any occurrence of at least 10 dead non-ESA-listed fish within established shutdown or monitoring zones to BOEM and BSEE as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours after the sighting. BOEM or BSEE will notify NMFS GARFO. The Lessee must confirm the relevant point of contact prior to reporting and confirm the reporting was received.

5.14.3.5 SFV Interim Reports. The Lessee must also provide, as soon as they are available, but no later than 48 hours after the installation of each of the first three monopiles and each of the three OSS foundations (inclusive of all four pin piles), the initial results of the SFV measurements to BOEM, BSEE, and NMFS GARFO in an interim report. If technical or other issues prevent submission within 48 hours, the Lessee must notify NMFS GARFO within that 48-hour period with the reasons for delay and provide an anticipated schedule for submission of the report. This report is required for each of the first three monopiles and each of the three OSS foundations installed and any additional piles for which SFV is required. The interim report must include data from hydrophones identified for interim reporting in the SFV Plan and include a summary of pile installation activities (pile diameter, pile weight, pile length, water depth, sediment type, hammer type, total strikes, total installation time [start time, end time], duration of pile driving, max single strike

energy, NAS deployments), pile location, recorder locations, modeled and measured distances to thresholds, received levels (rms, peak, and SEL) results from Conductivity, Temperature, and Depth (CTD) casts/sound velocity profiles, signal and kurtosis rise times, pile driving plots, activity logs, weather conditions. If there are any updates to the requirements to the contents of the Interim Plan, including availability of a template, this will be provided to CVOW as soon as any such updates are available.

5.14.3.5.1 The final results of SFV for monopile installations must be submitted as soon as possible, but no later than within 90 days following completion of pile driving.

5.14.3.5.2 The final results of SFV for the three OSS foundation installations must be submitted as soon as possible, but no later than within 90 days following completion of pile driving.

5.14.4 Weekly Pile Driving Reports. The Lessee must compile and submit weekly reports during pile driving that document the start and stop of all pile driving daily, the start and stop of associated observation periods by the PSOs, details on the deployment of PSOs, and a record of all observations of marine mammals and sea turtles. These weekly reports must be submitted to NMFS OPR, NMFS GARFO, BOEM, and BSEE directly from the PSO providers and may consist of raw data. Weekly reports must be submitted no later than Wednesday for the previous week (Sunday – Saturday).

5.14.4.1 Weekly monitoring reports must include: Summaries of pile driving activities and piles installed, including, start and stop times, pile locations, NMS performance (as described in 5.9.3.7), and PSO coverage; Vessel operations (including port departures, number of vessels, type of vessel(s), and route); All protected species detections (including species identification, number of animals, time at initial detection, time at final detection, distance to pile at initial detection, closest point of approach to pile, animal direction of travel relative to pile; description of animal behavior, features used to identify species, and for moving vessels: speed (knots), distance and bearing to animal at initial detection, closest point of approach and bearing to animal, distance and bearing to animal at final detection, and animal direction of travel relative to vessel); Vessel strike avoidance measures taken; and any equipment shutdowns or takes that may have occurred.

5.14.4.2 The Lessee must reduce any unanticipated impacts on marine mammals and sea turtles by adjusting pile driving monitoring protocols for clearance and shutdown zones, taking into account weekly monitoring results. Any proposed changes to monitoring

protocols must be concurred with by BOEM, BSEE in coordination with NMFS before those protocols are implemented.

5.14.5 Monthly Reports. The Lessee must compile and submit monthly reports that include a summary of all Project activities carried out in the previous month, vessel transits (number, type of vessel, and route inclusive of port of origin and destination), and piles installed, and all observations of ESA listed whales, sea turtles, and sturgeon. These reports must be submitted to BOEM BSEE, NMFS OPR, and NMFS GARFO no later than the 15th of the month for the previous month.

5.14.5.1 Reporting Instructions for PSO Pile Driving Monitoring Reports. PSOs must collect data consistent with standard reporting forms, software tools, or electronic data forms authorized by BOEM for the particular activity. PSOs must fill out report forms for each vessel with PSOs aboard. Unfilled cells must be left empty and must not contain "NA." The reports must be submitted in Word and Excel formats (not as a pdf). Enter all dates as YYYY-MM-DD. Enter all times in 24 Hour Coordinated Universal Time (UTC) as HH:MM. Create a new entry on the Effort form each time a pile segment changes or weather conditions change, and at least once an hour as a minimum. Review and revise all forms for completeness and resolve incomplete data fields before submittal. The file name must follow this format: Lease#_ ProjectName_PSOData_YearMonthDayto YearMonthDay.xls. Data fields must be reported in Excel format. Data categories must include Project, Operations, Monitoring Effort, and Detection, as further specified below. All PSO data must be generated through software applications or otherwise recorded electronically by PSOs and provided to BOEM and BSEE in electronic format (csv files or similar format) and be QA/QC'd. Applications developed to record PSO data are encouraged, as long as the data fields listed below can be recorded and exported into Excel. Alternatively, BOEM has developed an Excel spreadsheet, with all the necessary data fields, that is available upon request.

Required data fields include:

Project Information:

- Project name
- Lease number
- State coastal zones
- PSO contractors
- Vessel names
- Reporting dates (YYYY-MM-DD)
- Visual monitoring equipment used (e.g., bionics, magnification, IR cameras, etc.)

- Distance finding method used
- PSO names (Last, First) and training
- Observation height above sea surface

Operations Information:

- Date (YYYY-MM-DD)
- Hammer type used (make and model)
- Greatest hammer power used for each pile
- Pile identifier and pile number for the day (e.g., pile 2 of 3 for the day)
- Pile diameters
- Pile length
- Total number of strikes used to install each pile
- Total hammer energy used to install each pile
- Pile locations (latitude and longitude)
- Number of vessel transits
- Types of vessels used
- Vessel routes used

Monitoring Effort Information:

- Date (YYYY-MM-DD)
- Noise source (ON=Hammer On; OFF=Hammer Off)
- PSO name(s) (Last, First)
- If visual, how many PSOs on watch at one time?
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Time pre-clearance PAM monitoring began in UTC (HH:MM)
- Time PAM monitoring ended in UTC (HH:MM)
- Duration of pre-clearance PAM and visual monitoring
- Time power-up/ramp-up began
- Time equipment full power was reached
- Duration of power-up/ramp-up
- Time pile driving began (hammer on)
- Time pile driving activity ended (hammer off)
- Duration of activity
- Duration of visual detection
- Wind speed (knots), from direction
- Swell height (meters)
- Water depth (meters)
- Visibility (kilometers)
- Glare severity
- Latitude (decimal degrees), longitude (decimal degrees)
- Compass heading of vessel (degrees)

- Beaufort scale
- Precipitation
- Cloud coverage (%)
- Did a shutdown/power-down occur?
- Time shutdown was called for (UTC)
- Time equipment was shut down (UTC)
- Habitat or prey observations
- Marine debris sighted

Detection Information:

- Date (YYYY-MM-DD)
- Sighting ID (V01, V02, or sequential sighting number for that day; multiple sightings of the same animal or group should use the same ID)
- Date and time at first detection in UTC (YY-MM- DDT HH:MM)
- Time at last detection in UTC (YY-MM-DDT HH:MM)
- PSO name(s) (Last, First)
- Effort (ON=Hammer On; OFF=Hammer Off)
- If visual, how many PSOs on watch at one time?
- Start time of observations
- End time of observations
- Duration of visual observation
- Wind speed (knots), from direction
- Swell height (meters)
- Water depth (meters)
- Visibility (kilometers)
- Glare severity
- Latitude (decimal degrees), longitude (decimal degrees)
- Compass heading of vessel (degrees)
- Beaufort scale
- Precipitation
- Cloud coverage (%)
- Sightings including common name, scientific name, or family
- Certainty of identification
- Number of adults
- Number of juveniles
- Total number of animals
- Bearing to animals when first detected (ship heading+ clock face)
- Bearing to animals a closest approach (ship heading+ clock face)
- Bearing to animal at final detection (ship heading+ clock face)
- Range from vessel and pile (reticle distance in meters)

- Description (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to activity and distance from service vessel)
- Direction of animal travel in first approach (relative to vessel and pile)
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- If any bow-riding behavior observed, record total duration during detection (UTC HH:MM)
- Initial heading of animals (degrees)
- Final heading of animals (degrees)
- Shutdown zone size during detection (meters)
- Was the animal inside the shutdown zone?
- Closest distance to vessel and pile (reticle distance in meters)
- Time at closest approach to vessel and pile (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)
- If observed/detected during ramp-up/power-up: first distance (reticle distance in meters), closest distance (reticle distance in meters), last distance (reticle distance in meters), behavior at final detection
- Did a shutdown/power-down occur?
- Time shutdown was called for (UTC HH:MM)
- Time equipment was shut down (UTC HH:MM)
- Detections with PAM

5.14.6 Annual Reports. Beginning in Year 2 of operations, the Lessee must compile and submit annual reports that include a summary of all Project activities carried out in the previous year, including vessel transits (number, type of vessel, and route inclusive of port origin and destination), repair and maintenance activities, survey activity, and all observations of ESA-listed species. The annual reports must be submitted to BOEM, BSEE, NMFS OPR, and NMFS GARFO. The Lessee must submit these reports by April 1 of each year (i.e., the 2026 report is due by April 1, 2027) for the previous calendar year. Upon mutual agreement of NMFS, BOEM, and BSEE, the frequency of reports can be changed.

6 CONDITIONS RELATED TO COMMERCIAL FISHERIES AND FOR-HIRE RECREATIONAL FISHING

6.1 Fisheries Compensation and Mitigation Funds (Planning) (Construction) (Operations) (Decommissioning). No later than 1 year after the approval of the COP, unless a different schedule is agreed to as a component of a separate agreement between the Lessee and the Commonwealth of Virginia, the Lessee must establish and implement a direct compensation program to provide monetary compensation to commercial and for-hire fishermen impacted by the Project funded in accordance with Sections 6.1.1 and 6.1.2 below. Calculation steps are shown in Section 6.1.3 below.

6.1.1 Direct Compensation Program. The Lessee must ensure that the Direct Compensation Fund includes an amount sufficient to be used to pay claims brought by both commercial and for-hire fishermen and must be based, at a minimum, on the annual average commercial fisheries landings values and for-hire fishing revenue as stated in FEIS Tables 3.9-7 and page 3.9-23 ($61,300), respectively, of the Coastal Virginia Offshore Wind FEIS. The fund amount must be determined by the formula set out below or any agreements with state programs, whichever is greater (see Section [c] below).

6.1.1.1 The fund must include 100 percent of annual revenue exposure during the construction period and (pending BSEE's approval of the Lessee's decommissioning application) projected decommissioning period, 100 percent of annual revenue exposure for the first year after construction, 80 percent of revenue exposure 2 years after construction, 70 percent of revenue exposure 3 years after construction, 60 percent after four years, and 50 percent after five years post construction. Compensatory mitigation beyond 5 years post-construction may be necessary. BSEE will evaluate the need for additional compensatory mitigation consistent with the Annual Certification under 30 C.F.R. § 285.633(a).

6.1.1.2 Except for the calculation of fund amounts for commercial and for-hire fishermen in Virginia, where final mitigation agreements have been approved, the compensation calculations described above must be normalized using the GDP Implicit Price Deflator (U.S. Bureau of Economic Analysis,[34] "Table 1.1.9. Implicit Price Deflators for Gross Domestic Product") once the construction year and five years post-construction are known.

6.1.1.3 The Lessee must establish the following compensation/mitigation funds for compensation of income losses by commercial or for-hire fishermen directly related to the Project. However, if the requirements in an agreement between the Lessee and Virginia to provide for

[34] https://apps.bea.gov/iTable/?reqid=19&step=3&isuri=1&1921=survey&1903=11#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbIk5JUEFfVGFibGVfTGlzdCIsIjEzIl0sWyJDYXRlZ29yaWVzIiwiU3VydmV5Il0sWyJGaXJzdF9ZZWFyIiwiMjAyMCJdLFsiTGFzdF9ZZWFyIiwiMjAyMyJdLFsiU2NhbGUiLCIwIl0sWyJTZXJpZXMiLCJBIl1dfQ==

compensation/mitigation listed in this section exceed the revenue for commercial fishermen in that state as described in Table 3.9-7 in the Coastal Virginia Offshore Wind Project FEIS, the Lease Area Average Annual Revenue listed in table 3.9-7 for Virginia may be omitted from the calculation described in Section 6.1.3.

6.1.1.3.1 Compensatory Mitigation Fund – includes up to $40,000,000 for specific claims made by commercial or for-hire recreational fishermen and fishery-related shoreside businesses in relation to income loss due to construction closures or presence of Project structures.

6.1.1.3.2 Surfclam Compensatory Mitigation Fund – includes up to $3,000,000 for specific claims made by Atlantic surfclam commercial fishing businesses or related shoreside businesses, in relation to income loss due to construction closures or presence of Project structures.

6.1.2 Shoreside Support Services. At least 90 days prior to establishment of the Direct Compensation Program described in Section 6.1.1, the Lessee must submit to BOEM a Shoreside Support Services report for a 60-day review and approval. If a state agreement for compensatory mitigation includes shoreside services, the amount allocated to shoreside services in the state agreement (s) may be removed from the analysis if greater than BOEM's requirements, as described in 6.1.1.3. The report must include a description of the structure of the Direct Compensation Fund, and an analysis of the impacts of the Project to shoreside support services (such as seafood processing and vessel repair services) within communities near the ports in the table below.

Table 6.1.2 Port and State
Virginia Beach, Virginia
North Kingstown, Rhode Island
Newport News, Virginia
Davisville, Rhode Island
Chincoteague, Virginia
Hampton, Virginia
Wanchese, North Carolina
Cape May, New Jersey
Engelhard, North Carolina
Norfolk, Virginia

6.1.3 Compensation Calculations. Once the values at 6.1.1 and 6.1.2 are determined, the Lessee must use Table 6.1.3-1 and Table 6.1.3-2 to calculate the total fund required by Section 6.1.1. The amount of the fund required must be normalized to current real prices from a base year as described in Section 6.1.1.2. The Lessee may use the most recent complete year's GDP Implicit Price Deflator to estimate Direct Compensation Fund requirements after COP approval if the current year is unavailable (n_i).

As described in 6.1.1.1, the Lessee must ensure the fund amount allows for, at a minimum, 100 percent of annual revenue exposure during the projected construction years and, pending BSEE approval of decommissioning plan, decommissioning years. The Lessee must use the GDP Implicit Price Deflator to adjust the annual average commercial fisheries landings values and for-hire fishing revenue stated in Table 3.9-7 and page 3.9-23 ($61,300), respectively, of the CVOW FEIS.

Table 6.1.3-1. Calculation Subcomponents for Construction and Decommissioning					
Project Status	**Base Annual Average Fishing Revenue Exposed to the Wind Farm Area[1]**	**Shoreside Support Services Multiplier[2]**	**Exposure Ratio**	**Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area**	**Reserve Requirements**
Construction	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	1	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](1 + \mathrm{M})$
Decommissioning[3]	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	1	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](1 + \mathrm{M})$

Notes: [1] Inflation-adjusted revenues from FEIS Tables 3.9-7 and page 3.9-23. The inflation-adjusted base equation is:

$$\left(\boldsymbol{Average\ Annual\ Commercial\ Fishing\ Revenue} \times \frac{\boldsymbol{n_i}}{\boldsymbol{105.381}}\right) + \left(\boldsymbol{Average\ Annual\ For-Hire\ Fishing\ Revenue} \times \frac{\boldsymbol{n_i}}{\boldsymbol{104.008}}\right)$$

[2] The Lessee's calculations of the Impacts to Shoreside Businesses Multiplier may use BOEM's draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* or future versions, but BOEM must, in all events, review the calculations.

[3] Decommissioning funds may be required pending BSEE's approval of Lessee's decommissioning application.

If Construction is expected to last *k* years and Decommissioning *j* years, the Lessee must calculate the reserve requirements as follows:

$$\boldsymbol{k}\left[\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](\mathbf{1} + \mathbf{M}) + \boldsymbol{j}\left[\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](\mathbf{1} + \mathbf{M}).$$

Table 6.1.3-2. Calculation Subcomponents by Operating Year					
Project Status	**Base Annual Average Fishing Revenue Exposed to the Wind Farm Area[1]**	**Shoreside Support Services Multiplier[2]**	**Exposure Ratio**	**Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area**	**Fund Requirements**
Operating Year 1	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	1	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](1 + \mathrm{M})$
Operating Year 2	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	0.8	$\left(\$842{,}000 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$490{,}400 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$842{,}000 \times \frac{\boldsymbol{n_i}}{105.381}\right) + (\$490{,}400 \times \frac{\boldsymbol{n_i}}{104.008})\right](1 + \mathrm{M})$
Operating Year 3	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	0.7	$\left(\$736{,}750 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$429{,}100 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$736{,}750 \times \frac{\boldsymbol{n_i}}{105.381}\right) + (\$429{,}100 \times \frac{\boldsymbol{n_i}}{104.008})\right](1 + \mathrm{M})$
Operating Year 4	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	0.6	$\left(\$631{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$367{,}800 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$631{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + (\$367{,}800 \times \frac{\boldsymbol{n_i}}{104.008})\right](1 + \mathrm{M})$

Operating Year 5	$\left(\$1{,}052{,}500 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$613{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	0.5	$\left(\$526{,}250 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$306{,}500 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$526{,}250 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$306{,}500 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](1 + \mathrm{M})$
Operating Total[3]				$\left(\$3{,}789{,}000 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$2{,}206{,}800 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left[\left(\$3{,}789{,}000 \times \frac{\boldsymbol{n_i}}{105.381}\right) + \left(\$2{,}206{,}800 \times \frac{\boldsymbol{n_i}}{104.008}\right)\right](1 + \mathrm{M})$

Notes: [1] Inflation-adjusted revenues from FEIS Tables 3.9-7 and 3.9-23. The inflation-adjusted base equation is:

$$\left(\boldsymbol{Average\ Annual\ Commercial\ Fishing\ Revenue} \times \frac{\boldsymbol{n_i}}{\boldsymbol{105.381}}\right) + \boldsymbol{Average\ Annual\ For-Hire\ Fishing\ Revenue} \times \frac{\boldsymbol{n_i}}{\boldsymbol{104.008}})$$

[2] The Lessee's calculations of the Impacts to Shoreside Businesses Multiplier may use BOEM's draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* or future versions, but BOEM must, in all events, review the calculations.

[3] Rolling forward unclaimed funds from prior years may lower this total value.

Before rolling forward any unclaimed funds, the total fund reserve requirements for Construction, Decommissioning, and Operating Years 1-5[35] (as shown in Table 6.1.3-2 above), become:

$$\boldsymbol{k}\left[\left(\$1{,}052{,}500.00\ \times\frac{\boldsymbol{n_i}}{105.381}\right)+\left(\$613{,}000.00\times\frac{\boldsymbol{n_i}}{104.008}\right)\right](\mathbf{1}+\mathbf{M})$$
$$+\boldsymbol{j}\left[\left(\$1{,}052{,}500.00\ \times\frac{\boldsymbol{n_i}}{105.381}\right)\right.$$
$$\left.+\left(\$613{,}000.00\times\frac{\boldsymbol{n_i}}{104.008}\right)\right](\mathbf{1}+\mathbf{M})$$
$$+\left[\left(\$3{,}789{,}000\ \times\frac{\boldsymbol{n_i}}{105.381}\right)\right.$$
$$\left.+\left(\$2{,}206{,}800\times\frac{\boldsymbol{n_i}}{104.008}\right)\right](\mathbf{1}+\mathbf{M}).$$

6.1.4 Reporting. By January 31 of each year, the Lessee must submit to BOEM and BSEE an annual report demonstrating implementation of the Direct Compensation Program. The report must include the following: the Fund charter, including the governance structure, audit and public reporting procedures; documentation regarding the funding account, including the dollar amount, establishment date, financial institution, and owner of the account; and standards for paying compensatory mitigation for direct impacts to commercial and for-hire fishers and related shoreside businesses resulting from all phases of the Project development on the Lease Area (post-ROD pre-construction, construction, operation, and decommissioning); and the number of claims processed, approved and denied. The Lessee must publicly report an annual audit. Where there is a compensation agreement between a state and the Lessee, the Lessee must submit to BOEM and BSEE verification that any agreed upon compensatory fisheries mitigation fund is established and funded.

6.1.5 Notification. The Lessee must notify BOEM and BSEE of any compensation and mitigation fund agreements into which the state and the Lessee have entered. The Lessee must request that the Administrator(s) of the direct compensation program(s) notify BOEM when the direct compensation program(s) has been established and is processing claims. Notification can be accomplished by the Administrator(s) transmitting to BOEM an annual financial statement of the direct compensation program(s). The Administrator(s) must submit the required notification by January 31 of each year, beginning on the second anniversary of the Project's Commercial Operations Date as defined by Addendum "B" of the Lease. The notification must be signed by the Administrator(s).

6.2 Fisheries Gear Loss Compensation (Planning) (Construction) (Operations). The Lessee must maintain throughout the life of the Project, a fisheries gear loss claims procedure to implement the financial compensation policy proposed by the Lessee in Appendix V-1 of the COP, Fisheries Communications Plan, Attachment D – Fishing Gear Damage or Loss Claim Procedure. The fisheries gear loss and damage claims procedure must be

[35] Rolling forward unclaimed funds from prior years may lower this total value.

available to all fishermen impacted by Project activities or infrastructure, regardless of homeport.

6.3 Federal Survey Mitigation Program (Planning) (Construction) (Operations) (Decommissioning). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Nine of these surveys overlap with the Project. Consistent with NMFS and BOEM survey mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region,*[36] within 120 days of COP approval, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM and NMFS that is consistent with the mitigation activities, actions, and procedures described in Sections 6.3.1 and 6.3.2 below, within 180 days of COP approval. BOEM will review the survey mitigation plan in consultation with NMFS Northeast Fisheries Science Center (NEFSC), and the Lessee must resolve comments to BOEM's satisfaction and must conduct activities in accordance with the plan.

6.3.1 As soon as reasonably practicable, but no later than 30 days after the issuance of the Project's COP approval, the Lessee must initiate coordination with NMFS NEFSC to develop the survey mitigation agreement described above. Mitigation activities specified under the agreement must be designed to mitigate the Project impacts on the following NMFS NEFSC surveys: (a) Spring Bottom Trawl survey; (b) Autumn Multi-species Bottom Trawl survey; (c) Ecosystem Monitoring survey; (d) Aerial marine mammal and sea turtle survey; (e) Shipboard marine mammal and sea turtle survey; (f) Atlantic surfclam survey; (g) Coastal shark bottom longline survey; (h) Cooperative shark tagging program; and (h) Atlantic Sea scallop survey. At a minimum, the survey mitigation agreement must describe actions to address impacts on the affected surveys due to the preclusion of sampling platforms and impacts on statistical designs. NMFS has determined that the Project area is a discrete stratum for surveys that use a random stratified design. This agreement may also consider other anticipated Project impacts on NMFS surveys, such as changes in habitat and increased operational costs due to loss of sampling efficiencies.

6.3.2 The survey mitigation agreement must identify activities that will result in the generation of data equivalent to data generated by NMFS' affected surveys for the duration of the Project. The survey mitigation agreement must describe the implementation procedures by which the Lessee will work with NEFSC to generate, share, and manage the data required by NEFSC for each of the surveys impacted by the Project, as mutually agreed upon between the Lessee and NMFS/NEFSC. The survey mitigation agreement must also describe the

[36] Hare, J.A., Blythe, B.J., Ford, K.H., Godfrey-McKee, S., Hooker, B.R., Jensen, B.M., Lipsky, A., Nachman, C., Pfeiffer, L., Rasser, M. and Renshaw, K., 2022. NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region. NOAA Technical Memorandum 292. Woods Hole, MA. 33 pp.

Lessee's participation in the NMFS NEFSC Northeast Survey Mitigation Program to support activities that address regional-level impacts for the surveys listed above.

7 VISUAL AND CULTURAL RESOURCES CONDITIONS

7.1 Reporting (Planning) (Construction) (Operations) (Decommissioning). The Lessee must submit all monitoring, reporting (annual, immediate, or post-discovery), and survey requirements related to cultural resources to BOEM at renewable_reporting@boem.gov, and to BSEE via TIMSWeb with a notification email sent to env-compliance-arc@bsee.gov.

7.2 Avoidance of Known and Potential Shipwrecks, Debris Fields, and Ancient Submerged Landform Features (ASLFs) (Planning) (Construction) (Operations) (Decommissioning). The Lessee must avoid known and potential shipwrecks, potentially significant debris fields, and ASLFs as described below. The Lessee must identify avoidance requirements on proposed anchoring plats, as-placed plats, and drawings associated with seabed disturbances (e.g., relevant FDR/FIR documents for export cables, inter-array cables, WTG, etc.). If the Lessee determines that avoidance is not possible, the Lessee must notify BOEM and BSEE prior to disturbing the seabed in the excluded area. In such instances, BOEM will notify the Lessee of any additional requirements, which may include additional measures to resolve adverse effects. If any vessel conducting work on behalf of the Lessee disturbs the seabed within the avoidance areas noted below, the Lessee must submit an incident report to BOEM and BSEE within 24 hours.

7.2.1 Avoidance of Marine Archaeological Resources. The Lessee must comply with horizontal protective buffers recommended by the Qualified Marine Archaeologist (QMA) for all 31 identified marine archaeological resources such that protective buffers are provided for:

7.2.1.1 Six (6) marine archaeological resources (i.e., Targets 8, 10, 11, 14, 15, and 22) measure a distance of no fewer than 164 feet (50 meters) from the known visible extent of each resource; and

7.2.1.2 Twenty-four (24) marine archaeological resources (i.e., Targets 1–7, 9, 12, 13, 16–21, 23–31) measure a distance of no fewer than 164 feet (50 meters) from the known center point of each resource; and

7.2.1.3 One (1) marine archaeological resource (i.e., Target 16) measures a distance of no fewer than 459 feet (140 meters) from the known center point of the resource.

7.2.2 Avoidance of Ancient Submerged Landform Features. The Lessee must comply with horizontal protective buffers recommended by the QMA for all six (6) identified ASLFs such that protective buffers are provided for:

7.2.2.1 P-02, located in the marine APE, measures a distance of no fewer than 141 feet (43 meters) from the known extent of the resource, for a total avoidance area of 266.7 acres (107.9 hectares); and

7.2.2.2 P-03, located in the marine APE, measures a distance of no fewer than 164 feet (50 meters) from the known extent of the resource, for a total avoidance area of 9.91 acres (4.01 hectares); and

7.2.2.3 P-04-A, located in the marine APE, measures a distance of no fewer than 164 feet (50 meters) from the known extent of the resource, for a total avoidance area of 3.94 acres (1.59 hectares); and

7.2.2.4 P-04-B, located in the marine APE, measures a distance of no fewer than 164 feet (50 meters) from the known extent of the resource, for a total avoidance area of 22.05 acres (8.92 hectares); and

7.2.2.5 P-01, located outside of the marine APE, measures a distance of no fewer than 164 feet (50 meters) from the known extent of the resource, for a total avoidance area of 10.71 acres (4.33 hectares); and

7.2.2.6 P-05, located outside of the marine APE, measures a distance of no fewer than 164 feet (50 meters) from the known extent of the resource, for a total avoidance area of 5.45 acres (2.2 hectares).

7.3 Apply Paint Color No Lighter than RAL (Reichs-Ausschuß für Lieferbedingungen und Gütesicherung) 9010 Pure White and No Darker than RAL 7035 Light Grey to the WTGs (Planning) (Construction) (Operations). The Lessee must color the WTGs an off white/grey color (no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey) prior to installation. The Lessee must confirm the planned paint color as part of the FDR and confirm the WTG was painted consistent with this condition as part of the final FIR.

7.4 Implementation of Minimization and Mitigation Measures to Resolve Adverse Effects to 24 Historic Properties (Planning) (Construction). The Lessee must mitigate adverse effects to 24 historic properties (Atlantic Wildfowl Heritage Cottage/De Witt Cottage; Cavalier Hotel and Beach Club; Chesapeake Bay Bridge-Tunnel; Chesapeake Light Tower; Cutty Sark Motel Efficiencies; Econo Lodge/Empress Motel; Hilton Washington Inn/Quality Inn and Suites; House (100 54th Street); House (4910 Ocean Front Avenue); House (5302 Ocean Front Avenue); House (7900 Ocean Front Avenue); House (8304–8306 Ocean Front Avenue); House (8600 Ocean Front Avenue); Oceans II Condominiums/Aeolus Motel; Seahawk Motel; Seatack Lifesaving Station/U.S. Coast Guard Station; Virginia House; the Cavalier Shores Historic District and Sandbridge Historic District; Currituck Beach Lighthouse; First Cape Henry Lighthouse and Second Cape Henry Lighthouse). The Lessee must execute all aspects of this condition of COP approval consistent with Stipulation III.A of the Section 106 MOA. Reporting associated with Section 106 MOA compliance must be included in the Annual Certification.

7.5 Annual Monitoring and Reporting on the Section 106 MOA (Planning) (Construction) (Operations) (Decommissioning). By January 31 of each year, the Lessee must submit

for BOEM's review a summary report detailing work undertaken pursuant to the Section 106 MOA during the preceding year. The Lessee must address any BOEM comments and after BOEM's review and agreement, the Lessee must share the summary report with all participating consulting parties identified in Attachment 2 of the Section 106 MOA. The report must include a description of how the stipulations relating to avoidance and minimization measures (Section 106 MOA Stipulations I and II) were implemented; any scheduling changes proposed; any problems encountered; and any disputes and objections received in the Lessee's efforts to carry out the terms of the Section 106 MOA. The Lessee may satisfy this reporting requirement by providing the relevant portions of the Annual Certification required under 30 C.F.R. § 285.633.

7.6 Implementation of Post-Review Discovery Plans (Planning) (Construction) (Operations) (Decommissioning). If properties are discovered that may be historically significant or unanticipated effects on historic properties are found, the Lessee must implement the Post-Review Discovery Plans found in Section 106 MOA Attachment 8 (post-review discovery plan for marine archaeology) and Attachment 9 (post-review discovery plan for terrestrial archaeology).

7.7 All Post-Review Discoveries (Construction) (Operations) (Decommissioning). In the event of a post-review discovery of a property or unanticipated effects to a historic property prior to or during construction, operation, maintenance, or decommissioning of the Project, the Lessee must implement the following actions:

7.7.1 Immediately halt seabed-disturbing activities within the area of discovery.

7.7.2 As soon as practicable and no later than 72 hours after the discovery, notify BOEM (at renewable_reporting@boem.gov) and BSEE (at env-compliance-arch@bsee.gov and via TIMSWeb) with a written report, describing the discovery in detail, including a narrative description of the manner of discovery (e.g., date, time, heading, weather, information from logs); a narrative description of the potential resource, including measurements; images that may have been captured; portions of raw and processed datasets relevant to the discovery area; and any other information considered by the Lessee to be relevant to BOEM's or BSEE's understanding of the potential resource. Provide the notification to BOEM and BSEE within 72 hours of its discovery. BOEM and/or BSEE may request additional information and/or request revisions to the report.

7.7.3 Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until BOEM has made an evaluation and instructs the Lessee on how to proceed.

7.7.4 Conduct any additional investigations and submit documentation as directed by BOEM to determine if the resource is eligible for listing in the National Register of Historic Places (NRHP) (30 C.F.R. § 585.802(b)). The Lessee must satisfy this requirement only if (1) the site has been impacted by the Lessee's Project

activities; and/or (2) impacts to the site or to the APE cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the NRHP, BOEM will instruct the Lessee on avoidance, minimization, or mitigation of adverse effects.

7.7.5 If there is any evidence that the discovery is from a federally recognized Tribal Nation or appears to be a preserved burial site, the Lessee must contact the federally recognized Tribal Nation as identified in the notification lists included in the Post-Review Discovery Plan within 72 hours of the discovery with details of what is known about the discovery and consult with the federally recognized Tribal Nation pursuant to the post review discovery plan.

7.7.6 If BOEM or BSEE incurs costs in addressing the discovery, under Section 110(g) of the NHPA, BOEM or BSEE may charge the Lessee reasonable costs for carrying out preservation responsibilities under OCSLA (30 C.F.R. § 585.802(c)-(d)).

7.8 No Impact Without Approval Emergency Situations (Construction) (Operations) (Decommissioning). In the event of an emergency or disaster that is declared by the President or the Governors of Virginia or North Carolina, which represents an imminent threat to public health or safety, or creates a hazardous condition due to impacts from the Project's infrastructure damaged during the emergency and affecting historic properties in the APEs, BOEM and/or BSEE, with the assistance of the Lessee, will notify the consulting federally recognized Tribal Nations, SHPOs, and the Advisory Council on Historic Preservation (ACHP) of the condition that has initiated the situation and the measures taken to respond to the emergency or hazardous condition consistent with the Section 106 MOA. BOEM and/or BSEE will make this notification as soon as reasonably possible, but no later than 48 hours from when it becomes aware of the emergency or disaster. Should the consulting Federally recognized Tribal Nations, SHPOs, or the ACHP desire to provide technical assistance to BOEM and/or BSEE, they will submit comments within seven days from notification if the nature of the emergency or hazardous condition allows for such coordination.

7.8.1 No Impact Without Approval. The Lessee may not knowingly impact a potential archaeologicalresource without BOEM's and BSEE's prior concurrence. If a possible impact to a potential archaeological resource occurs, the Lessee must immediately halt operations; report the incident with 24 hours to BOEM and BSEE; and provide a written report within 72 hours to BOEM and BSEE.

7.9 PAM Placement Review (Construction) (Operations) (Decommissioning). The Lessee may only place PAM systems in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. This activity may have been performed already as part of the Lessee's submission of archaeological resources reports in support of its approved COP. Except as allowed by BOEM under Stipulation 4.3.6 of Addendum C of the Lease and Section 7.8 above, the PAM placement activities must avoid potential

archaeological resources by a minimum of 328 feet (100 meters), and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. As-placed PAM system plats must be submitted to BSEE via TIMSWeb within 90 days of placement.

7.9.1 If PAM placement activities impact potential historic properties, the Lessee must take the actions described in All Post-Review Discoveries.

7.9.2 If PAM placement activities impact potential historic properties identified in the archaeological surveys without BOEM's prior authorization, the Lessee and the Qualified Marine Archaeologist who prepared the archaeological resources report must provide to BOEM a statement documenting the extent of these impacts. This statement must be made to BOEM and BSEE consistent with Stipulation 4.3.7 of Addendum C of the Lease and Section 7.7, above. BOEM may require the Lessee to implement additional mitigation measures as appropriate based on a review of the results and supporting information.

8 AIR QUALITY CONDITIONS

8.1 Reporting (Construction) (Operations) (Decommissioning). The Lessee must submit all monitoring, reporting, and survey requirements related to air quality to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb with a notification email sent to oswsubmittals@bsee.gov, USFWS at jaron_ming@fws.gov, and the Environmental Protection Agency (EPA) at Chan.Suilin@epa.gov. The Lessee must confirm the relevant point of contact prior to reporting and confirmation of reporting receipt.

8.2 Sulfur Hexafluoride (SF_6) Leak Rate Monitoring and Detection (Construction) (Operations) (Decommissioning). The Lessee must adhere to International Electrotechnical Commission (IEC) and requirements in EPA's OCS air permits for SF_6 leak detection and monitoring requirements.

8.2.1 The Lessee must use enclosed-pressure SF_6 circuit breakers (or switches) and create alarms based on the pressure readings in the breakers and switches, so leaks can be detected when substantial sulfur hexafluoride leakage occurs. Upon a detectable pressure drop that is greater than ten percent of the original pressure (accounting for ambient air conditions), the Lessee must perform maintenance to fix seals within 14 days. If an event requires the removal of SF_6, the affected major component(s) must be replaced with new component(s).

8.2.2 The Lessee must report to BOEM and BSEE any detectible pressure drop that is greater than ten percent as soon as practicable and no later than 72 hours after the discovery and provide an estimated timeframe for maintenance or replacement.

8.2.3 The Lessee must provide a summary in the Lessee's Annual Certification under 30 C.F.R. § 285.633 of observed SF_6 leak rates in the past year and a summary of any leaks greater than 0.1 percent by weight (for the 13.8 kV switches) and 0.5 percent by weight (for all other switches) and the associated maintenance or repair actions taken and their timeframe from detection to completion.

8.2.4 National Ambient Air Quality Standards and PSD Class I and Class II Air Quality Increments. The Lessee is required under the CAA to obtain a permit for OCS sources and as a consequence must demonstrate that the air quality impacts from emissions of both the construction, and operation and maintenance phases must be within the National Ambient Air Quality Standards and Prevention of Significant Deterioration (PSD) of Air Quality Increments. This demonstration must be submitted and approved by EPA prior to the issuance of the draft OCS Air Quality Permit. If any requirement in section 8 of these conditions is inconsistent with the terms of EPA's permit, the language in EPA's permit will prevail.

ATTACHMENT 1: LIST OF ACRONYMS

AC	Advisory Circular
ADLS	Aircraft Detection Lighting System
ALARP	As Low as Reasonably Practical
ANSI	American National Standards Institute
APE	Area of Potential Effects
ASLF	Ancient Submerged Landform Feature
ASR	Airport Surveillance Radar
ASSE	American Society of Safety Engineers
BiOp	Biological Opinion
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CBRA	Cable Burial Risk Assessment
COP	Construction and Operations Plan
CVA	Certified Verification Agents
DMA	Dynamic Management Area
DoD	Department of Defense
DOI	Department of the Interior
DON	Department of the Navy
DPS	distinct population segment
DTS	Desktop Study
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FDR	Facility Design Report
FEIS	Final Environmental Impact Statement
FIR	Fabrication and Installation Report
FMMP	Fisheries Mitigation and Monitoring Plan
GARFO	Greater Atlantic Fisheries Office
GPS	Global Positioning System
HESD	Habitat and Ecosystem Division
HF	high frequency
HPTP	Historic Properties Treatment Plan
HRG	high resolution geophysical
IEC	International Electric Code
IHA	Incidental Harassment Authorization
IMT	Incident Management Team
IOOS	Integrated Ocean Observing System
IR	Infrared
ISO	International Organization for Standardization
ITS	Incidental Take Statement
LERA	least expensive radar
LOI	Letter of Intent
LOS	Line of Sight
MARA	Marine Archaeological Resources Assessment
MEC	Munitions and Explosive of Concern
MOA	Memorandum of Agreement

NARW	North Atlantic right whale
NEFSC	Northeast Fisheries Science Center
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Aerospace Defense Command
NRHP	National Register of Historic Places
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OEM	Original Equipment Manufacturer
OSRO	Oil Spill Removal Organization
OSRP	Oil Spill Response Plan
OSS	offshore substation
PAM	Passive Acoustic Monitoring or Passive Acoustic Monitor(s)
PATON	Private Aids to Navigation
PDM	Pile Driving Monitoring
PIT	passive integrated transponder
PSO	Protected Species Observer
QI	Qualified Individual
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung
RAM	Radar Adverse-Impact Management
ROD	Record of Decision
SCPP	Scour and Cable Protection Plan
SDS	Safety Data Sheets
SFV	Sound Field Verification
SMA	Seasonal Management Area
SMS	Safety Management System
SROT	Spill Response Operating Team
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UTC	Coordinated Universal Time
UXO	unexploded ordnance
VHF	Very High Frequency
WCD	worst-case discharge
WTG	wind turbine generator

Appendix B. OCSLA Compliance Review of the Construction and Operations Plan for the Coastal Virginia Offshore Wind Commercial Project

United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Information Memorandum

To: Elizabeth Klein
Director, Bureau of Ocean Energy Management

From: Karen Baker
Chief, Office of Renewable Energy Programs

Subject: Compliance Review of the Construction and Operations Plan for the Coastal Virginia Offshore Commercial Wind Farm and Coastal Virginia Offshore Commercial Export Cable Project for Commercial Lease OCS-A 0483

1.0 SUMMARY

Subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1337(p)(4), requires the Secretary of the Interior (Secretary) to consider 12 enumerated factors before authorizing an activity under subsection 8(p) of OCSLA. This memorandum documents the Bureau of Ocean Energy Management's (BOEM) compliance review of the Construction and Operations Plan (COP)[1] for the Coastal Virginia Offshore Wind Farm (CVOW-C)[2] and Coastal Virginia Offshore Wind Export Cable (CVOW-EC) Project (collectively, hereinafter "Project")[3] on Commercial Lease OCS-A 0483, and BOEM's consideration of the 12 factors enumerated in subsection 8(p)(4) of OCSLA (hereinafter 8(p)(4) factors).[4]

[1] CVOW-C Construction and Operations Plan (February 28, 2023), https://www.boem.gov/renewable-energy/state-activities/CVOW-C

[2] CVOW-C denotes the commercial project, separate from CVOW-P, which denotes the pilot project and is described in Section 2.0 of this memo.

[3] This memo considers the Project as modified by the Preferred Alternative B and D1 in the Final Environmental Impact Statement (Final EIS). Bureau of Ocean Energy Mgmt., BOEM 2023-0047, Coastal Virginia Offshore Wind Commercial Project Final Environmental Impact Statement, (2023) [hereinafter Final EIS], https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/_CVOW-C_FEIS_Volume_I_FEIS.pdf

[4] *See* 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," which provides that subsection 8(p)(4) of OCSLA "does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension." Solicitors' M-Opinions are legal interpretations that are binding on DOI as a whole. Department of the Interior, Departmental Manual, 209 DM 3.1, 3.2A(11) (2020).

BOEM has determined that the Project will comply with the Bureau's regulations and that the proposed activities will be carried out in a manner that provides for safety, protection of the environment, prevention of waste, and the other factors listed in subsection 8(p)(4) of OCSLA.

2.0 BACKGROUND AND PROJECT OVERVIEW

The Department of the Interior's (DOI) efforts to consider whether to lease areas offshore Virginia and to assess the feasibility of allowing wind energy activities therein began in 2009, approximately 14 years ago.[5] Subsection 8(p)(7) of OCSLA, as amended by the Energy Policy Act of 2005 (EPAct), directs DOI, through BOEM, to provide for coordination and consultation with the Governor of any state or the executive of any local government that may be affected by a lease, easement, or right-of-way authorizing renewable energy activities on the Outer Continental Shelf (OCS).[6] BOEM formed the Virginia Intergovernmental Renewable Energy Task Force (Task Force) in 2009 to help fulfill this obligation in its consideration of potential leasing activities on the OCS offshore Virginia. The Task Force allowed for coordination among affected federal agencies and tribal, state, and local governments throughout the leasing process. The first Task Force meeting was held on December 8, 2009; subsequent meetings were held on April 27, 2010; August 17, 2011; June 5, 2012; and September 26, 2012.

2.1 Planning, Analysis, and Leasing

BOEM published the Virginia Call for Information and Nominations (Call) in the *Federal Register* on February 3, 2012.[7] The development of the Call Area began with consideration of a preliminary 70 OCS block area of interest discussed at the first Task Force meeting in December 2009. That 70-block area encompassed 50 blocks identified by the Virginia Coastal Energy Research Consortium and was delineated to avoid sensitive ecological areas offshore the barrier islands to the north, minimize user conflicts, and take advantage of a region comprised of Class 6 winds. The Call Area was delineated with the goal of providing protection of ecologically sensitive areas while making an appropriate area available for commercial offshore wind development.

Following the first Task Force meeting and based on continuing dialogue with the Task Force and individual member agencies, BOEM further refined the Call Area under consideration for leasing to avoid sensitive operating and warning areas under the purview of the Department of

[5] For a more detailed explanation of the steps taken before issuance of the lease, *see* Final EIS Ch. 1, § 1.1. https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/_CVOW-C_FEIS_Volume_I_FEIS.pdf

[6] Outer Continental Shelf (OCS) means all submerged lands lying seaward and outside of the area of lands beneath navigable waters, as defined in section 2 of the Submerged Lands Act (43 U.S.C. 1301), whose subsoil and seabed appertain to the United States and are subject to its jurisdiction and control. https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=bd9f767daa3ee547b754312f2df84ea4&term_occur=999&term_src=Title:30:Chapter:V:Subchapter:B:Part:585:Subpart:F:Subjgrp:300:585.621

[7] Bureau of Ocean Energy Mgmt., Com. Leasing for Wind Power Development on the Outer Continental Shelf (OCS) Offshore Virginia—Call for Information and Nominations, 77 Fed. Reg. 5545 (Feb. 3, 2012).

Defense (DoD) and National Aeronautics and Space Administration (NASA), as well as a dredge disposal area under the regulatory authority of the U.S. Army Corps of Engineers (USACE). As part of this effort, BOEM asked DoD, the U.S. Coast Guard (USCG), and NASA to conduct evaluations of the area under consideration and make recommendations to BOEM as to blocks that should be excluded from leasing and/or development due to sensitive agency activities, as well as areas that could be included with appropriate conditions and stipulations. DoD conducted two evaluations following the first and second Task Force meetings, and provided to BOEM its recommendations regarding OCS blocks that would be incompatible with leasing and development considering existing DoD activities. DoD also recommended that, should leases be issued, subsequent development in the remaining area should be subject to site-specific stipulations. NASA determined that the Call Area was compatible with launch operations at NASA Wallops Flight Facility. In advance of the third Task Force meeting in December 2010, the USCG Fifth District identified a deep-water slough or channel in use by deep-draft vessels exiting and entering the Chesapeake Bay. It recommended that a 3 nautical mile (nm) setback be established between the charted dredge disposal area at the entrance to the Bay and the western edge of the Call Area.

To better delineate the Call Area to avoid areas heavily used by vessels entering and exiting the Chesapeake Bay, BOEM acquired Automatic Identification System (AIS) data from 2009 and conducted an analysis to identify vessel uses of the Call Area, including deep-draft, barge, tug, and tow. This information was presented to the Task Force on August 17, 2011, and allowed for further refinement of the Call Area. The Call Area was further refined based on USCG's 2011 evaluation.

BOEM's assessment of the environment and efforts to prevent undue harm to resources began before Lease OCS-A 0483 was issued to Dominion Energy. On February 9, 2011, BOEM published an NOI to prepare an Environmental Assessment (EA) for Commercial Wind Leasing and Site Assessment Activities on the Atlantic OCS Offshore New Jersey, Delaware, Maryland, and Virginia (Mid-Atlantic EA). The NOI requested public comments on important environmental issues and alternatives to be considered in the Mid-Atlantic 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 site characterization and site assessment activities[8] BOEM considered the comments received on the Mid-Atlantic EA, and on February 3, 2012, BOEM published an NOA for the final Mid-Atlantic EA and Finding of No Significant Impact (FONSI)[9], which assessed

[8] Com. Wind Lease Issuance and Site Characterization Activities on the Atl. Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia, 76 Fed. Reg. 7226 (Feb. 9, 2011), https://www.federalregister.gov/documents/2012/02/03/2012-2494/commercial-wind-lease-issuance-and-site-assessment-activities-on-the-atlantic-outer-continental

[9] Env't Assessment for Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia, 77 Fed. Reg. 5560 (Feb. 3, 2012).

reasonably foreseeable impacts resulting from site characterization activities (including geophysical, geotechnical, archaeological, and biological surveys) and site assessment activities (i.e., meteorological towers and buoys) on the Atlantic OCS offshore Virginia.

In December 2014, BOEM published a Notice of Availability (NOA) for an EA, which assessed reasonably foreseeable impacts resulting from the site characterization activities (including geophysical, geotechnical, archeological, and biological surveys) and site assessment activities (i.e., meteorological towers and buoys) in the WEA on the OCS offshore Virginia.[10] BOEM considered the comments received on the EA and, published an NOA for a Revised EA and Finding of No Significant Impact (FONSI)*Federal Register* on September 29, 2015. For a more detailed discussion of the leasing process for Lease OCS-A 0483 and the environmental consultations performed, see Section 1.5 of the Revised EA.[11] The Revised EA explained that BOEM would prepare a separate site project-specific National Environmental Policy Act (NEPA) analysis of a proposed project when a lessee submitted a COP. As a result of these efforts, BOEM held a competitive lease sale in September 2013, pursuant to 30 CFR § 585.211, for certain lease areas within the Virginia WEA. The Proposed Sale Notice was published in the Federal Register on December 3, 2012.[12] The Final Sale Notice was published in the Federal Register on July 23, 2013.[13]

2.2 Lease Sale[14]

The lease sale was held on September 4, 2013, pursuant to 30 C.F.R. § 585.211.[15] The auction lasted six rounds and Virginia Electric and Power Company (Dominion Energy) won with a bid of $1.6 million. Lease OCS-A 0483 was issued to Dominion Energy and became effective on November 1, 2013.

Lease OCS-A 0483 did not authorize Dominion Energy to conduct construction activities within the Lease Area. Under Lease OCS-A 0483 and 30 C.F.R. § 585.600, a lessee must submit and receive approval of a COP before any construction activities may take place on the OCS.[16]

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[10] Environmental Assessment for Com. Wind Lease Issuance and Site Assessment Activities on the Central Atl. Outer Continental Shelf Offshore Virginia., 77 Fed. Reg. 39,508 (December 2014).
[11] https://www.federalregister.gov/documents/2015/09/29/2015-24408/revised-environmental-assessment-for-virginia-offshore-wind-technology-advancement-project-on-the
[12] Bureau of Ocean Energy Mgmt., Atl. Wind One (ATLW1) Com. Leasing for Wind Power on the Outer Continental Shelf Offshore Virginia—Proposed Sale Notice, 77 Fed. Reg. 71,621 (Dec. 3, 2012).
[13] Atlantic Wind Lease Sale 1 Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore Virginia- Final Sale Notice https://www.federalregister.gov/documents/2013/07/23/2013-17663/atlantic-wind-lease-sale-1-atlw1-commercial-leasing-for-wind-power-on-the-outer-continental-shelf
[14] The Commonwealth of Virginia's Department of Mines, Minerals, and Energy holds a research lease adjacent to the CVOW-C Lease Area. For more information, see https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-cvow-research-project
[15] *See* Bureau of Ocean Energy Mgmt., Atl. Wind Lease Sale 1 (ATLW1) Com. Leasing for Wind Power on the Outer Continental Shelf Offshore Virginia—Final Sale Notice, 78 Fed. Reg. 44,150 (July 23, 2013).
[16] *See* 30 C.F.R. § 585.600(b).

Submittal and processing of the COP is governed by the provisions set forth in 30 C.F.R. §§ 585.620 through 585.629.

2.3 Site Assessment

Dominion Energy submitted a Site Assessment Plan (SAP) to BOEM on March 2, 2016, which BOEM approved on October 12, 2017. The plan details the methods and procedures Dominion Energy will use to collect and analyze data and information on the meteorological and oceanographic conditions of the Lease Area. Collection of this data was performed using a floating light detection and ranging buoy.[17]

2.4 Construction and Operations

Dominion Energy submitted a COP to BOEM for review and approval on December 17, 2020, with subsequent revisions, including the most recent submitted on July 31, 2023. The COP proposed the development of an offshore wind energy project limited to an area within Lease OCS-A 0483, as shown in Figure 1 below. The Project Area consists of 112,799 acres (456 km^2),[18] approximately 27 miles east of Virginia Beach, Virginia. The COP details the proposed construction, operation, and eventual decommissioning of the WTGs, OSSs, and associated inter-array and export cabling to shore for the Project and includes biological and physical survey information.

Dominion Energy proposed the 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 Action includes an up-to 3,000 MW wind energy facility consisting of up to 202 WTGs ranging from 14 MW to 16 MW each and three OSSs set in a 0.93- by 0.75-nautical-mile offset grid pattern (east–west by northwest by southeast gridded layout). The three OSSs would be placed within the rows of the gridded WTG layout. Up to nine export cables make landfall in Virginia Beach, Virginia. Onshore export cables would transfer electricity from the cable landing location to a switching station constructed north of Harpers Road in Virginia Beach, Virginia. An overhead interconnection cable route would then connect the new Harpers Switching Station to the Fentress Substation located in Chesapeake, Virginia. The Preferred Alternative, which falls within the PDE, is a combination of Alternatives B and D-1. Alternative B consists of up to 176 wind turbine generators (WTGs), each of which would have up to 14.7 MW in generation capacity; up to three offshore substations (OSSs); inter-array cables linking the individual WTGs

[17] https://www.boem.gov/renewable-energy/state-activities/CVOW-C

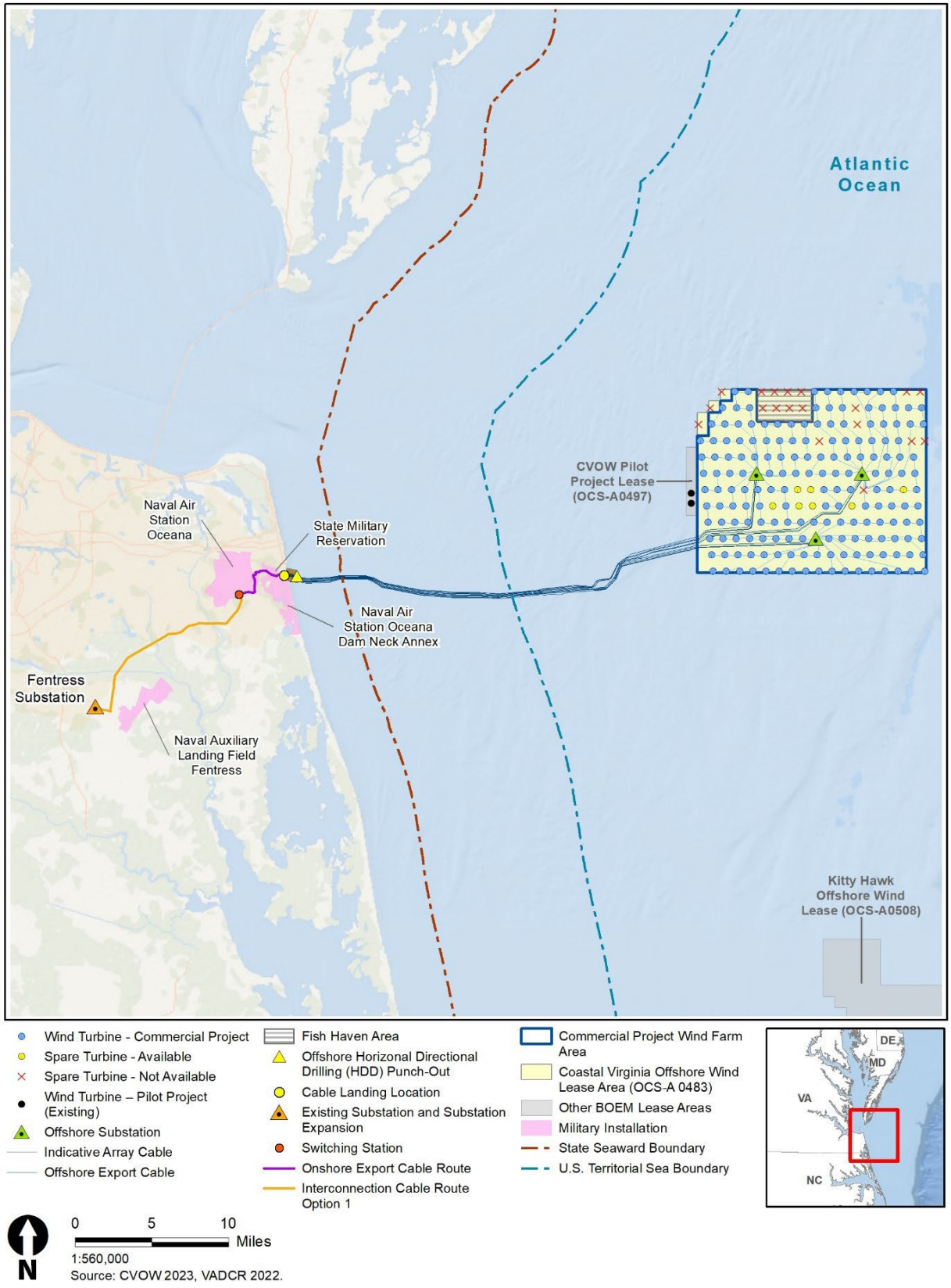
[18] 30 C.F.R. § 585.113 defines "Project Area" as "the geographic surface leased, or granted, for the purpose of a specific project. If OCS acreage is granted for a project under some form of agreement other than a lease (i.e., a Right-of-Way or Right-of-Use and Easement), the federal acreage granted would be considered the Project Area. To avoid distortions in the calculation of the geometric center of the Project Area, project easements issued under this part are not considered part of the qualified Project Area." Note that the Project Area covers the entirety of the Lease Area OCS-A 0483, which consists of approximately 112,799 acres (456 km^2).

to the OSSs; and substation interconnector cables linking the OSSs to each other in the Lease Area. The WTGs would be placed in a grid-like array (with WTGs in rows oriented east–west by northwest by southeast) within the Lease Area, with a 0.93- by 0.75-nm offset grid pattern between WTGs. In the Preferred Alternative, Alternative B is combined with Alternative D-1 of the cable routing, consisting of up to nine export cables that would make landfall at Virginia State Military Reservation (SMR) in Virginia Beach, Virginia.

The regulations at 30 C.F.R. § 585.200(b) entitle 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), Dominion Energy requested a project easement as part of its COP.[19] As proposed in the COP, this project easement would pass through approximately 20.5 nm of the U.S. OCS. The remainder of the CVOW-C Export Cable (CVOW-EC) would pass through approximately 3.2 nm of state waters. Variability in the proposed easement width is driven by several external constraints that are present at different locations along the Offshore Export Cable Routes including existing telecommunications cable and transmission cable crossings; the DoD exclusion area to the south; the vessel traffic lane and proposed Atlantic Coast Port Access Study safety fairway to the north; crossing the Dam Neck Ocean Disposal Site; obstructions, exclusion areas, and seabed conditions identified from existing data and surveys; potential risks due to the use of the area by third parties; and the approach to the Cable Landing Location. The proposed Easement is fully contained within the Offshore Export Cable Route Corridor that has been surveyed for cultural and biological resources as well as geologic hazards and was assessed in the Final Environmental Impact Statement prepared by BOEM under NEPA.

[19] *See* Letter to Karen Baker, BOEM, from Joshua Bennett, Dominion. "Coastal Virginia Offshore Wind Commercial Project Construction and Operations Plan Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf, OCS-A 0483- Revised Easement Request." October 6, 2023.

Figure 1 – Project Area



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. The regulations at 30 C.F.R. § 585.628 require 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 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 also conducts an environmental review. As described below, BOEM's Office of Renewable Energy Programs (OREP) has completed the sufficiency, technical, and environmental reviews of the COP.

3.1 Completeness and Sufficiency Review

Regarding the regulations pertaining to COPs, 30 C.F.R. § 585.620 provides the general requirements of what must be described in a COP,[20] while 30 C.F.R. § 585.621 sets forth what a COP must demonstrate. The regulations at 30 C.F.R. § 585.626 describe what specific information must be included in the COP, including the results of required surveys, as well as other project-specific information such as financial assurance requirements. 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)[21] and other relevant laws.

On July 2, 2021, Dominion Energy requested a regulatory departure from the requirements at 30 C.F.R. § 585.626(a)(4)(ii)–(iii) to provide detailed in situ geotechnical data at each proposed foundation location and a minimum of one deep boring (with soil sampling and testing) at each edge of the Project Area at the time of COP submittal. Instead of submitting the in situ geotechnical data with the COP, Dominion Energy proposed to provide the data no later than with its submittal of the Facility Design Report (FDR). OREP's Projects and Coordination Branch (PCB) evaluated the departure request and coordinated BOEM's review. On March 3, 2022, BOEM approved the departure request, having determined that the geotechnical information submitted by Dominion Energy was sufficient to allow for review of the COP. Therefore, BOEM approved the departure request, allowing Dominion Energy to submit geotechnical investigations at final foundation locations with or prior to the FDR along with results of geotechnical analyses and foundation design parameters.

[20] 30 C.F.R. § 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).
[21] 42 U.S.C. §§ 4321 *et seq.*

On December 17, 2020, Dominion Energy submitted a COP to BOEM for review and approval. PCB, in coordination with OREP's Engineering and Technical Review Branch (ETRB) and Environment Branch for Renewable Energy (EBRE), verified that the COP included an adequate level of information as required in 30 C.F.R. §§ 585.626 and 585.627 for BOEM to begin reviewing the sufficiency of that information. PCB coordinated BOEM's sufficiency review of the COP.

BOEM has determined that the COP includes all the information required in 30 C.F.R. §§ 585.626 and 585.627, except the information described in 30 CFR § 585.626(a)(4), for which BOEM approved a regulatory departure. If the COP is approved, then CVOW must submit the following information no later than when it submits its Facility Design Report (FDR):

- Updated information required in 30 CFR § 585.626(a)(4) geotechnical survey results of the sediment testing program including (1) the results of adequate in situ testing, boring, and sampling at each foundation location, and (2) the results of deep borings within the Project Area, as needed.

3.2 Technical Review

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);
- National Oceanic and Atmospheric Administration (NOAA), for aviation and radar interference[22];
- Federal Aviation Administration (FAA), for aviation and radar interference; and
- USCG, for vessel navigation.

Furthermore, ETRB and BSEE reviewed the statement of work and qualifications submitted in the COP for the Certified Verification Agent (CVA) nomination. On February 10, 2022, BOEM approved the nomination of DNV GL Renewables Certification USA, LLC (now DNV) to be the CVA for the 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 Fabrication and Installation Report (FIR), to be submitted by Dominion Energy if BOEM approves the COP.

As a result of its reviews, ETRB has determined 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

[22] The Project Coordination Branch coordinates aviation and radar interference mitigations with the Department of Defense.

allow for the safe installation of the Project on the OCS. ETRB has also 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 a memorandum (ETRB Review Memo; Appendix B.1 to the Record of Decision (ROD)), which recommends the approval of the COP subject to ETRB's proposed conditions (found in the Anticipated Terms and Conditions of COP Approval; Appendix A to the ROD).

On March 17, 2022, Dominion Energy submitted an evaluation to BOEM regarding key layout feasibility factors for Alternative C, including geotechnical feasibility in the sand ridge area and economic impact. Dominion concluded that additional geotechnical and geophysical surveys, as well as design elements, for Alternative C were economically infeasible due to the number of challenges with relocating wind turbines and cables from the general area of concern or "no go" areas near or in sand ridges, including surveys, foundations, cable routing, and ratepayer impact.[23] BOEM conducted an independent review of the information and ETRB concluded that "relocation may increase design time and costs as the structural design must account for site-specific conditions and other considerations such as cable routing to the new location. Dominion's technical feasibility evaluation is valid."[24]

3.3 Environmental Review

EBRE conducted an environmental review of the COP. On July 2, 2021, BOEM published the Notice of Intent (NOI) to prepare an EIS for Dominion Energy's COP,[25] which started BOEM's formal scoping process pursuant to NEPA. The NOA of the Draft EIS for the Project was published on December 16, 2022.[26] The USACE, the National Marine Fisheries Service (NMFS), BSEE, DoD, USCG, U.S. Fish and Wildlife Service (USFWS), and the U.S. Environmental Protection Agency (USEPA) were cooperating federal agencies during the development and review of the Final EIS. Cooperating state agencies included the Virginia Mines Minerals & Energy Department (VA DMME).[27]

On September 29, 2023, BOEM published the NOA of the Final EIS in the *Federal Register*.[28] The Final EIS identified Alternative B in combination with Alternative D-1 as the Preferred Alternative and included BOEM's responses to comments on the Draft EIS in Appendix N. The

[23] See "Dominion's Evaluation – Technical Feasibility of the CVOW-C Benthic Habitat Impact Minimization Alternative." March 17, 2022
[24] *See* email from Jennifer Draher, BOEM, to Algene Byrum, BOEM, "Review Request- EBRE's Technical Assessment of Dominion's Technical Feasibility Evaluation of the Benthic Habitat Impact Minimization Alternative." April 6, 2022.
[25] Bureau of Ocean Energy Mgmt., Notice of Intent to Prepare an EIS, 86 Fed. Reg. 35,329 (July 2, 2021).
[26] Bureau of Ocean Energy Mgmt., NOA of a Draft EIS, 87 Fed. Reg. 77,135 (Dec. 16, 2022).
[27] *See* Final EIS, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[28] Notice of Availability of a Final EIS, 88 Fed. Reg. 67359 (Sept. 29, 2023). https://www.federalregister.gov/documents/2023/09/29/2023-21337/notice-of-availability-of-a-final-environmental-impact-statement-for-the-proposed-coastal-virginia

Final EIS found that the Preferred Alternative would have negligible to moderate adverse impacts on most resources and the potential for major adverse impacts on (i) commercial fishing and for-hire recreational fishing; (ii) cultural resources; (iii) marine mammals; (iv) navigation and vessel traffic; (v) scientific research and surveys; and (vi) wetlands.[29] The Final EIS found that the Project could have negligible to moderate beneficial impacts on the following resources: (i) air quality; (ii) benthic resources; (iii) birds; (iv) some for-hire recreational fishing; (v) demographics, employment, and economics; (vi) environmental justice; (vii) finfish, invertebrates, and essential fish habitat; (viii) marine mammals; (ix) land use and coastal infrastructure; (ix) and recreation and tourism.

Concerning cumulative impacts from future planned actions, including the Project, the Final EIS 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; (ii) cultural resources; (iii) marine mammals; (iv) navigation and vessel traffic; and (v) wetlands. The Final EIS found that future planned actions could have minor to moderate beneficial impacts on the following resources: (i) demographics, employment, and economics; and (ii) air quality and climate change, (iii) birds, (iv) recreational fishing, and (v) benthic resources. The 30-day waiting period for the Final EIS closed on October 30, 2023.

Several consultations were conducted as part of the environmental review process. On September 18, 2023, NMFS issued a Biological Opinion (NMFS BiOp) for the Project under Section 7 of the Endangered Species Act (ESA).[30] The NMFS BiOp concluded that the Proposed Action is not likely to jeopardize the continued existence of the fin, sei, sperm, or North Atlantic Right Whales (NARWs) or the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles, North Atlantic DPS of green sea turtles, Kemp's ridley or leatherback sea turtles, or any of the five DPSs of Atlantic sturgeon. NMFS also determined that the Proposed Action may affect, but is not likely to adversely affect, the following listed species and designated or proposed critical habitat: blue whale, Rice's whale, Gulf of Maine DPS Atlantic salmon, oceanic whitetip shark, scalloped hammerhead shark (Eastern Atlantic DPS and Central & Southwest Atlantic DPS), shortnose sturgeon, hawksbill sea turtle, giant manta ray, Gulf sturgeon and its critical habitat, NARW critical habitat, all listed DPSs Atlantic sturgeon critical habitats, Northwest Atlantic DPS loggerhead sea turtle critical habitat, proposed critical habitat for North Atlantic DPS of green sea turtles, and proposed critical habitat for Rice's whale. To avoid the prohibitions of Section 9 of the ESA, BOEM, BSEE, USACE, and NMFS Office of Protected Resources must comply with the Reasonable and Prudent Measures and implementing Terms and Conditions issued as part of the NMFS BiOp.

[29] https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[30] https://www.fws.gov/law/endangered-species-act

On September 1, 2023, USFWS issued a Biological Opinion (FWS BiOp)[31] for the Project under Section 7 of the Endangered Species Act (ESA). The FWS BiOp concluded that the Project is not likely to adversely affect determinations for the federally listed endangered Indiana bat, roseate tern, and Kemp's ridley sea turtle. The Project is also not likely to adversely affect the federally listed threatened green sea turtle North Atlantic DPS and loggerhead sea turtle Northwest Atlantic Ocean DPS. USFWS also concluded that the Project is not likely to adversely affect the federally proposed threatened black-capped petrel. Finally, USFWS concluded that the Project is not likely to adversely affect the federally listed endangered leatherback and hawksbill sea turtles. To avoid the prohibitions of Section 9 of the ESA, BOEM, BSEE, USACE, and NMFS Office of Protected Resources must comply with the Reasonable and Prudent Measures and implementing Terms and Conditions issued as part of the FWS BiOp.

BOEM also completed an Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and received conservation recommendations from NMFS on July 21, 2023, pursuant to Section 305(b)(4)(A) of the MSA. According to Section 304(b)(4)(B) of the MSA, BOEM is required to provide NMFS a detailed response to each EFH conservation recommendation within 30 days of receipt. BOEM indicated to NMFS on August 18, 2023, that due to the complex nature of the project, more than 30 days would be needed to respond. BOEM issued a detailed response letter to NMFS on September 29, 2023. The detailed response to the conservation recommendations provided draft conditions of COP approval that adopt or partially adopt NMFS's conservation recommendations.

BOEM also conducted a National Historic Preservation Act (NHPA) Section 106 review of the Project and, through that review, identified historic properties that may be adversely affected by COP approval, and measures to resolve those adverse effects. BOEM identified one National Historic Landmarks (NHL) property, the First Cape Henry Lighthouse, which may be visually adversely affected by the Project. BOEM followed the requirements for compliance with NHPA Section 110(f) (36 C.F.R. § 800.10) and consulted with the Virginia Department of Historic Resources (Virginia State Historic Preservation Officer (SHPO)), North Carolina SHPO, and Advisory Council on Historic Preservation (ACHP) to assess and undertake planning and actions as may be necessary to minimize harm to NHLs. BOEM addressed this process and finding in Appendix O, Section O.4 of the Final EIS. Consultation under Section 106 of the NHPA concluded with the execution of the Memorandum of Agreement (MOA), which was signed by the Lessee, BOEM, the Virginia SHPO, and the ACHP, and fully executed on October 27, 2023.

Dominion Energy submitted requests for Federal Consistency Certification to the Commonwealth of Virginia and State of North Carolina under the Coastal Zone Management

[31] See Letter from Cynthia Schultz, Field Supervisor, Virginia Ecological Services, Fish and Wildlife Serv., to David Bigger, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt., Subj: Coastal Virginia Offshore Wind Commercial Project, Virginia Beach, VA (August 31, 2023).

Act (CZMA).[32] Acting under Section 307 of the CZMA (Pub. L. No. 92-583), as amended, the coastal management programs for Virginia and North Carolina concurred with Dominion Energy's consistency certification, finding that the project is consistent to the maximum extent practicable with the enforceable policies of each state's coastal management plan. North Carolina issued its CZMA concurrence letter to Dominion Energy on June 24, 2022, and Virginia issued its CZMA concurrence letter on September 21, 2023.

4.0 COMPLIANCE REVIEW[33]

The regulations at 30 C.F.R. Part 585 set forth responsibilities for both BOEM and Dominion Energy that are similar to those imposed by the 8(p)(4) factors.[34] The regulation at 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 Dominion Energy 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 7 other goals listed therein. BOEM and Dominion Energy 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 Dominion Energy (e.g., using properly trained personnel). The discussion in Sections 4.1 to 4.12 provide an overview of how BOEM has ensured the Preferred Alternative provides for 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 Coastal Virginia Offshore Wind Commercial's commercial lease[35]

Consultations and reviews for the Project under NEPA, ESA, CZMA, MSA, and NHPA have been completed.[36] Further, approval of the COP would not authorize CVOW-C to commence construction activities for which additional permits and authorizations are required, including permits and permissions Dominion Energy requested from USACE under Sections 10 and 14 of the Rivers and Harbors Act of 1899 (RHA) and Section 404 of the Clean Water Act, and from NMFS under Incidental Take Regulations and an associated Letter of Authorization under the Marine Mammal Protection Act. Section 1.4 of the COP (Regulatory Framework) lists all expected federal, Virginia State, regional (county), and local-level reviews and permits for the Project.[37]

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[32] 16 U.S.C. §§ 1451 *et seq*.
[33] *See* 43 U.S.C. § 1337(p)(4) (OCSLA Subsection 8(p)(4)); 30 C.F.R. §§ 585.102, 585.621.
[34] *See* 30 C.F.R. §§ 585.102, 585.621.
[35] *See id.* §§ 585.102(b), 585.621(a).
[36] *See* discussion *supra* sec. 3.3.
[37] *See* Final EIS, appendix A, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

4.2 Safety, best available and safest technology, best management practices, and properly trained personnel[38]

The COP proposed the following major offshore components:

- Up to 202 Wind Turbine Generators (WTGs) supported by monopile foundations;
- Three offshore alternating current substations (OSS) on jacket foundations;
- The inter-array cables would be up to 66-kV alternating current power cables with a maximum total length of 300.7 miles; and
- The export cables would consist of nine 230-kV alternating current power cables within an export cable corridor of up to 49.01 miles in length.

ETRB expects Dominion Energy to use the most current technology available for commercial production that meets or exceeds current industry standards. In some cases, this could include technologies currently in prototyping and/or working toward type certification by a recognized certification body but not yet commercially available. ETRB has determined that the information on the proposed major components provided in the COP is sufficient to determine that the Project proposes to use the best available and safest technology pursuant to 30 C.F.R. § 585.621(e) which will meet or exceed the current international industry standards. This will be verified by the approved CVA who will certify that the facility is designed, fabricated, and installed in accordance with the COP and approved industry standards. BOEM and BSEE will also confirm that the design is in accordance with the COP through review of the FDR and FIR.

The engineering design of the WTGs and their ability to sufficiently withstand weather events—which include hurricane-level events—is independently evaluated by a CVA according to international standard and included as part of the FDR and FIR review. One of these standards calls for the structure to be able to withstand a 50-year return interval event. An additional standard includes withstanding 3-second gusts of a 500-year return interval event. WTGs are designed to withstand the oceanographic and meteorological conditions expected in the lease area, including hurricane force winds.

Further, OREP consulted with BSEE and the USCG on safety requirements during the COP review process. BSEE's recommendations and relevant requirements have been incorporated into the proposed conditions of COP approval to ensure that this Project is carried out in a safe manner.[39] Additionally, oversight of the review of future submissions (e.g., FDR and FIR activities) will allow BSEE to evaluate if the "facilities are designed, fabricated, and installed in conformance with accepted engineering practices."[40]

[38] *See* 43 U.S.C. § 1337(p)(4)(A); 30 C.F.R. §§ 585.102(a)(1), 585.621(b), 585.621(e)-(g).
[39] *See* infra. Anticipated Terms and Conditions of COP Approval, Appendix A to the ROD
[40] *See* 30 C.F.R. § 285.705(a)(1).

The COP also provides a description of the Project's proposed SMS,[41] as required by 30 C.F.R. § 585.627(d). The proposed SMS, which will be finalized following any COP approval, includes a description of the processes and procedures listed in 30 C.F.R. § 285.810(a)-(f), and Dominion Energy's proposed implementation thereof. The SMS is required to identify and assess risks to health, safety, and the environment associated with CVOW-C's offshore wind facilities and operation. Furthermore, the finalized SMS must describe the methods that are used and maintained to control the identified risks. BOEM determined that Dominion Energy's proposals are consistent with acceptable industry practices and standards. Specifically, the SMS provides that all contractors will be legally qualified to perform the roles for which they are contracted, including implementing prescribed safety standards and attending awareness training. Dominion Energy will be responsible for overseeing that contractors comply with these obligations.

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[42]

Minimizing environmental impacts through the assessment of those impacts on environmental resources is integral to BOEM's planning and leasing phase of offshore wind energy development. The Final EIS (BOEM, 2023) determined that the majority of the potential adverse impacts to the environment and natural resources would be negligible to moderate. The Final EIS concluded that the project would potentially result in major impacts only to commercial fisheries and for-hire recreational fishing; onshore and offshore cultural resources; marine mammals (NARW); navigation and vessel traffic; scientific research and surveys, and wetlands. For all adverse impacts, mitigation measures were identified and will be incorporated in the terms and conditions of COP approval. This includes measures identified during consultations.

As described in Section 3.3 above, BOEM analyzed in the Final EIS the potential environmental effects of the proposed activities described in the COP. Appendix H of the Final EIS specifically references measures to be taken or mitigation measures recommended to protect the environment. BOEM has also engaged in consultations under the ESA, the MSA, and the NHPA. As a result of the ESA consultation, FWS issued its FWS BiOp for the Project on September 1, 2023, and NMFS issued its NMFS BiOp on September 18, 2023. BiOp conclusions are discussed above in Section 3.3. To minimize impacts, both the FWS and NMFS BiOps include several recommended Conservation Measures, as well as Reasonable and Prudent Measures and implementing Terms and Conditions that must be made conditions of approval.

BOEM also consulted with NMFS in accordance with Section 305(b)(2) of the MSA and analyzed potential adverse impacts of the Project on EFH. NMFS issued a letter on July 21, 2023, in which

[41] *See* COP appendix A. https://boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1
[42] *See* 43 U.S.C. § 1337(p)(4)(B); 30 C.F.R. §§ 585.102(a)(2), 585.621(d).

they provided 23 conservation recommendations to avoid and minimize impacts to EFH for activities within the OCS. BOEM provided a detailed response to NMFS via letter dated September 29, 2023, regarding how each of the conservation recommendations would be applied for the Project. BOEM fully or partially adopted 19 of the 23 conservation recommendations. As described in the attachment to that letter, BOEM did not adopt measures that relate solely to activity that does not require any authorization under OCSLA, as they are beyond BOEM's regulatory authority. Likewise, BOEM did not fully adopt some measures based on technical and economic feasibility concerns.

BOEM initiated Section 106 consultation on June 28, 2021, and implemented the NEPA substitution process to fulfill Section 106 obligations pursuant to 36 C.F.R. § 800.8(c). As part of this consultation, BOEM invited Federally Recognized Tribes and Consulting Parties to the Section 106 Consultation. BOEM engaged in Section 106 consultation with the 46 consulting parties with a demonstrated interest in the affected historic properties, made up of 12 federal agencies (including the ACHP), federally recognized Tribes, 4 non-federally recognized Tribes, 2 state agencies (the North Carolina Historic Preservation Office and Virginia Department of Historic Resources), 5 local governments, 13 nongovernmental organizations and/or groups or private property owners, and Dominion Energy.[43] 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 adverse effects. BOEM also identified one NHL that may be visually adversely affected by activities resulting from COP approval and followed the requirements for compliance with NHPA Section 110(f). BOEM conducted two government-to-government meetings with Tribes on September 27, 2021, and January 30, 2023. BOEM staff conducted issue-specific meetings with Tribes on April 10, 2023 (to discuss concerns regarding fisheries) and on September 11, 2023 (to discuss concerns regarding visual impacts to Back Bay National Wildlife Refuge). The COP proposed impact avoidance, minimization, and mitigation measures, which BOEM included as elements of the Project in its environmental analysis and consultations. Dominion Energy's proposed measures can be found in Section 4 sub-sections of the COP and include measures to avoid, minimize, and mitigate impacts to resources such as air quality, marine mammals, birds,[44] If BOEM approves the COP, BOEM will incorporate Dominion Energy's proposed measures as COP conditions of approval and require Dominion Energy to comply with all measures and commitments resulting from consultations.

BOEM's Preferred Alternative also includes mitigation and monitoring measures to avoid or reduce impacts from construction, operation, and maintenance activities on existing ocean uses and on environmental and socioeconomic resources across the various resource areas analyzed in

[43] *See* Final EIS Appendix A, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[44] *See* COP Section 4.1-4.4 CVOW-C. https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-0

the Final EIS. Appendix H of the Final EIS contains a comprehensive list of mitigation and monitoring measures, which are analyzed in the respective Chapter 3 resource sections.

4.4 Prevention of waste and conservation of natural resources[45]

Natural resources are defined in 30 C.F.R. § 585.113 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 the 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 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 4 of the COP and the Final EIS, Chapter 3, Affected Environment and Environmental Consequences, both of which consider how BOEM addresses the Project's impacts on the marine environment. As discussed in those documents, BOEM has determined that the project conserves natural marine animal and plant life consistent with 43 U.S.C. § 1337(p)(4)(B), 30 C.F.R. §§ 585.102(a)(2), and 585.621(d). See Section 4.3, above.

Lease OCS-A 0483 was the result of a comprehensive planning process, as discussed in Section 1.1 and Appendix A of the Final EIS. Throughout multiple stages of the planning process, BOEM evaluated natural resources in the region and removed from consideration areas that would be incompatible with renewable energy activities. The analysis conducted in Section 3.17 of the Final EIS concluded that the Project would result in minor to moderate impacts on non-energy marine minerals (primarily sand and gravel) because the Project would avoid mineral leases, sand and gravel leases, and borrow areas. There are no existing oil and gas leases in the Atlantic at this time and the Atlantic is no longer under consideration for leasing in BOEM's ongoing process to develop the next national OCS oil and gas leasing program (per the Proposed Final Program, which was published on October 2, 2023).[46] There is no evidence that the Project will waste oil, gas, or other mineral resources.

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 proposed Project Area.

[45] *See* 43 U.S.C. §§ 1337(p)(4)(C) -(D); 30 C.F.R. §§ 585.102(a)(3)-(4), 585.105(a).
[46] https://www.federalregister.gov/documents/2023/10/02/2023-21678/notice-of-availability-of-the-2024-2029-national-outer-continental-shelf-oil-and-gas-leasing

4.5 Coordination with relevant federal agencies[47]

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 Task Force meetings, and public meetings from the early pre-lease planning stages to the Area Identification process can be found in Section 1.5 of the Mid-Atlantic EA[48] and on BOEM's website.[49] Throughout the environmental and technical review of the COP, BOEM met with various federal agencies, including BSEE, DoD, EPA, USACE, USFWS, NOAA-NMFS, National Park Service (NPS), and the USCG. Through the Notice of Intent to prepare the EIS, BOEM invited federal agencies with jurisdiction and/or special expertise to become Cooperating or Participating Agencies. BSEE, DoD, USEPA, USACE, Department of the Navy (DON), NMFS, and the USCG supported preparation of the Draft EIS as Cooperating Agencies, and the NPS, USFWS, ACHP, and VA Department of Energy supported preparation of the Draft EIS as Participating Agencies. BOEM provided Cooperating and Participating Agencies with the preliminary Draft EIS for review and comment. Before publishing the Draft EIS, BOEM considered and addressed agency comments received, and provided a revised preliminary Draft EIS with a request that Cooperating and Participating agencies confirm that their comments were adequately addressed. After publication of the Draft EIS, USFWS requested to change its status to a Cooperating Agency from a Participating Agency.

The Cooperating Agencies also supported preparation of the Final EIS. BOEM provided Cooperating Agencies with the preliminary Final EIS on June 9, 2023, for review and comment. Before publishing the Final EIS, BOEM considered and addressed comments received, and provided a revised preliminary Final EIS with a request that Cooperating agencies confirm that their comments were adequately addressed.

During the EIS process, BOEM met with all the Cooperating and Participating agencies three times (August 19, 2021, October 18, 2021, and December 17, 2021), met with agencies individually multiple times, and hosted two sets of three public meetings (scoping and Draft EIS).[50] NOAA has indicated its intention to adopt the Final EIS and sign a joint ROD with BOEM, and USACE has indicated its intention to adopt the Final EIS and sign a separate ROD concurrent with the issuance of its permit.

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[47] *See* 43 U.S.C. § 1337(p)(4)(E); 30 C.F.R. § 585.102(a)(5).
[48] *See* Bureau of Ocean Energy Mgmt., OCS EIS/EA BOEM 2012-003, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia. (2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf
[49] https://www.boem.gov/renewable-energy/state-activities/virginia-task-force-meetings-0
[50] *See* Final EIS, App. A (detailing consultation and coordination process with other federal and state agencies). https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

BOEM invited the Chickahominy Indian Tribe, Chickahominy Indian Tribe – Eastern Division, Monacan Indian Nation, Nansemond Indian Nation, the Rappahannock Tribe, and the Shinnecock Indian Nation; the Delaware Tribe of Indians, the Delaware Nation, and the Upper Mattaponi Indian Tribe to participate in tribal consultation meetings with BOEM after public scoping and after publication of the Draft EIS. A tribal coordination meeting was held with the Rappahannock Indian Tribe, Pamunkey Indian Tribe, Nansemond Indian Nation, Chickahominy Indian Tribe, Upper Mattaponi Indian Tribe, Monacan Indian Nation, Delaware Nation, Delaware Tribe of Indians, Mashpee Wampanoag Tribe, Eastern Band Cherokee Indians, Passamaquoddy Tribe, Mashantucket (Western) Pequot Tribal Nation, and Cultural Heritage Partners (who represent several tribes) on September 27, 2021.

BOEM presented on the Project at the USEPA's Region 3 Regional Tribal Operations Committee meeting on January 10, 2023. Representatives from Nansemond Indian Nation, Chickahominy Indian Tribe, Chickahominy Indian Tribe – Eastern Division, Monacan Indian Nation, Rappahannock Tribe, Pamunkey Indian Tribe, and Upper Mattaponi Indian Tribe were in attendance. BOEM hosted another meeting on January 30, 2023, with representatives from Delaware Tribe of Indians, Nansemond Indian Nation, Chickahominy Indian Tribe, Chickahominy Indian Tribe – Eastern Division, Monacan Indian Nation, Rappahannock Tribe, and Upper Mattaponi Indian Tribe. In response to feedback in the January 30 meeting, BOEM hosted a meeting for tribal representatives to discuss potential Project impacts on fisheries on April 10, 2023.

4.6 Protection of national security interests of the United States[51]

At each stage of the regulatory process involving Lease OCS-A 0483, BOEM has consulted with DoD for the purposes of assessing national security considerations in its decision-making processes. On February 3, 2012, BOEM published a Call for Information and Nominations in the *Federal Register* (under Docket ID: BOEM-2011-0093) to help BOEM determine whether competitive interest existed in the identified Call Area off the coast of Virginia. The Call also requested information from the public on issues relevant to BOEM's review of nominations for potential leasing in the area. The Call Area was identified through consultation with the Task Force, which includes federal, tribal, and state government partners, including DoD, USCG, and the State of Virginia. Furthermore, BOEM consulted with DoD on the Mid-Atlantic EA which examined the potential environmental effects of issuing commercial wind energy leases and approving site assessment activities. Section 4.1.3.7.1 of the Mid-Atlantic EA discusses military activities within WEAs.

Following BOEM's consultation with DoD on the Proposed Action to issue a lease 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

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

decommissioning of meteorological towers and buoys on DoD testing, training, and operations in the WEA. When addressed through coordination with the DoD, impacts would be negligible and avoidable.[52]

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 (DoD Clearinghouse) coordinate within the DoD a review of the COP. As a result of this review, DoD identified potential impacts on Department of the Navy (DON), United States Army (Army), and North American Aerospace Defense Command (NORAD) operations. BOEM and the DoD Clearinghouse coordinated to address these concerns and to avoid or mitigate them.[53] The DoD Clearinghouse requested the specific mitigation measures listed below to be accomplished by the Lessee via entering into an agreement with DoD:

- Notify NORAD 30-60 days ahead of completion of commissioning of the last WTG for Radar Adverse Impact Management (RAM) scheduling;
- Contribute funds ($80,000) toward the execution of the RAM for each affected radar;
- Curtail activities for National Security or Defense purposes as described in the leasing agreement;
- Coordinate prior to mobilization and work with DON to develop communication protocols for construction and relevant operations and maintenance activities, providing relevant notifications and regular updates to U.S. Fleet Forces Command (USFFC) and the Naval Air Warfare Center Aviation Division (NAWCAD);
- Facilitate a DON risk assessment and mitigate risk to National Security if identified;
- Provide DoD/DON, via a mitigation agreement, opportunity to assess risk related to foreign investment and material vendors for the project, and to address risk to National Security requiring mitigation, if identified;
- Continue coordination with the DON regarding real estate leasing with Naval Air Station Oceana regarding access to route an onshore export cable; and
- Coordinate with the Army to safely deconflict the developer's use of unmanned aircraft system operations with Army Aviation operations.

To protect the national security interests of the United States, BOEM has included these measures as conditions of COP approval in Appendix A of the ROD.

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[52] *See* Bureau of Ocean Energy Mgmt., OCS EIS/EA BOEM 2012-003, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia. (2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf

[53] See Final EIS (Other Uses (Marine Minerals, Military Use and Aviation), https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

4.7 Protection of the rights of other authorized users of the OCS[54]

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

Specifically, there are no nearby oil and gas leases or grants or deposits of sand, gravel, and shell resources subject to 43 U.S.C. § 1337(k)(2) (OCSLA) that would be affected by the activities proposed in the COP. While there are two adjacent wind energy lease areas, one wind energy research lease, OCS-A 0497, is operated and managed by Dominion Energy. The other adjacent area is the Central Atlantic Wind Energy Area C-1, which is still under analysis for its potential to lease.[56]

4.8 A fair return to the United States[57]

BOEM has determined that the high bid resulting from the lease auction and the terms of the lease provide a fair return to the United States. On September 4, 2013, BOEM auctioned Lease OCS-A 0483 comprising the entire Virginia WEA. The Lease Area consisted of approximately 112,799 acres. Dominion Energy won the Lease Area with the highest Live-Bid Price submission of $1,600,000. At the time of the lease sale, BOEM determined that the minimum bid for these Lease Areas constituted a fair return to the United States, in addition to allowing for non-monetary factors to be considered. As published in the *Federal Register* notice for this lease sale,[58] the minimum bid for the Lease Area was $2 per acre, or $225,598. Dominion Energy's winning monetary bid exceeded these minimum bids at $14.18 per acre and thereby exceeded fair return for the United States on that basis alone.

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[54] *See* 43 U.S.C. § 1337(p)(4)(G); 30 C.F.R. § 585.102(a)(7).
[55] 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.
[56] https://www.boem.gov/central-atlantic
[57] *See* 43 U.S.C. § 1337(p)(4)(H); 30 C.F.R. § 585.102(a)(8).
[58] https://www.federalregister.gov/documents/2013/07/23/2013-17663/atlantic-wind-lease-sale-1-atlw1-commercial-leasing-for-wind-power-on-the-outer-continental-shelf

Lease payments are enumerated in Lease OCS-A 0483, Addendum "B," which requires payment of annual rent calculated per acre or fraction thereof. Rental payments compensate the public for lease development rights and serve as an incentive to timely develop the lease during the period before operations. According to Addendum "B," this annual rent is $338,397.00. 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-0483 and BOEM's regulations.[59] The operating fee compensates the public for offshore wind development on OCS submerged lands and the associated electricity generated and sold. If the COP is approved, and annually thereafter, Dominion Energy 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) and Addendum D of Commercial Lease OCS-A 0483.

4.9 Prevention of interference with reasonable uses of the OCS, the exclusive economic zone, the high seas, and the territorial seas and does not unreasonably interfere with other uses of the OCS, including national security and defense[60]

Under OCSLA and its implementing regulations, the Secretary ensures 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;[61] and that activities authorized by the Secretary will "not unreasonably interfere with other uses of the OCS."[62]

Throughout the planning and leasing process for Lease OCS-A 0483, 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 Virginia WEA, BOEM worked closely with the Task Force, federal agencies, federally recognized Tribes, the public, and other stakeholders between November 2009 and July 2019. Before lease issuance, BOEM removed areas from the WEA being considered to strike a rational balance between identifying an area suitable for wind energy development and preventing interference with other reasonable uses of the OCS.

During the NEPA process for the COP, BOEM assessed alternatives and mitigation measures that could further avoid, minimize, or mitigate impacts to other OCS uses, including sea-lanes 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 offshore wind energy activities, if approved, would be carried out in a manner that provides for the prevention of interference with those uses.

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[59] 30 C.F.R. § 585.506.
[60] *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).
[61] *See* 43 U.S.C. § 1337(p)(4)(I); 30 C.F.R. § 585.102(a)(9).
[62] *See* 30 C.F.R. § 585.621(c).

- Navigation[63]

  The Lease Area is located near the entrance of Chesapeake Bay. Chesapeake Bay offers several ports of call in Virginia such as Norfolk Harbor, Newport News, and the Port of Virginia. The Port of Virginia, the most relevant to this project, is a busy cargo port comprised of six marine terminals. The traffic density in the Chesapeake comprises military, tug and tow, cruise ships, tankers, and cargo vessels among many others. On October 22, 2021, the USCG announced the final port access route study for the Approaches to the Chesapeake Bay, Virginia. The purpose of this study was to examine the east-west traffic that merges into the Atlantic Coast Port Access Route Study (PARS) Safety Fairways. The Port Access Route Study: Approaches to the Chesapeake Bay Final Report (USCG 2021) establishes two east-west connector fairways from the offshore safety fairway into Chesapeake Bay to facilitate a safe transit of commercial vessels around planned and future offshore energy installations. The new connector fairways are located along the northern and southern borders of the Lease Area. The report also re-orients the "Chesapeake Bay to Delaware Bay: Eastern Approach Cutoff Fairway" to alleviate congestion with the northern connector fairway. This adjustment removes the overlap of the fairway with the Lease Area as presented in the Atlantic Coast PARS. The Chesapeake Bay PARS also resulted in the expansion of the precautionary area east of the Traffic Separation Scheme (TSS) to accommodate vessel density changes in the Lease Area due to the additional connector fairways. On September 9, 2022, the USCG published the Consolidated Port Approaches and International Departure Transit Port Access Route Studies (CPAPARS) in the *Federal Register*. This report summarized the findings of four regional PARS including the Chesapeake Bay PARS.

  The Offshore Export Cable Route Corridor passes close to the southern extent of the USACE-maintained deep water shipping channel (Chesapeake Southern approaches). The Corridor intersects the following areas:[64]

  - Danger Zone 334.380(a): Atlantic Ocean south of entrance to Chesapeake Bay off Dam Neck Virginia; naval firing range;
  - Danger Zone 334.390(a): Atlantic Ocean south of entrance to Chesapeake Bay; firing range; and
  - SMR Danger Zone.[65]

[63] *See* Final EIS, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[64] *See* COP Section 4.4, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1
[65] See COP Section 4.4, Figure 4.4-5, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1

The navigation risk assessment for the Proposed Action shows that it is technically feasible to navigate through the Lease Area. The Project will maintain two lines of orientation throughout the Lease Area with a spacing of 0.75 nm by 0.93 nm. The Preferred CVOW-C Layout is to have the WTGs arranged in such a way that the total wake effects for the individual turbines are minimized, together with an aim to maintain a uniform layout for navigation safety. This width will enable vessels to maneuver in accordance with the International Regulations for Preventing Collisions at Sea (COLREGS) while transiting through the Lease Area, and for search and rescue operations to be conducted within the Project Area. Three WTGs and associated inter-array cables would also be excluded from the northwest corner of the Lease Area to avoid conflicts with a proposed vessel traffic fairway.

Vessels navigating within the Project Area would need to navigate with greater caution; however, there are no restrictions on navigation in the Project Area. WTGs and OSSs that are lighted and marked will serve as additional aids to navigation. To this end, Dominion Energy is developing a lighting, marking, and signal plan that is informed by relevant guidelines in coordination with USCG and subject to BOEM and BSEE approval.

As described in the Final EIS, Dominion Energy would communicate project updates through public notices and other appropriate communication tools to minimize impact to mariners. If the COP is approved, Dominion Energy must (1) obtain USCG approval for PATON to be installed and (2) coordinate with the USCG District 5 so that, to the extent possible, the FDR is consistent with the recommendations provided in the marking and lighting guidelines published by the USCG District 5.[66]

- Aviation and Air Traffic[67]

  There are a number of public-use, private-use, and military airports and heliports located within the Aviation Study Area,[68] which includes the Offshore Project Area and an approximately 30 nm (46 km) buffer, as well as proximate aviation facilities that have the potential to be directly affected by the construction, operations and maintenance, and decommissioning of the Project. The closest airport is NAS Oceana/Apollo Soucek Field.[69] Based on the Obstruction Evaluation Analysis, there are no anticipated adverse impacts on published instrument departure or approach procedures; therefore, these are not discussed further. An evaluation of imaginary surfaces was also completed, with no impacts. Since it was determined that no military and public-use airport imaginary

[66] https://www.navcen.uscg.gov/sites/default/files/pdf/lnms/LNM05312023.pdf
[67] *See* Final COP, Section 4.4.10, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1
[68] *See* COP Section 4.4, (Figure 4.4-6), https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1
[69] *See* COP Section 4.4, (Figure 4.4-6 and Figure 4.4-6), https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1

surfaces overlie the Offshore Project Area, these are not discussed further.[70] Coordination with the FAA and Virginia Department of Aviation (DOAv) was conducted during the Virginia SCC approval process. Coordination will continue with the FAA and DOAv to ensure that, once onshore engineering details are complete, each proposed onshore structure will be entered into the FAA's Obstruction Evaluation Notice Criteria Tool for analysis.

WTGs would be constructed under the listed FAA flight level ceiling designated within the Project Area; therefore, they would not affect commercial or military flight operations. However, low-level flights would be affected throughout the duration of the wind facilities' operation.

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. BOEM recommends consistency with FAA conditions for WTGs beyond FAA jurisdiction, as stated in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*. After the COP is approved, BOEM would require, to the extent possible, Dominion Energy's FDR to be consistent with the recommendations in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*.[71]

- Commercial Fisheries and For-Hire Recreational Fishing[72]

  Federally permitted fishing occurs in the Lease Area. NMFS has issued permits for approximately 4,300 vessels[73] that are currently engaged in various commercial and for-hire recreational fisheries in the Northeast Region (Maine to Virginia). Of these federally permitted vessels, an average of 161 vessels per year over 14 years (approximately 4 percent of the total number of vessels in the region) have reported fishing in the Lease Area.[74] Of these 161 vessels, NMFS data from 2008 to 2021 show that most permits

[70] *See* COP Section 4.4, (Figure 4.4-6 and Figure 4.4-6), https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-1
[71] *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures. https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf
[72] *See* Final EIS. https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[73] Kirkpatrick, A.J., S. Benjamin, G.S. DePiper, T. Murphy, S. Steinback, and C. Demarest. 2017. SocioEconomic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic. Volume II—Appendices. U.S. Dept. of the Interior, Bureau of Ocean Energy Mgmt., Atlantic OCS Region, Washington, D.C. OCS Study BOEM 2017-012. 191 pp.
[74] *See* Final EIS, Section 3.9. https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

source less than 0.2 percent of their income from the Lease Area.[75] Although a few outlier vessels derived a higher proportion of their annual revenue from the Lease Area in comparison to other vessels fishing in the Lease Area, the revenue for the majority of these outliers was below 5 percent of their income. The Final EIS found that the impacts to commercial fisheries and for-hire recreational fishing from the Preferred Alternative would range from negligible to major adverse impacts.The Final EIS states that cumulative impacts from the Preferred Alternative would be negligible to major adverse on commercial fisheries and moderate adverse on for-hire recreational fishing, and minor beneficial on for-hire recreational fishing. The offshore wind-related factors that contributed to these impact determinations were primarily the presence of structures and the resulting navigational hazards and space-use conflicts.

It is important to clarify that approval of the 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 Project Area.[76] For example, temporary safety zones may be established in coordination with the USCG around active construction. During this time, all fishing and transit would need to avoid the safety 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 the Project Area due to operational concerns. It is anticipated that vessel operators that choose to avoid the Project 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 the spacing and be able to fish successfully in the Project Area,[77] BOEM has identified ways to reduce the level of interference that the Project would have with commercial fisheries.[78] For instance, the WTGs would be placed in a grid-like array (with WTGs in rows in a southeast-northwest orientation) within the Lease Area, with spacing between WTGs of 0.75 nm by 0.93 nm.

[75] *Id.*
[76] *See* Final EIS, Section 3.9.5, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[77] *See* Final EIS, Appendix M, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final
[78] *See* Final EIS, Appendix H, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

Dominion Energy has committed to fisheries mitigation, which consists of a gear loss compensation claims process that can be found in Appendix V-3 of the COP.[79] This claims process originated under the CVOW Pilot project, has been implemented successfully, and will evolve for continued use during the Project. As also described in Appendix V-3 of the COP, Dominion Energy has committed to up to $40,000,000 for specific claims made by commercial or for-hire recreational fishermen and fishery-related shoreside businesses in relation to income loss due to construction closures or presence of Project structures, as well as up to $3,000,000 for specific claims made by Atlantic surfclam commercial fishing businesses or related shoreside businesses, in relation to income loss due to construction closures or presence of Project structures. In ROD Appendix A, BOEM is including condition 6.1 requiring that Dominion Energy establish and implement a direct compensation program to provide monetary compensation to commercial and for-hire fishermen impacted by the Project and condition 6.2 requiring that Dominion Energy maintain a fisheries gear loss claims procedure throughout the life of the project.

Including the measures described above would mitigate impacts that 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[80]

  As described in Section 3.17.1 of the Final EIS, the Lease Area overlaps with current fisheries management, protected species, and ecosystem monitoring surveys conducted by or in coordination with NOAA's Northeast Fisheries Science Center. NOAA Fisheries and BOEM have developed the NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy – Northeast US Region (Hare et al. 2022) to address these adverse impacts. As described in Section 3.17.5, the Project could have major adverse impacts on NMFS scientific surveys.

  There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Nine of these surveys overlap with the Project. BOEM is including term and condition 6.3 in ROD Appendix A to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy – Northeast US Region, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate impacts on the 9 NMFS surveys. The Lessee must conduct activities in

[79] *See* Final COP Appendix V-3, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

[80] *See* Final EIS, Section 3.17, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM.

- National Security and Defense

  As explained in Section 4.6, BOEM has consulted extensively with the DoD. BOEM will include any mitigation measures identified through these consultations in its COP approval.

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 seaplane, a potential site of a deepwater port, or navigation[81]

For a discussion of how BOEM selected the Lease Area, see Section 1.1. Approval of the COP is not expected to adversely affect the development of adjoining Lease Areas.

For a discussion of how BOEM considered potential conflicts with fisheries, sea lanes, navigation, and aviation, see Section 4.9.

4.11 Public notice and comment on any proposal submitted for a lease or easement[82]

For a detailed discussion on public notice and comment opportunities associated with the issuance of the lease, please see Section 1.1 and Appendix A of the Final EIS, and Section 5.1 of the Mid-Atlantic EA.[83]

Before preparing the Draft EIS, BOEM held three virtual public scoping meetings (July 12, 14, and 20, 2021) to solicit feedback and to identify issues and potential alternatives for consideration. The topics most referenced in the scoping comments included mitigation and monitoring; commercial fisheries and for-hire recreational fishing; finfish, invertebrates, and essential fish habitat; marine mammals; birds; air quality and climate change; employment and job creation; wetlands and Waters of the U.S.; purpose and need; alternatives; and cumulative impacts.[84] The Scoping Summary Report was made available to the public on BOEM's website, and all public scoping submissions received can be viewed online at http://www.regulations.gov under Docket Number BOEM-2021-0040.

[81] *See* 43 U.S.C. § 1337(p)(4)(J); 30 C.F.R. § 585.102(a)(10).
[82] *See* 43 U.S.C. § 1337(p)(4)(K); 30 C.F.R. § 585.102(a)(11).
[83] Bureau of Ocean Energy Mgmt., OCS EIS/EA BOEM 2012-003, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia. (2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf
[84] https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/20211116_Final_Scoping_Report_CVOW.pdf

On December 16, 2022, BOEM published a NOA for the Draft EIS in the Federal Register consistent with the regulations implementing NEPA to assess the potential impacts of the Proposed Action and alternatives.[85] The Draft EIS was made available to the public on BOEM's website and hardcopies were made available at two libraries (Meyera E. Oberndorf Central Library, Virginia Beach, Virginia and Slovery Library, Norfolk, Virginia). The NOA commenced the public review and comment period of the Draft EIS. BOEM held three virtual public hearings (January 25, 31, and February 2, 2023) to solicit feedback and identify issues for consideration in preparing the Final EIS. Throughout the public review and comment period, federal agencies; tribal, state, and local governments; and the general public had the opportunity to provide comments on the Draft EIS. The topics most referenced during the Draft EIS comment period included air quality, climate change, commercial fisheries and for-hire recreational fishing, demographics, and employment. All Draft EIS comment submissions received can be viewed online at http://www.regulations.gov under Docket Number BOEM-2022-0021.

On September 29, 2023, BOEM published a NOA for the Final EIS in the Federal Register.[86] The Final EIS was also made available in electronic form at https://www.boem.gov/renewable-energy/state-activities/cvow-c. BOEM's 30-day waiting period for the Final EIS closed on October 30, 2023. BOEM's responses to comments on the Draft EIS are included in Appendix N of the Final EIS.

4.12 Oversight, inspection, research, monitoring, and enforcement relating to a lease, easement, or right-of-way[87]

Secretary's Order 3299, which established BOEM and BSEE, assigned safety and environmental oversight for the OCS renewable energy program to BOEM until such time as the Assistant Secretary – Land and Minerals Management (ASLM) determined that an increase in activity justified the transfer of those functions to BSEE. In December 2020, the Principal Deputy Assistant Secretary – Land and Minerals Management, acting with the authority of the ASLM, directed the transfer of safety and environmental oversight for the OCS renewable energy program from BOEM to BSEE due to increased wind energy activity.[88] On September 14, 2022, DOI delegated relevant authorities to BSEE and BOEM in Departmental Manual Part 219, Chapter 1, and Part 218, Chapter 1, respectively.

[85] https://www.federalregister.gov/documents/2022/12/16/2022-27183/notice-of-availability-of-the-draft-environmental-impact-statement-for-the-coastal-virginia-offshore
[86] 88 Fed. Reg. 67359
[87] *See* 43 U.S.C. § 1337(p)(4)(L); 30 C.F.R. § 585.102(a)(12).
[88] *See* "Memorandum from Principal Deputy Assistant Secretary - Land and Minerals Management on the Department of the Interior's Offshore Renewable Energy Program Roles and Responsibilities," December 22, 2020.

On January 31, 2023, DOI published a final rule in the *Federal Register*[89] that moved portions of the existing OCS renewable energy regulations, consistent with the Secretary's order and the Departmental Manual. Following approval of the COP, BSEE maintains the authority to perform oversight, inspection, research, monitoring, and enforcement relating to Lease OCS-A 0483, as authorized under the lease, OCSLA, and its implementing regulations. BOEM still retains its authority for enforcing compliance, including safety and environmental compliance, with all applicable laws, BOEM's regulations, leases, grants, and approved plans, through notices of noncompliance, cessation orders, civil penalties, and other appropriate means.

Under this dual authority, BSEE and BOEM will ensure that offshore renewable energy development in Lease OCS-A 0483 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 in Appendix A of the ROD and will be included as COP conditions of approval.

5.0 STATUS OF THE LEASE

Dominion Energy is currently in compliance with the terms of Lease OCS-A 0483 and has maintained the lease in full force and effect by virtue of annual rent payments, all of which have been timely paid.

6.0 FINANCIAL ASSURANCE

As required by 30 C.F.R. § 585.625(b)(19), Section 1.9 of the COP contains Dominion Energy'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. Dominion Energy has provided and currently maintains Surety Bond No. 105982528 in the amount of $100,000 to meet the initial lease-specific financial assurance requirement on Lease OCS-A 0483. BOEM granted Dominion Energy's request to use its financial strength and reliability to meet the $608,397 Site Assessment Plan supplemental financial assurance requirement on Lease OCS-A 0483 in accordance with 30 C.F.R. § 585.527. 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 Lease Area. Dominion Energy must provide supplemental financial assurance to cover the additional annual rental amount for the project easement where transmission lines to shore will be located. In addition, BOEM may

[89] *See* 88 Fed. Reg. 6376. https://www.federalregister.gov/documents/2023/01/31/2023-00871/reorganization-of-title-30-renewable-energy-and-alternate-uses-of-existing-facilities-on-the-outer

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.[90]

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 many 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, BOEM established and began meeting with the Task Force, and other stakeholders and ocean users, to identify areas of interest for wind energy off the coast of Virginia as well as areas that were less suitable. BOEM then prepared an EA and issued 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 and/or buoys, would not significantly impact the environment.

Dominion Energy submitted its proposed COP in December 2020 and the most recent revision in July 2023. BOEM then conducted a project-specific NEPA analysis, and other environmental consultations required by the ESA, MSA, and NHPA. Throughout its environmental and technical review of the COP, BOEM also coordinated with several federal agencies, including BSEE, DoD, FAA USEPA, USACE, USFWS, NOAA, EPA, and USCG. All 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.

As reflected in the Record of Decision for the project, the Preferred Alternative, i.e., Alternative B, plus Alternative D-1 (applicable to the interconnection cable route), plus the mitigation measures discussed in Section 4.9 of this memorandum, balance the need to prevent interference with OCS uses with BOEM's duty to further the U.S. 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. The Final EIS demonstrates that approving the Project as modified by the Preferred Alternative will have negligible to moderate impacts on most resources. The Preferred Alternative is expected to have major impacts and cumulative major impacts on commercial fisheries and for-hire recreational fishing; cultural resources; marine mammals, specifically North Atlantic Right Whales; navigation and vessel traffic; scientific surveys; and wetlands. However, the Preferred Alternative could also have beneficial impacts on air quality; benthic resources; birds; some for-hire recreational fishing operations; demographics, employment, and economics; environmental

[90] *See* 30 C.F.R. § 585.517.

justice; finfish, invertebrates, and essential fish habitat; land use and coastal infrastructure; some marine mammals, specifically odontocetes and pinnipeds; recreation and tourism; and sea turtles.

The numerous consultations performed under various federal statutes, and the analysis in the Final EIS, indicate that approval of the Preferred Alternative would not result in undue harm to environmental resources or in unreasonable interference with other OCS uses.[91]

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*, 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."[92]

In conclusion, OREP has evaluated all the information that Dominion Energy provided in its COP and has assessed it in relation to the enumerated factors in OCSLA subsection 8(p)(4) and BOEM's implementing regulations at 30 C.F.R. Part 585. It is OREP's view that approval of the COP – as modified by the Preferred Alternative and the proposed terms and conditions included with the ROD – would be in accordance with the regulations at 30 C.F.R. Part 585 and would ensure that all Project activities on the OCS are carried out in a manner that provides for the factors in subsection 8(p)(4) of OCSLA.

[91] *See* Final EIS, https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-commercial-project-final

[92] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

Appendix B.1. ETRB Review Memorandum

United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: Chief, Projects and Coordination Branch

From: Marilyn Sauls
MARILYN SAULS
Digitally signed by MARILYN SAULS
Date: 2023.10.06 16:40:12 -04'00'
Chief, Engineering and Technical Review Branch

Subject: Review of the Coastal Virginia Offshore Wind Commercial Construction and Operations Plan (COP) for Commercial Lease OCS-A 0483

Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) submitted a COP to the Bureau of Ocean Energy Management (BOEM) on December 17, 2020, for the Coastal Virginia Offshore Wind (CVOW) Commercial project on lease OCS-A 0483. The COP for the CVOW Commercial project proposes the installation of the following major offshore components:

- Up to 202 Wind Turbine Generators (WTGs) supported by monopile foundations;
- Three offshore alternating current substations (OSS) on jacket foundations;
- The inter-array cables would be up to 66-kV alternating current power cables with a maximum total length of 300.7 miles; and
- The export cables would consist of nine 230-kV alternating current power cables within an export cable corridor of up to 49.01 miles in length.

The Engineering and Technical Review Branch (ETRB) subject matter experts (SME) reviewed the proposed facilities, project design, project activities, and fabrication and installation details in the COP and coordinated with the following agencies:

- Bureau of Safety and Environmental Enforcement (BSEE), for safety;
- Federal Aviation Administration (FAA) & National Oceanic and Atmospheric Administration (NOAA), for radar interference; and
- The United States Coast Guard (USCG), for vessel navigation.

The SME comments and the responses from Dominion Energy are logged in the COP review matrix on the Office of Renewable Energy Programs' shared drive AEAU:\ S:\State of Virginia\Virginia Electric and Power Company\Lease OCS-A 0483\COP.

On February 2, 2022, BOEM approved the nomination of DNV, to be the Certified Verification Agent for the CVOW Commercial project, to review and to certify that the facilities would be designed, fabricated, and installed in conformance with accepted engineering practices as described in the Facility Design Report and the Fabrication and Installation Report, pursuant to 30 C.F.R. § 285.705.

In review of the COP, ETRB SMEs used their knowledge and experience gained from past project reviews, research funded by BOEM, BSEE, and others, past projects built and operating in Europe, and individual expertise to assess the information provided in the COP. ETRB determined that the technical information and supporting data submitted by Dominion Energy meets the requirements of 30 C.F.R § 585.626 and is sufficient to allow the safe installation of the proposed project on the Outer Continental Shelf (OCS), does not unreasonably interfere with other uses of the OCS, and uses properly trained personnel, pursuant to 30 C.F.R. § 585.621(b), (c), and (f).

ETRB expects CVOW-C to use the most current technology available for commercial production that meets or exceeds current industry standards. In some cases, this could include technologies currently in prototyping and/or working toward type certification by a recognized industry standards organization but not yet commercially available. ETRB has determined that the technologies proposed within the Project Design Envelope (PDE) of the COP are the same as those currently being commercial utilized or prototyped around the world and constitute the most current and advanced technologies available. ETRB has determined that the information provided in the COP is sufficient to determine that the Project proposes to use the best available and safest technology pursuant to 30 C.F.R. § 585.621(e) which will meet or exceed the current international industry standards.

ETRB recommends approval of the COP, along with the inclusion of the following terms and conditions (T&C), provided as Appendix A to the Record of Decision (ROD), developed in consultation with BSEE, FAA, NOAA, and USCG. The T&C are derived from the review of the information requirements in BOEM's regulations and the relevant mitigation measures identified in Appendix H of the Final Environmental Impact Statement (FEIS). The table below provides a cross-reference.

#	Terms and Conditions	Regulation	Information Requirement
2.1	Geologic and Geophysical Data	§585.626(a)(6)	Overall site investigation
2.2	Munitions and Explosives of Concern/Unexploded Ordnance Investigation	§585.627(a)(1)	Hazard information – manmade hazards
2.3	MEC/UXO Identification Survey Report	§585.627(a)(1)	Hazard information – manmade hazards
2.4	MEC/UXO ALARP Certification	§585.627(a)(1)	Hazard information – manmade hazards
2.5	MEC/UXO Discovery Notification	§585.627(a)(1)	Hazard information – manmade hazards

2.6	Munitions Response Plan for Confirmed MEC/UXO	§585.627(a)(1)	Hazard information – manmade hazards
2.7	Munitions Response After Action Report	§585.627(a)(1)	Hazard information – manmade hazards
2.8	U.S. Committee on Marine Transportation System Guidance	§585.627(a)(1)	Hazard information – manmade hazards
2.9	Safety Management System	§585.627(d)	Safety Management System
2.10	Emergency Response Plan	§585.626(b)(12)(ii)	Operating procedures – accidents or emergencies
2.11	Oil Spill Response Plan	§585.627(c)	Oil Spill Response Plan
2.12	Cable Routings	§585.626(b)(7)	Cables
2.13	Cable Burial	§585.626(b)(7)	Cables
2.14	Cable Protection Measures	§585.626(b)(7)	Cables
2.15	Crossing Agreements	§585.626(b)(7)	Cables
2.16	Post-Installation Cable Monitoring	§585.626(b)(7)	Cables
2.17	WTG and OSS Foundation Depths	§585.626(a)(4)	Geotechnical survey
2.18	Structural Integrity Monitoring	§585.626(b)(12) §285.824	Operating procedures, self-inspections
2.19	Foundation Scour Protection Monitoring	§585.626(a)(6)	Overall site investigation – scouring of the seabed
2.20	Post-Storm Monitoring Plan	§585.627(a)(1)	Hazard information – meteorology, oceanography
2.21	High Frequency Radar Interference Analysis and Mitigation	§585.626(b)(23); FEIS	Other information as required by BOEM
2.22	Critical Safety Systems	§585.626(b)(20);	CVA nomination and reports
2.23	Engineering Drawings	§585.626(b)(20);	CVA nomination and reports
2.24	Construction Status	§585.626(b)(21);	Construction Schedule
2.25	Maintenance Schedule	§585.626(b)(12);	Operating procedures
2.26	Pre-lay Grapnel Run Plan	§585.626(b)(7); §585.626(b)(15)	Cables; Environmental Impacts
2.27	Boulder Identification and Relocation Plan	§585.627(a)(1); §585.626(b)(15)	Hazard Information – Shallow Geological Hazards; Environmental Impacts
2.28	Boulder Relocation	§585.627(a)(1); §585.626(b)(15)	Hazard Information – Shallow Geological

			Hazards; Environmental Impacts
2.29	Boulder Relocation Report	§585.627(a)(1); §585.626(b)(15)	Hazard Information – Shallow Geological Hazards; Environmental Impacts
3	Navigational and Aviation Safety Conditions	§585.626(b)(23)	Other information as required by BOEM